Workforce Infrastructure in Support of People with Disabilities: Matching Human Resources to Service Needs

National Council on Disability
January 20, 2010

National Council on Disability
1331 F Street, NW, Suite 850
Washington, DC 20004

Workforce Infrastructure in Support of People with Disabilities: Matching Human Resources to Service Needs

This report is also available in alternative formats and on the National Council on Disability (NCD) Web site (www.ncd.gov).

Publication date: January 20, 2010

202-272-2004 Voice
202-272-2074 TTY
202-272-2022 Fax

Letter of Transmittal

January 20, 2010

The President
The White House
Washington, DC 20500

Dear Mr. President:

The National Council on Disability (NCD) is pleased to submit this report, entitled *Workforce Infrastructure in Support of People with Disabilities: Matching Human Resources to Service Needs*. NCD's purpose is to promote policies and practices that guarantee equal opportunity for all people with disabilities, regardless of the nature or severity of the disability, and to empower people with disabilities to achieve economic self-sufficiency, independent living, and integration into all aspects of society. Under its congressional mandate, NCD is charged with the responsibility to gather information on the development and implementation of federal laws, policies, programs, and practices that affect people with disabilities. This report is a result of that mandate.

Americans with disabilities depend on the disability workforce infrastructure, which consists of health, education, and social services programs. The need for these services is expected to increase significantly in the coming decades as a result of several factors. First, the elderly population of the United States is large and growing rapidly. Since disability rates increase with age, population aging will bring substantial increases in the number of people with disabilities and will have a significant impact on the nation's human service and support needs. Second, improvements in child survival rates mean that more children are born today with birth defects and developmental disabilities than ever before, and many of them will require access to a host of human services and supports throughout their lives. At the same time, large numbers of baby boomers are reaching retirement age, which means that many fewer human service workers will be available. These trends threaten both the availability and quality of future services for people with disabilities.

NCD's research for this report has been undertaken in an environment of significant social, political, and economic change, amid growing levels of unmet demand for services and supports across all sectors of the American workforce. The research has been aimed at better positioning the human resources sector for the future; for example, by providing data and information that organizations can use to understand the supply-demand gaps in the disability-related workforce and to make plans to fill those gaps. The research has also aimed at building industry capability to influence the nature and content of training, as well as capability to manage a sustainable, skilled disability

workforce in the future. Finally, in an effort to reflect a holistic view of a community's workforce expectations, the research has been aimed across all relevant segments of the disability workforce, not just at a select handful of human service occupations.

Numerous forecasts based on diverse trends all point to a shortage of qualified workers to meet the needs of the disability population. People with disabilities occupy a strategic place in America's ability to compete. Either their talents and ambitions will be developed into a resource for our society, or they will remain on the margins, battling for shrinking resources.

This report from NCD presents recommendations (with a rationale for each) that call for partnerships among federal departments and agencies, their State counterparts, and the private sector, including organizations involved with education/training, health care, and employment services. NCD calls for policymakers at all levels of government to proactively address these shortages and examine how labor market changes are driving both current and future supply.

We stand ready to work with you and the members of your Administration to improve the nation's workforce infrastructure policies, programs, and practices for all Americans.

Sincerely,

Linda Wetters
Chairperson

(The same letter of transmittal was sent to the President Pro Tempore of the U.S. Senate and the Speaker of the U.S. House of Representatives.)

National Council on Disability Members and Staff

Members

Linda Wetters, Chairperson
Patricia Pound, First Vice Chairperson
Marylyn Howe, Second Vice Chairperson

Victoria Ray Carlson
Robert R. Davila, Ph.D.
Graham Hill
Lisa Mattheiss
Heather McCallum
Katherine McCary
Lonnie Moore
Anne M. Rader
Tony Williams

Staff

Martin Gould, Ed.D, Director of Research and Technology
Mark S. Quigley, Director of Public Affairs
Julie Carroll, Senior Attorney Advisor
Joan M. Durocher, Senior Attorney Advisor
Sharon M. Lisa Grubb, Special Assistant, Coordinator of Administration
Geraldine Drake Hawkins, Ph.D., Senior Program Analyst
Anne C. Sommers, Legislative Affairs Specialist
Stacey S. Brown, Staff Assistant
Carla Nelson, Administrative Specialist

Acknowledgments

The National Council on Disability expresses its deepest appreciation to Martha Artiles of Manpower, Inc. Bojan Cubela, and David Vandergoot of CEMS for developing this vitally needed report. NCD also thanks Ray Glazier, Andrew Houtenville, and Peter Mead, who provided critical information, analysis, and research guidance throughout the course of this project.

Contents

Tables

Figures

Executive Summary

Americans with disabilities depend on the disability services infrastructure, which consists of health, education, and social services programs. The need for these services is expected to increase significantly in the coming decades as a result of several factors, most notably the aging of the baby boom generation and declining birthrates. These trends threaten the future availability and quality of services for people with disabilities. As the threat grows, so do the downsides to the American economy and society, which are increasingly engaged competitively on a global basis. People with disabilities occupy a strategic place in America's ability to compete. Either their talents and ambitions will be developed into a resource for our society, or they will remain on the margins, battling for shrinking resources. This report from the National Council on Disability (NCD) presents recommendations (with a rationale for each) that call for partnerships among federal departments and agencies, their State counterparts, and the private sector, including organizations involved with education/training, health care, and employment services. A concerted effort is needed by these sectors to ensure that the projected shortfall in the workforce of the disability services infrastructure entities can be quickly overcome. Unless everyone works together to meet this goal, the quality of life for people with disabilities will be threatened. The gains made over the past two decades in the levels at which people with disabilities participate socially and economically will be lost, and achieving levels of independence comparable to those of people who are not disabled will be pushed farther into the future. The national health care debate, so much a part of the political scene in 2009, as well as the stimulus funds made available by the Obama Administration and Congress, create a unique opportunity to focus attention on the current and future needs of people with disabilities. The potential for refocusing priorities to ensure that the resources are available in the critical areas of employment, education, and health care services for people with disabilities is great and must be realized.

Numerous forecasts based on diverse trends all point to a shortage of qualified workers to meet the needs of people who are disabled. NCD calls for policymakers at all levels

of government to proactively address these shortages and examine how labor market changes are driving both current and future supply needs. This six-section report covers the following topics:

1. Introduction and background
2. National trends, gaps and barriers, and their implications for people with disabilities and the disability services industry
3. Disability services infrastructure occupations: supply and demand
4. Private sector strategies for building and maintaining a sufficient supply of disability infrastructure occupations
5. Public sector strategies for building and maintaining a sufficient supply of disability infrastructure occupations
6. Recommendations

Section 1 outlines the strategies used to examine the current and future supply and demand associated with labor markets of the disability services infrastructure. This examination began by identifying organizations and government agencies serving people with disabilities to determine what services currently exist. An extensive literature search identified the best available sources regarding disability service worker shortages and gaps in service delivery. Information from the Bureau of Labor Statistics (BLS) of the U.S. Department of Labor was used to identify specific occupations and future projections. While existing resources help identify trends affecting the demand for future disability services and workers, the supply side has a dearth of resources, requiring more extrapolation and development. The model described in this section and detailed throughout the report provides an expanded research foundation that can be further developed through successive iterations into a tool for guiding policy formation.

Section 2 reviews issues and trends relative to skill shortages in the disability-related service industry as examined by Manpower Inc., including the aging baby boom generation and declining U.S. birthrates. The baby boomers are beginning to retire, thus

increasing demands on health care, mobility support, and other services. These demands will generate further restrictions on services available to people with disabilities. This section lays the foundation for the first iteration of a more robust approach to project demand for disability services, which is a key unmet need in policy formation.

Section 3 summarizes data currently available from the Employment Outlook Projections of the BLS related to the supply-demand gap in disability-related occupations. According to the BLS, many infrastructure occupations are projected to be in high demand, particularly those associated with health care. This section suggests ways to increase the supply of disability services infrastructure workers using promising recruiting and retention practices such as increasing salaries and benefits, training to upgrade worker skills, recruiting workers from underutilized populations, and leveraging transferable skills. By developing the discussion of the supply-demand gap and exploring best practices to reduce the gap, this section lays the foundation for a supply management discipline. Such a discipline is mandatory to formulate disability services policy, especially on the national level, where supply management has been conspicuous in its absence.

Section 4 explores recruiting and retention strategies used in the private sector. Public policy affecting the disability services infrastructure cannot be developed in isolation from the private sector. When employers explore current and future workforce demographics to develop workforce management strategies, they are engaging in the private sector version of disability services supply management. Using their data and tools, employers can better identify and target appropriate candidates for disability service positions. These private sector practices provide models and strategies that the public sector can apply as well. In fact, as employers implement workforce management, they may interface with parallel public sector programs. Employers can work with community-based rehabilitation programs and vocational rehabilitation agencies to develop and tap underutilized populations. Such partnerships offer employers a large pool of potential job candidates that can receive job training through

vocational services. Another useful strategy employers can explore relates to the successful return to work of injured/ill workers and the prevention of disabilities. Some employers, for example, may develop or hire return-to-work coordinators and case managers to facilitate return to work. Such private sector efforts offer a laboratory for disability services strategies and can provide some of the needed infrastructure that must be addressed through public policy.

Section 5 explores ways in which the public sector can work with the private sector to provide a suitable workforce infrastructure for people with disabilities. Public agencies and programs can establish practices that promote an adequate supply of qualified frontline workers. These public agencies and programs include the State-federal vocational rehabilitation services system, the Department of Veterans Affairs, the Workforce Investment Act and One-Stop Centers, and the Ticket to Work Program. This section also examines how new technologies and Web-enabled tools can improve access to services and information for people with disabilities. In another important discussion, this section identifies problems in health care supply and access for people with disabilities. Proposed solutions in health care reform include the medical home model, with primary care physicians coordinating all care, and electronic medical records to improve efficiency of delivery. In another strategic discussion, the section explores the need for transition services for youth with disabilities that could be met through the postsecondary education system. U.S. community colleges can provide an efficient and accessible link between students and their careers through career and technical education.

Section 6 highlights the recommendations that flow from the discussions in the previous sections. These recommendations include how private sector employers can improve their hiring and retention practices to ensure an adequate supply of workers; how federal and State agencies can target service strategies to enhance the supply of workers; how we can redirect resources in our educational and training establishments to focus on infrastructure occupations; and what we can do to monitor workforce supply

and demand so that planning can accommodate unexpected events and redirect resources accordingly.

The appendices provide detailed evidence that supports the findings in each of the sections and the recommendations. An extensive search of the literature was conducted, and many of the documents that provided an empirical basis for this report have been abstracted and placed in appendix A. Readers who wish to have more detailed information can review these abstracts, which are grouped according to report section. Appendix B contains detailed information and charts on many disability services infrastructure occupations. This information provided the basis for section 3; it is also useful for program planning and as guidance for schools and training programs that offer career and vocational counseling for their students.

All these discussions identify opportunities for public-private sector partnerships to help implement public policy to better manage the nation's disability services infrastructure. Given the overlap between private and public goals and programs, such partnerships are inevitable. This public-private overlap is significant for policy formulation and implementation, because it is based on an even more significant underlying connection. People with disabilities have a shared interest with their nation and government in resolving challenges to disability services infrastructure management; in fact, this population contains an untapped resource to realize a solution to this policy challenge.

SECTION 1. **Introduction and Background**

In many important ways, Americans with disabilities depend on the disability services infrastructure, which consists of health and human services programs. The availability and quality of the services delivered through this important infrastructure affect the health, employment, and social participation of people with disabilities, who number approximately 50 million people, about one-sixth of the overall U.S. population. In fact, this infrastructure is critical to their quality of life. Conversely, barriers and gaps in services, supports, and accommodations negatively affect the lives of people with disabilities.

To maintain the desired levels of service quality, now and in the future, policymakers and planners must anticipate labor market changes as well as the future needs of people with disabilities for services. New service delivery models must be explored and investments made in the infrastructure that supports disability services. The massive baby boom generation is beginning to leave the workforce. Nearly 7 million people in key managerial, professional, and technical jobs will likely retire in the next 10 years. At the same time, owing to declining birthrates, the U.S. economy is about to experience a shortage of young workers. As the baby boomers retire, the "brain drain" of skilled and experienced workers is creating another problem: The new workforce entrants are replacing experience with inexperience. The combination of these trends will create unprecedented competition for talent across all industries, which will further reduce available talent needed to support people with disabilities. In addition, mismatches between available skills and job requirements will continue to widen. Manpower Inc. surveyed nearly 43,000 employers in 32 countries and territories in late January 2008 to determine the extent to which talent shortages are affecting today's labor markets.[1] The results of the third annual Talent Shortage Survey revealed that 31 percent of employers worldwide are having difficulty filling positions because of the lack of suitable talent in their markets.

Today's forecasts predict a long-term shortage of qualified workers throughout the disability services infrastructure. Even more important, a high percentage of this

shortage will involve a lack of skills rather than an insufficient number of workers. Therefore, it is essential to examine whether existing competencies and skills in today's occupations are sufficient to address future needs. Skill and competency deficiencies will negatively affect the lives of people with disabilities as much as or even more than a physical shortage of workers. Both shortfalls are critical, and it is imperative to address them in the very near future.

Around the world, Manpower Inc.—in partnership with community organizations and education, business, and government entities—engages in workforce development programs that put people to work. Manpower Inc. has developed a business strategy for dealing with labor shortages. In the current context, this strategy focuses on addressing the short- and long-term labor and talent shortfalls facing the disability services support infrastructure. Manpower Inc. and NCD are seeking ways to correct the imbalance between supply and demand that, if not quickly addressed, will exacerbate the gaps in social and vocational participation of people with disabilities in our society and economy.

Of many potential approaches, one is to ensure that our society fully taps the underutilized pool of workers with disabilities. The agencies and companies serving people with disabilities must begin planning strategically to hire more workers from the very population they serve. The more equitably people with disabilities participate throughout these service programs, the more sensitive and responsive the infrastructure will become to their needs. Their active participation will help alleviate the overall shortages and improve the economy's use of people with disabilities. The nation must tap this pool of talented people.

Before we proceed, it is important to clarify the terms used in this report. This will enhance understanding and facilitate actions needed to overcome the gaps and barriers discussed here.

Disability Services Infrastructure

“Disability services infrastructure” refers to the full range of support services available to people with disabilities, including education; health care; vocational, social, and recreational programs; and other human service programs that affect the quality of life and independent living of people with disabilities of all ages and their families. These programs can be either public or private. They may be developed specifically for people with disabilities or modified for use by people with disabilities. These programs address needs that people with disabilities experience from infancy to old age. The infrastructure supporting these programs is the primary concern in this report: It is currently insufficient to meet the needs of people with disabilities and will likely be even less responsive in the future, as a result of the trends described in the report.

Gaps and Barriers

Regardless of funding source or intended target audience, all services and their resulting outcomes should be engineered to support participation in education, employment, and health care opportunities by people with disabilities to the same extent that other people participate. The gaps and barriers experienced by people with disabilities and their families are documented in the sections that follow; they include environmental, procedural, organizational, legal, social, and political barriers.

Purpose of the Report

The purpose of this NCD report is to reveal the current and future supply and demand associated with labor markets in the disability services infrastructure; to review existing strategies for maintaining balance between needs and services; and to suggest how to transform management and human resources practices for attracting, engaging, and retaining the workers needed in critical occupations. The report also calls for an examination for how the proliferation of new technologies and Web-enabled tools, such as the social networking platforms, can improve access to services and information for people with disabilities. These new technologies have the potential to empower people

with disabilities and provide them with opportunities for informed decision making in their lives and careers. Finally, this report reviews how current public and private initiatives and policies affect the soundness of the disability services infrastructure and what can be done to use public resources more effectively.

The current focus of the Obama Administration on economic stimulus and health care reform has created much legislative activity and many policy discussions on these interrelated and very complex issues. Although many factors must be considered to understand the future needs of people with disabilities and the resources available to address them, a firm understanding of health care and economic trends is an important aspect of the discussion if we want to make the most of the opportunities that will result from stimulus legislation and health care reform. The future quality of life for people with disabilities is at stake.

Methodology

NCD took a multifaceted approach to identify the sources that provide the foundation for this report's findings and recommendations. The scope of this innovative project was comprehensive and unique. No clear body of information existed on which to build; therefore, from the outset, it was necessary to cast a wide net and identify as many sources of insight, information, and data as possible.

NCD began by locating organizations related to both the disability and the workforce communities, including government agencies at all levels. We identified contact people and Web sites. Contact people provided information to update print documentation. These contacts informed us of other people and organizations that could provide additional information, so our list of organizations continued to grow through this "snowball" sampling process. These contacts also made important suggestions regarding which occupations in the disability services infrastructure we should include.

NCD compiled a list of key words and phrases that provided a thorough description of the disability services program components. We used the word list to do an extensive

literature search to identify the needs of people with disabilities and the service gaps and barriers that prevent them from achieving the same quality of life as people without disabilities. NCD searched for foreign documents as well as those from the United States, as it is likely that solutions discovered elsewhere may be suitable for replication here. The documents obtained through the literature searches were reviewed, summarized, and sorted into appropriate categories corresponding to services provided through the disability services infrastructure, national trends, needs of people with disabilities, gaps and barriers associated with service delivery, and occupational forecasts related to the disability services infrastructure. The literature search was designed to go beyond disability and explore how solutions that have worked with other population sectors might be considered for people with disabilities. NCD was looking specifically for solutions that had a supporting evidence base.

The most useful documents had not only good descriptions of solutions but also data collected through fairly rigorous research designs. Studies with a more rigorous design were accorded more weight in our use of data. We used systematic reviews when they were available (which was infrequently), because they typically provide comprehensive overviews of the highest quality empirical research available. To reveal more detail than is usually captured in an overview of this nature, NCD abstracted documents of particular significance to a topic area, These abstracts are organized by topic in appendix A.

Finally, NCD used published data from the Bureau of Labor Statistics (BLS) of the U.S. Department of Labor to compile forecasts of the occupations identified as part of the disability services infrastructure. This is the most comprehensive and up-to-date source of occupational information available. To supplement the BLS information, which focuses on **demand** for workers, NCD contacted associations and organizations affiliated with these occupations to obtain more information, particularly additional forecasts associated with the **supply** of workers. Appendix B includes charts that show the projected future demand for workers.

SECTION 2. National Trends, Gaps and Barriers, and Their Implications for People with Disabilities and the Disability Services Industry

Manpower Inc. has addressed issues associated with skill shortages for many years as part of its core business of providing human resources infrastructure support to companies and governments throughout the world. The company describes the time-tested strategies and tactics it uses in its recently published study *Confronting the Talent Crunch: 2008*.[2] Manpower is aware of the trends contributing to the imbalances in the human resources infrastructure that will further limit opportunities for people with disabilities to experience the same quality of life and independence as people without disabilities. Data systematically collected over 50 years indicates that people with disabilities have lower high school and college graduation rates, experience greater levels of unemployment and underemployment, have income levels that fall disproportionately below the poverty line, are frequently without any medical insurance, and experience less integration into community life than others. It is also clear that current labor shortages will become worse in the near term unless new approaches are applied. Driving these increasingly critical shortages are the following demographic shifts:

1. Baby boomers are entering their retirement years and will need a variety of medical and social supports to maintain their quality of life, further burdening the supports available for people with disabilities. As a result of medical advances and scientific developments, boomers will have an increasingly longer lifespan and thus will be competing with people with disabilities for services already in short supply.
2. At the same time, the falling U.S. birthrate means fewer younger workers to replace the boomers. The late Frank Bowe characterized the baby boom generation as “the pig in the python.”[3] The children of this generation constitute a smaller population cohort immediately behind the boomers, which means

> that the supply of workers will be further weakened and the burden on younger generations to produce the wealth needed to support the retirement lives of boomers will become greater, further straining the ability to adequately meet the needs of people with disabilities of all ages.

Both long-term and short-term solutions are needed. The current disability services infrastructure, already strained, is configured to serve a smaller group while drawing on the large labor pool the baby boom formerly provided. In the future, the burdens on the health care and social support systems will grow, while resources and labor supplies will be stretched ever more thinly. It will take a combined public-private initiative to provide the strategic planning to fully fund and provide for the social and health care needs of all citizens, not just those of older people or people with disabilities. Our society cannot take from one group to meet the needs of others.

Bowe foretells the convergence of interests of the disability and aging constituencies as the first wave of the postwar baby boom generation turns 60 and experiences the gradually (sometimes not so gradually) disabling effects of aging.[4] He makes the point that disability is our common destiny, if we live long enough. Usually, hearing begins to go first, then vision, and then mobility.

A larger proportion of older people will result in a larger percentage of people with limitations and disabilities in the population at large. Bowe says, “The disability community is about to become a lot more central in American life.”[5] He notes that in 15 years, 40 percent more Americans will have some degree of hearing loss and vision impairment, and the current 14 percent of adult Americans with moderate to severe mobility limitations will increase dramatically.

As the baby boomers age, Bowe notes, “Accessibility issues will be, for these people, no longer someone else’s problems but rather our concern.”[6] Seniors are much more likely to exercise their right to vote than younger people. The baby boom generation gave America its first child consumer market (think Davy Crockett coonskin caps and

the Mouseketeers) and will continue to drive markets to respond to their changing needs as they age.

In our geographically mobile society, few aging parents can count on their offspring to care for them in old age. Adult children commonly live far from their parents and are already overcommitted, with demanding careers, obligations to merged families, grandchildren of their own, and lives complicated by multiple marriages and two-career couples. And easy access to birth control has made the post-baby boom generation smaller. So who will help the boomers cope with the effects of aging? Today's seniors—and presumably the coming wave—want to remain as active and independent as circumstances permit, preferably aging in place in their own homes.

What we are seeing is a coalescence of the need for help by both seniors and people living with disabilities. People with disabilities already enjoy some community access features and in-home supportive services that enable them to be active citizens engaged in community life and aspiring to or achieving full-time competitive employment. These services, if preserved and extended, will also sustain the baby boom generation as it ages. It is critically important to see how these mutual needs and supports can be integrated even better, so that none of our citizens in either group misses out on the quality of life that people who are younger and free of disabilities enjoy.

Recent data, primarily from the Census Bureau, can be used to forecast the expanding population of people with disabilities over the next 20 years. Any staff shortages or gaps in the disability services infrastructure that exist now will be exacerbated not only by the aging of the population but also by the increase in the number of people with disabilities.

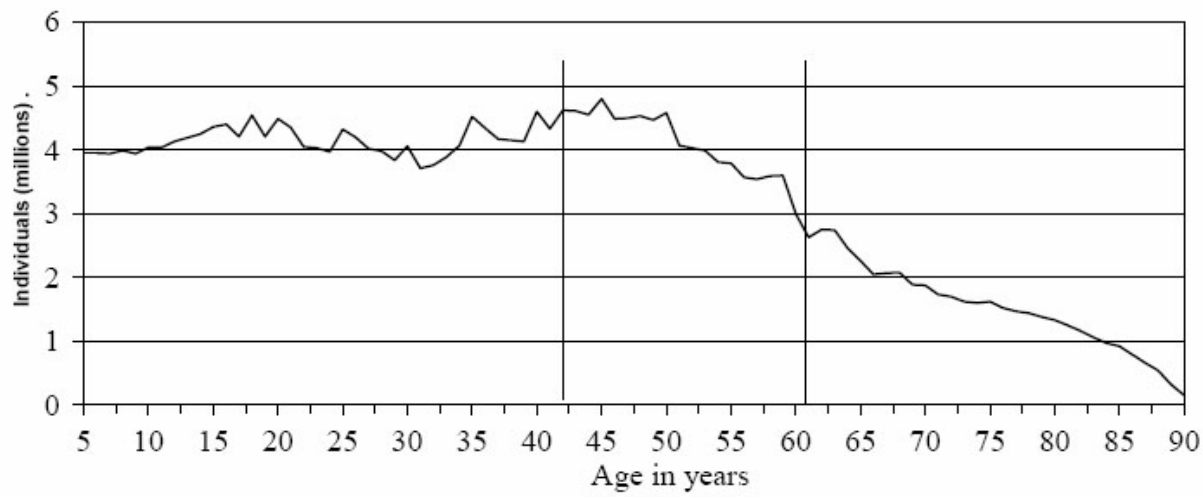
Population Growth. The U.S. Census Bureau estimated the U.S. population at 306 million on March 1, 2009,[7] and projects an increase to 336 million by 2020 and 364 million by 2030.[8] In other words, the population is expected to increase by 35 million (10.4%) from 2007 to 2020 and by 63 million (17.3%) from 2007 to 2030. According to the Census Bureau's 2006 American Community Survey (ACS),[9]

15.7 percent of the population reported a disability. Applying this percentage to the population projections suggests that the population with disabilities will be 53 million by 2020 and 57 million by 2030. (This estimate is for people ages 5 years and older, but the exercise assumes that the percentage is the same for all ages and constant over time.)

Disability, Age, and the Baby Boom

The baby boom generation, born between 1946 and 1964, has created a demand for increased government services at each stage; for example, the need to build more public schools in the 1950s and 1960s. Figure 1 shows the U.S. population by age group in 2006, when the boomers were 42–60 years old. As this generation continues to age, the demand for disability services will increase.

Figure 1.
2006 U.S. Population, by Age Group



Source: U.S. Census Bureau (see note 7).

The connection between age and disability is well known and is graphed in Figure 2. For example, the disability prevalence rate among the youngest baby boomers (42-year-olds) was 11.9 percent, while the rate among the oldest boomers (60-year-olds) was 25.2 percent. As the boomers age, the population with disabilities will increase.

Figure 2.
2006 Disability Prevalence Rate, by Age Group

Source: U.S. Census Bureau (see note 7).

Institutions

It is important to note that a portion of the population with disabilities lives in institutions. As shown in table 1, in 2006, 5.7 percent of people ages five and older with disabilities lived in institutions, compared with 0.7 percent of people without disabilities. And the percentage of people with disabilities living in institutions increased with age: 2.3 percent for those aged 5–20; 3.6 percent for those aged 21–64; and 9.8 percent for those aged 65 and older. The degree of institutionalization will likely affect the demand for social services. Unfortunately, current data does not distinguish between privately and publicly funded institutional care.

Type of Disability

Disability is a complex concept and includes numerous types. The American Community Survey (ACS) collects data in several broad disability categories: sensory, physical, mental, self-care, go-outside-home, and employment. (Survey respondents may report more than one category). These categories are useful to understand the

Table 1.
2006 U.S. Population, by Age, Residence Type, and Disability Status

Age/Residence Type	Total	Disability Status	
		Disability	No Disability
Ages 5 and older	279,019,603	43,755,805	235,263,798
Living in the community	274,896,047	41,247,284	233,648,763
Living in an Institution	4,123,556	2,508,521	1,615,035
Percentage living in an institution	1.5	5.7	0.7
Ages 5–20	66,645,996	4,411,409	62,234,587
Living in the community	66,361,958	4,311,751	62,050,207
Living in an institution	284,038	99,658	184,380
Percentage living in an institution	0.4	2.3	0.3
Ages 21–64	175,179,720	23,217,180	151,962,540
Living in the community	172,961,160	22,381,523	150,579,637
Living in an institution	2,218,560	835,657	1,382,903
Percentage living in an institution	1.3	3.6	0.9
Ages 65 and older	37,193,887	16,127,216	21,066,671
Living in the community	35,572,929	14,554,010	21,018,919
Living in an institution	1,620,958	1,573,206	47,752
Percentage living in an institution	4.4	9.8	0.2

Note: “Living in the community” refers to households and noninstitutional group quarters.

Source: American Community Survey 2006

types of disability services needed. According to the 2006 ACS, among people with disabilities ages 5 years and older, 28.9 percent had a sensory disability, 63.3 percent reported a physical disability, 40.2 percent reported a mental disability, 22.5 percent reported a self-care disability, 32.6 percent reported a go-outside-home disability, and 59.3 percent reported an employment disability.

Needs, Gaps, and Service Barriers

Appendix A provides abstracts highlighting the needs of people with disabilities in critical areas: education, employment, health care, independent living, and quality of life. Our focus is this report was to identify broad issues affecting the entire population of people with disabilities. The major issues in each need area are summarized below.

Education

Students with disabilities at all levels of education have experienced greater degrees of integration and opportunity. Yet difficulties and inequities still exist:

- Graduation rates for students with disabilities lag behind those for other students.
- Younger students with disabilities experience more behavior problems and have less developed social skills than other students.
- Older students with disabilities tend to have lower self-esteem, to participate less in school activities, to feel somewhat isolated, and to be fearful about their future prospects, including employment, than other students.
- More students with disabilities are enrolled in postsecondary schools than in the past, but the numbers are still comparatively low and support services are frequently lacking at colleges and universities.
- Students with disabilities who are part of immigrant families face additional difficulties. Cultural differences may lead to misunderstanding, and parents

often do not know how to navigate the educational system and or how to access available supports.

Employment

- Across the board, people with disabilities have lower employment rates and earnings.
- Transition-age youth with disabilities are getting greater access to employment support services, but they need more work experience opportunities while in school.
- Although corporate America is offering more opportunities for workers with disabilities, many companies have not yet developed corporate cultures that are open to disability and diversity.
- The employment success rates of people served by vocational rehabilitation agencies have not improved appreciably.

Health Care

- Funding for specialized health care services for people with disabilities is not adequate to meet the need.
- Treatment services are often inaccessible or not adapted to the special needs of people with disabilities.
- Health care burdens and costs are greater for families of people with disabilities than for families that do not have a member with a disability.
- There is a growing gap of unmet need for care providers in the workforce.

Independent Living and Quality of Life

- Physical accessibility to transportation, recreation, and other important venues remains a problem, particularly in minority communities.
- Recreational opportunities are limited for people with disabilities.

- Accessible housing and transportation are limited almost everywhere in the nation.
- Income supports for people with disabilities are falling behind the growth of income of other population sectors.
- A greater proportion of people with disabilities falls below the poverty line.

Summary

The number of people with disabilities will increase over the next 10 years, and many of them will be over 60 years of age. The double impact of age and disability will strain the service infrastructure for older people and siphon off services for younger people unless additional resources are directed at the increased needs. The current needs of people with disabilities, although receiving increasing attention, are multifaceted and often unmet. Existing shortfalls and expected increases in demand for services require immediate consideration if service gains are to be sustained and needs properly addressed.

SECTION 3. Disability Services Infrastructure Occupations: Supply and Demand

This section summarizes information about current and future supply and demand associated with disability services infrastructure occupations.

The data comes primarily from the Employment Outlook Projections of the Bureau of Labor Statistics (BLS) of the U.S. Department of Labor.[10,11,12,13] Appendix B provides detailed information about these occupations, including workforce estimates, future demand, educational requirements, salary levels, and competencies that may be transferable among disability services infrastructure occupations. The BLS uses available data to estimate current supply (i.e., the number of people employed at the time the study was completed) and to project demand 10 years into the future. Where possible, the BLS projections incorporate expectations about future supply from other sources, primarily professional and industry associations. These projections can help policymakers, administrators of education and training programs, employers, and the counseling profession make decisions that will ensure an adequate future supply of workers for these occupations, which are critical to the well-being of people with disabilities.

The projections consider both expected growth in demand and replacement needs owing to workers retiring or leaving their jobs. Education and training pipelines are not systematically tracked, but the best estimates assume that occupations with the largest gap between current supply and future demand will require special attention. This is a central concern: to manage supply over time to ensure that it is sufficient to meet the future needs of people with disabilities.

This discussion of supply and demand is based on research that extrapolates data from the past into the future. The biennial BLS study encompasses a 10-year period; its projections assume that current trends will likely continue as the future unfolds.[14] However, the prediction models used in 2006, for example, did not anticipate the protracted economic downturn that began in late 2007 and continued through 2009.

Likewise, the comprehensive stimulus plan proposed by President Barack Obama and enacted by Congress may alter current trends that affect projections. In fact, some components of the stimulus plan are directed at supply-demand imbalances, particularly in health care occupations, so the future reality may bear little resemblance to current projections. In addition, other unforeseen events and forces might affect the balance between supply and demand, such as natural disasters, flu pandemics, terrorist acts, expanded or new wars, and prolonged economic turmoil. This section will highlight stimulus plan provisions intended to address future shortfalls.

However conditional the predictions are, they are still useful. The current balance between supply and demand points the way to what should be given the most attention moving forward, with a careful eye on events that might require a corrective response. These projections provide a baseline for a capacity-planning process that can be modified and improved on a continuing basis in future years as services infrastructure leaders learn more about planning for the future. In this initial effort, both the private sector and all levels of government must focus on how education and training resources, including those of employers, should be aligned for the future.

Occupations with Future High Demand

The BLS projects that certain occupations will require at least a 15 percent rate of growth over the next 10 years to respond to increases in demand. These occupations will require the most additional support through policy, publicity, and resource allocation. Table 2 organizes these occupations into four areas of need for people with disabilities: employment, health care, quality of life, and education.

Workers in the health and medical services will be in greatest demand over the next 10 years, and the extent of the demand is very strong. The three occupations in which demand is projected to increase most are all in health care. The single highest increase in demand—for home health aides—directly affects the quality of life of people with disabilities.

Table 2.
Occupations Projected To Be in High Demand Over the Next 10 Years

Area of Need	Occupation	Projected Increase in Demand
Employment	Rehabilitation counselor	23%
Health Care	Home health aide	48.7%
	Medical assistant	35.4%
	Substance abuse counselor	34.3%
	Mental health counselor	30%
	Physical therapy aide	28.9%
	Occupational therapy aide	27.9%
	Physical therapist	27.1%
	Physician assistant	27%
	Registered nurse	23.5%
	Occupational therapist	23.1%
	Respiratory therapist	22.6%
	Pharmacist	21.7%
	Massage therapist	20.3%
Health Care (cont'd)	Emergency medical technician	19.2%
	Medical records technician	17.8%
	Medical and health services manager	16.4%
	Psychologist	15.3%
	Radiology technician	15.1%
Quality of life	Social and human service assistant	33.6%
	Social and community service manager	24.7%
	Social worker	22.2%
	Child care worker	17.8%
Education	Sign language interpreter	23.6%
	Clinical, counseling, school psychologist	15.8%
	Special education teacher	15.4%

Source: Author

Employment opportunities will be plentiful in the high-demand fields listed in table 2. Schools, colleges, community organizations, and employers should expand their offerings accordingly, and guidance counselors might encourage youth to consider careers in these fields. Vocational rehabilitation agencies and programs should inform consumers about opportunities in these high-demand occupations.

Supply Issues

There are no general surveys or studies of trends in supply as there are for trends in demand. In the absence of hard data, we can look at the principles driving supply trends. One driving principle, as long as the economic climate remains difficult, is that people are likely to hold on to the jobs they have. Therefore, one might expect replacement needs to be lower than currently projected. The economic downturn and the higher Social Security retirement age mean that older workers are likely to stay employed longer. These trends may provide a “softer landing” from projected shortfalls in supply, especially in the higher skill jobs held by many older workers. But supply shortfalls are already appearing and will be felt especially in new occupations and entry-level occupations, such as home health aide.

Labor markets are not static. Organizations react to changing conditions by responding to the reality confronting them. When employers feel the pressure of a shrinking supply of workers to meet increasing demand for services, they will create training and career development opportunities to keep existing workers on the job and improve their capabilities. Employers are also likely to increase wages in these occupations to entice workers to remain and to attract new hires to fill vacancies. It is uncertain to what extent such employer efforts will narrow the supply-demand gap, because they may be offset by the impact of extended or enhanced unemployment benefits currently under consideration. Enhanced benefits could influence unemployed people to stay on the rolls rather than seek or accept new employment. It is hard to estimate the relative strength of countervailing trends such as these, but identifying them is a starting point.

The health care sector has a history of high turnover among long-term personal care workers and aides. Over a 6-year period from 2000 to 2006, the actual wages of these workers decreased when adjusted for inflation.[15] This situation will only worsen as the trends mentioned above become stronger. To keep these workers on the job and provide daily care for older people and those with disabilities, employers will have to increase salaries and benefits, and provide training to upgrade skills.[16] A recent four-State demonstration project sponsored by the Department of Health and Human Services using these and related strategies showed a significant decrease in turnover among these important caregivers. [17] But while this demonstration shows how to increase employee retention in a high-demand occupation, it does not address the challenge of recruiting new workers to reduce the supply-demand gap.

Employers must adopt new recruitment strategies, including recruitment among underutilized populations. People with disabilities, who are often consumers of vocational rehabilitation (VR) programs, can be valuable recruits for companies experiencing worker shortages. VR programs should seize this opportunity and help people enter these occupations at whatever level possible. Because they are well-versed in many disability issues as a result of their own experience, these people are ideal recruits. The list of high-demand occupations includes some for which people with disabilities could be trained quickly, such as the medical records technician and aide occupations. People with disabilities have long been an underutilized sector of the labor market. Section 5 will describe more strategies to increase the supply of workers in these critical occupations.

Graduates of training and education programs constitute a large proportion of the workforce supply in the disability services infrastructure, and this area of the supply channel is at risk. It is expensive to expand education and training capacity. A recent study of the supply of general surgeons indicates that no increase is occurring in medical school enrollment, and physician shortages are predicted through the mid-21st century.[18] Similarly, a study sponsored by the American Association of Colleges of Nursing indicates that a lack of funds to hire adequate numbers of faculty is limiting

enrollment of nursing students.[19] A recent study found that the current supply channel for rehabilitation counselors is inadequate to meet retirement replacement demands, let alone the additional demand from increasing caseloads.[20] State VR agencies expected to hire more than 3,700 counselors between 2002 and 2007, but the graduation rate from rehabilitation counselor programs over the period was only a little more than a third of that total. It is not yet clear how distance learning technologies might mitigate the lack of resources inhibiting growth in traditional education and training facilities.

Finally, the federal and State governments need to act quickly to increase the flow of money to move the economy out of the recession that began in December 2007. Stimulus money includes funds directed at jobs in the disability services infrastructure, such as primary care physicians and frontline caregivers, and will most certainly influence the supply of workers for these jobs. It is difficult to anticipate what will happen to the supply-demand balance as a result of these funds and later, when the funds are spent.

American Recovery and Reinvestment Act (ARRA) of 2009

The stimulus package introduced by the Obama Administration in 2009 includes a time-limited infusion of new funding that responds to the projected limited supply of service providers in the areas of health, education, employment, and quality of life. In addition, Congress has introduced numerous bills and passed legislation designed to enhance education, recruitment, and hiring in key infrastructure occupations, thus making them more attractive and worthwhile for prospective students and workers. Most of these new and proposed laws focus on increasing funding for education, or recruiting and retaining workers in needed areas. Although the goal of the stimulus funds is to increase employment in the near term, the longer term impact is much less certain. Some bills are unlikely to make it out of Congress, but enough have been proposed in both the House and the Senate to indicate that Congress is aware of workforce shortage concerns.

The Obama Administration has said it will address specific disability issues germane to the needs described here. In education, the focus is on early screening, transition from school to work, and expanded higher education opportunities. Regarding employment, the emphasis is on enforcing the provisions of the Americans with Disabilities Act (ADA) and providing resources to help employers accommodate workers with disabilities. In health care, the goal is to require insurance plans to cover preexisting conditions and improve mental health care.

What the Administration and Congress will be able to accomplish is unknown, but whatever they implement will affect the supply-demand balance in the disability services infrastructure. Some current initiatives in Congress are listed in table 3, to illustrate what Congress and the Administration are considering.

Table 3. Legislative Initiatives

Legislation	Occupation, Field, or Population Impacted	Needs of People with Disabilities			
		Employment	Health, Safety, Well-being	Education	Independent Living
Passed					
S.AJMDT.799	Medical professionals		X		
S.AJMDT.802	Medical professionals (veterans)		X		
Title I Pt. A of IDEA	Teachers			X	
Proposed					
S.750	Gerontology		X		X
S.811, HR2066	Psychology		X		
S.790, HR1946	Health professionals		X		
S.502	Older workers	X			

Table 3 (cont'd)

Legislation	Occupation, Field, or Population Impacted	Needs of People with Disabilities			
		Employment	Health, Safety, Well-being	Education	Independent Living
Proposed (cont'd)					
S.999, HR1932	Child mental health		X	X	
HR 1928	Nursing		X		
HR 1457	Geriatric		X		
S.497, HR2043	Nursing		X		
HR 2273	Nursing		X		
HR 1581	Health professionals		X		
HR 1011	Mental health		X		
HR 724	Nursing		X		
HR 795	Social work		X		
HR 1930	Dentists		X		
HR 1161	Teachers			X	
HR 2350	Physicians		X		
HR 349	Autism		X	X	
S.2933	Older workers	X			
HR 468	Geriatric		X		
HR 2832	Nursing		X		
HR 2388	Physicians		X		

Source: Author

One of the two passed Senate bills, **S.AJMDT 799,** establishes a reserve fund to address systemic inequities of Medicare and Medicaid reimbursement that lead to access problems in rural areas. The second, **S.AJMDT. 802,** provides a Veterans

Health Administration reserve fund to ensure that the supply of professionals serving veterans is appropriately prepared to meet their needs.

The ARRA has specific implications for people with disabilities that parallel the goals of the Administration:

- **States:** enhanced funding for the Individuals with Disabilities Education Act (IDEA).
- **Social Security Administration:** funding to reduce the backlog of disability claims.
- **State-federal vocational rehabilitation program:** $540 million for services.
- **Centers for Independent Living:** $140 million to enable people with disabilities to live in their communities.
- **Public Housing Capital Fund:** $250 million for energy retrofits to supportive housing for people with disabilities, making these units more energy-efficient.

Numerous bills are proposed and awaiting action. They are categorized below, although bills often include multiple funding vehicles that spill over categories. The largest category funds training and education programs to increase the supply of qualified professionals in the disability services infrastructure (primarily health care).

S. 750 – Caring for an Aging America Act. Geriatric and Gerontology Loan Repayment Program; nursing education grants for those who complete specialty training in geriatrics or gerontology and elect to provide nursing services to older adults.

S. 811, H.R. 2066 – Graduate Psychology Education Act. School grants to encourage specialized training, including services to veterans with posttraumatic stress disorder (PTSD).

S. 790 – Health Access and Health Professions Supply Act of 2009. Expansion of loan repayment programs; matching State grants for the operation of State Health Workforce Centers; National Health Service Corps Scholarship Program for Medical, Dental, Physician Assistant, Pharmacy, Behavioral and Mental Health, Public Health, and Nursing Students in the United States Public Health Sciences Track in Affiliated Schools.

H.R. 1928 – Home Health Care Nurse Promotion Act of 2009. Training grants to nursing schools and associations; scholarship and loan support for home health care nurses.

H.R. 1457 – Geriatric Loan Forgiveness Act of 2009. Considers each year a person is enrolled in a geriatric training program as a year of obligated service under the National Health Service Corps Loan Repayment Program.

H.R. 724 – America's Partnership for Nursing Education Act of 2009. Grants for States experiencing explosive population growth with a significant projected shortage of nurses to increase the number of qualified nursing faculty in college and university nursing programs.

S. 497, H.R. 2043 – Nurse Education, Expansion, and Development Act of 2009. Grants to schools with nursing programs that promote accelerated degrees in nursing.

H.R. 1930 – Primary Care Dental Academic Workforce Development Act of 2009. Loan repayment for full-time faculty of dentistry programs.

H.R. 1185 – Primary Care Volunteer Incentive Act of 2009. Limited loan repayment for part-time primary care volunteer doctors at community health centers.

Other bills, including the following, focus on retention or career enhancement of professionals already in the disability services infrastructure:

H.R. 1161 – Keep Teachers Teaching Act of 2009. Grants aimed at teacher retention, to be applied toward professional development, teacher mentoring, advanced certification, research or travel opportunities, and pairing teachers with industry professionals.

H.R. 795 – Dorothy I. Height and Whitney M. Young, Jr. Social Work Reinvestment Act. A commission to advise Congress on recruitment and retention in the field of social work.

S. 502 – Older Worker Opportunity Act of 2009. Employer tax credits to employ persons 62 years and older.

Other bills, including the following, pursue alternative methods of increasing the capacity or quality of the service delivery channel:

H.R. 1581 – Patient-Focused Critical Care Enhancement Act. Appropriations for augmented delivery of critical care services to rural settings via telecommunications; National Health Service Corps Loan Repayment Program recruitment efforts for providers of critical care services.

H.R. 1011 – Community Mental Health Services Improvement Act. Funding for technical support and personnel training in the National Health Information Infrastructure to address the needs of providers of mental health and substance abuse treatment services; grants to address behavioral and mental health workforce needs in professional shortage areas.

Table 3 shows how the legislative priorities of the Administration and Congress intersect with the disability services infrastructure, especially the health care occupations. If several of these bills were passed, signed into law, and fully funded, the supply of

health care workers, such as nurses and physicians, would come into better balance with demand, as would the supply of workers in education-related occupations. Passage of these bills would address workforce shortages in fields that affect the lives of people with disabilities, with substantial effect on supply shortages in the mental health profession. However, the legislative intent is primarily targeted to broader concerns of the overall population or of groups such as older people and veterans, which include significant numbers of people with disabilities. In one example of legislation directly intended to provide resources to the disability services infrastructure, the ARRA included funding for State VR agencies to build infrastructure that will enhance the VR system's ability to help people with disabilities become employed. It is not known as of this writing which bills will become law, so it is important to track them to anticipate the impact on supply and demand, and plan accordingly.

Competencies in Demand

Employers rely on transferability of skills to ensure that they can quickly develop an adequate supply of workers by recruiting those with similar skills to workers in occupations that are experiencing shortages. Typically, on-the-job programs can quickly train these workers to levels of competence. However, specialization is becoming increasingly prevalent, and with it comes credentialing standards that require licensure by a regulating State agency or certification by a professional association. To obtain these gate-keeping credentials, people must have specific degrees and experiences that cannot be attained on the job. Unfortunately, many of the disability infrastructure occupations with strong future demand characteristics have such credentialing requirements. Insofar as these requirements ensure a high level of service quality, they must not be weakened or compromised. However, developing new ways to achieve the proper competencies and credentials would turn transferable opportunities into viable solutions to shortages. Workers who have already demonstrated successful tenure in related occupations should not be discouraged from pursuing opportunities in infrastructure occupations.

Many of the high-demand occupations have career tracks that permit workers to move up as they gain education and experience. Therapy aides and social services program aides, for instance, have skills related to credentialed therapy and social services, which are high-demand occupations in the health care sector. Facilitating career advancement for people in lower tier jobs will require creative approaches to overcoming credentialing barriers. Employers, credentialing agencies, and education and training programs should consider the development of creative alternative credentialing opportunities. Gaining credentials for higher level jobs through education and training while on the job would be one approach. Professions, schools, employers, and credentialing agencies will need to collaborate, and they may need to partner with State legislatures or Congress to ratify alternative credentialing ladders.

The following abilities underlie many of the in-demand occupations in the disability services infrastructure. People who have gained these abilities from previous work experiences are likely to be good candidates for transferring their skills and assuming infrastructure jobs with proper on-the-job and learning experiences.

Transferable skills include the ability to do the following:

1. Work comfortably with people and put them at ease in difficult circumstances.
2. Identify, evaluate, and address the needs of others through information and personal assistance, often by providing direct care.
3. Obtain needed information by interviewing, assessing, and reviewing records.
4. Assist people with decision making and problem solving.
5. Recommend strategies and solutions for managing personal issues.
6. Communicate well verbally and in writing.
7. Provide information and education to individuals and to the public.
8. Use equipment to provide diagnostic and treatment services.
9. Collaborate with other service and treatment providers and organizations.

10. Follow policies and prescribed procedures when providing treatment and services.
11. Ensure privacy and confidentiality of personal information.
12. Use electronic recordkeeping systems and equipment so that information is valid and secure.
13. Maintain work areas in a safe, clean, and organized manner.
14. Work as a member of a team to provide coordinated services and treatment.
15. Refer individuals and families to appropriate service and treatment providers.

In addition to these competencies, many experienced workers assume managerial and administrative responsibilities that entail the following additional abilities:

1. Plan, direct, coordinate, and supervise the work of others in providing services.
2. Ensure that all operations of the organization are done in compliance with laws and regulations.
3. Manage budget and fiscal procedures to balance costs and revenues.
4. Provide resources for needed operations involved in service provision.
5. Ensure that staff have the necessary skills and knowledge to serve individuals and families.

Many of these competencies are required by high-demand occupations, suggesting that transfer of skills can be a potential solution to balancing supply and demand in the future. Overcoming credentialing barriers that prohibit movement of skilled workers across infrastructure occupations should be a high priority.

SECTION 4. Private Sector Strategies for Building and Maintaining a Sufficient Supply of Disability Infrastructure Occupations

Given the likely shortfalls in the supply of workers in disability infrastructure occupations over the next 10 years, it is essential to distinguish long-term solutions from the policies and practices that look promising right now. Because of the shortages, infrastructure employers will have to work harder to attract and maintain the workers they need. Unless something is done quickly, citizens with disabilities will fall further behind economically and socially in spite of new policies, new legislation, and increased funding for services. This reality is crucial for the companies in the private sector that provide services as part of the disability services infrastructure. Without adequate staffing, many of these companies may fail, thus adding to the shortage of available resources. Many frontline infrastructure jobs are low-salary positions. Because of the impending shortages, wages will probably increase in these jobs. Higher pay will help attract new workers; then the focus will be on retaining them. In this section, we outline management strategies to improve retention over the next decade.

The section explores efforts undertaken by the private sector to ensure an adequate workforce through recruitment and retention strategies. These initiatives hold promise for correcting supply-demand imbalances in the disability services infrastructure. NCD strongly believes that no source of talent can be ignored moving into the second decade of the 21st century. That means that workforce management strategies and practices will have to change.

Workforce Management

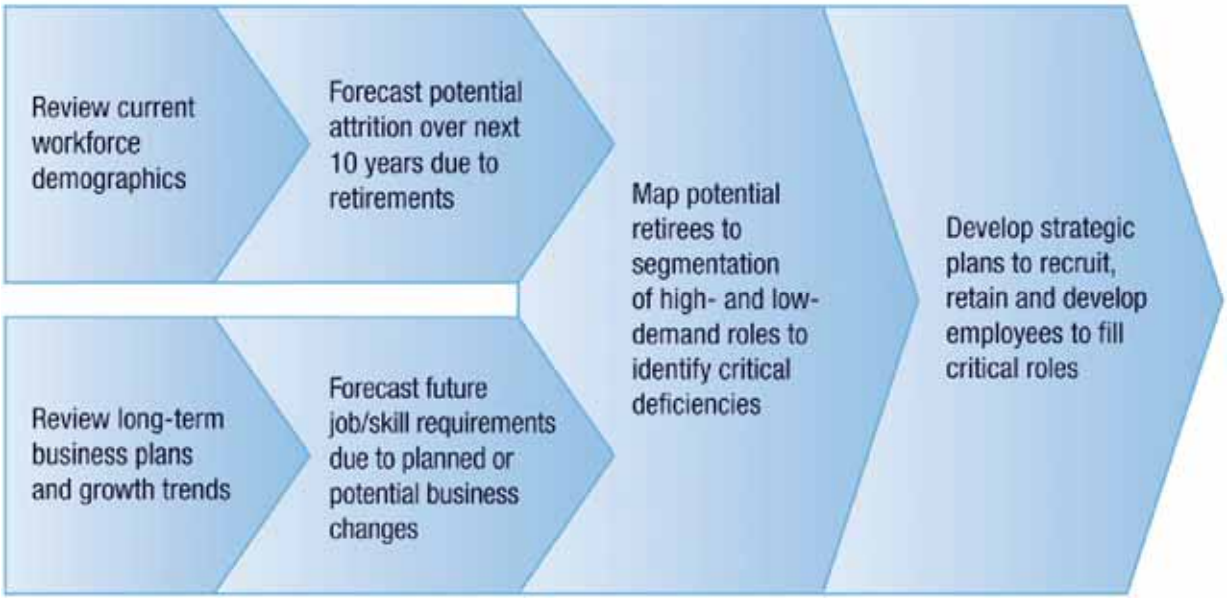
NCD partnered with Manpower Inc. to prepare this report. In a recent study, Manpower surveyed the status of the existing workforce and identified opportunities.[21] NCD believes that the findings of the Manpower survey are particularly relevant with respect to the disability services infrastructure. The current difficult economic climate, which has persisted since the end of 2007 and is likely to continue for some time, might actually

help the situation in the short term. Workers who are close to retiring or have already retired might decide that the uncertain times require a delay of retirement or a return to work. This will mean that more workers than previously expected are still on the job, at least initially, and will allow more time to put new strategies in place to address the longer term shortfalls. In any case, employers need to recognize that encouraging early retirement and offloading older workers because of their higher salaries are no longer viable business strategies. In fact, salary increases and benefits that promote flexibility (which are as important to older workers as they are to workers with young children) should be considered as part of the new mindset of keeping older workers as long as possible, well beyond traditional retirement years.

NCD and Manpower do not believe that a strategy of importing workers from other countries is likely to work. For many years, our economy has turned to immigration to ensure adequate numbers of workers in certain jobs. However, supply shortages of critical disability infrastructure occupations are occurring globally, not just in the United States. These workers will find opportunities in their home countries, and the increasing demand will likely drive up wages, reducing the allure of working in the United States. U.S. employers should focus on training, not only for new employees but for longer term employees as well, to improve productivity and provide opportunities for career advancement.

Figure 3 summarizes a general strategy for dealing with shortages through a multifaceted approach that NCD believes will also benefit disability services infrastructure companies. The strategy involves identifying the current demographics of the workforce and forecasting how things will change over the coming decade.

Figure 3.
Forecasting and Planning for Future Retirement-Related Talent Deficits

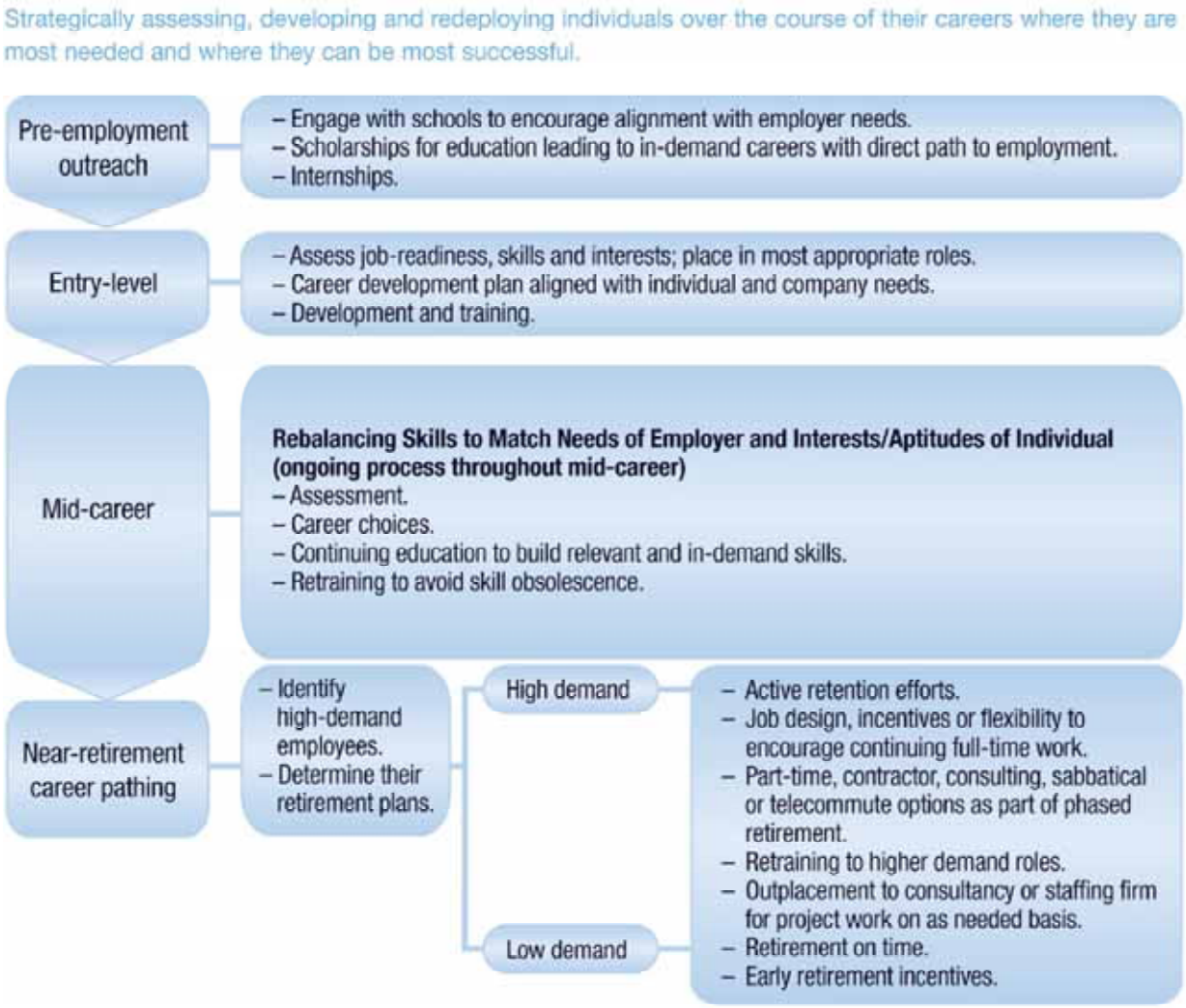


Source: Manpower (2007). *The New Agenda for an Older Workforce*. Milwaukee, WI: Manpower, Inc.

A demographic-based forecast will provide clues to help identify workers who are likely to consider retirement and those who will need to focus on elderly parents or young children. Tracking turnover trends will allow employers to understand replacement needs as well as the reasons workers leave. Inadequate pay is the reason for much of the turnover, but it is not the only reason. Family responsibilities are significant factors in different ways, depending on the employee's age and gender. These assessments will suggest how employers can revamp benefit plans to attract and retain employees. Meanwhile, employers need to study their markets and forecast what the demands are likely to be—not just the number of workers but the skill sets employees must have to ensure that the company is competitive. Once these supply-and-demand projections are in place, employers can decide which recruiting, training, and retention strategies will be most successful. Too few employers engage in these strategic planning activities and thus are unprepared to deal with worker shortages.

For employers that do plan strategically, the next task is to consistently recruit and prepare a competitive workforce. Figure 4 summarizes this process.

Figure 4.
Optimizing Talent Flow



Source: Manpower (2007). *The New Agenda for an Older Workforce*. Milwaukee, WI: Manpower, Inc.

Proactive companies will partner with local schools and postsecondary education institutions to allow students to see firsthand what opportunities are available and to provide experiences for them to learn about the world of work. Students need to have realistic perceptions of careers early on so their career decisions are informed and aligned with their values, interests, and needs. Too few employers engage with schools, teachers, and students in their local communities.

Career development should involve all employees. For new hires, employers need to demonstrate the long-term career potential and set them on a path to acquire skills through training and development. Employees should have individualized plans for developing their careers with their company, including internal and external learning opportunities for which they and their employers share responsibility. For employees in mid-career, the focus should be on ensuring that skills and knowledge are upgraded to mesh with changes in the marketplace. Workers should have a clear understanding that their companies do not want them to become obsolete; rather, the company wants them to remain as valuable as when they were first hired. Companies should collaborate with older workers to assess the needs of the company and the worker, and should offer flexible approaches that are mutually advantageous. The key to lowering turnover rates and keeping workers is to demonstrate to employees that they are valuable assets, and that the company wants to retain and promote them. Offering ongoing skill-building opportunities, accommodating employee needs, and rewarding workers according to their productivity are beneficial strategies for all.

Employers can take many other steps to ensure that their employees become more productive and remain with the company. Employers need to establish an open and accepting corporate climate to ensure that workers from diverse cultures, including those with disabilities, feel welcome and have equal opportunities to fulfill their and their families' needs. This includes the following:

1. Offering performance-based compensation that rewards accomplishment, not just tenure.
2. Treating employees with respect and expecting workers to treat each other with respect.
3. Specifying expectations in a way that is clearly understood. This may require different approaches for different people.
4. Ensuring that everyone has a sense of belonging and is welcomed.
5. Treating all workers the same way.

6. Providing access to equipment, tools, information, and other supports and resources to enable workers to efficiently accomplish their assigned tasks.
7. Training workers to do their jobs and to adapt their skills and knowledge to changing circumstances; and using online technologies to provide training in a more timely and efficient way.
8. Implementing a consistent, fair, and regular feedback system for workers, including two-way communication and flexible channels. The system should inform them about their strengths and weaknesses, and result in a plan they can implement to increase their productivity.
9. Using teamwork approaches wherever possible so that workers understand how they fit in and contribute.
10. Recognizing workers' contributions in tangible ways.
11. Providing opportunities for advancement.
12. Helping workers plan a gradual transition to retirement.
13. Keeping workers informed about the company's progress and success in the marketplace.
14. Giving workers as much assurance as possible about their job security.

By demonstrating their will and skill in accommodating the needs of workers with disabilities, employers send an important message to all workers. Besides recognizing the potential of workers with disabilities, broadly disseminated guidelines about accommodations often become best practices, driving productivity enhancement for all workers.

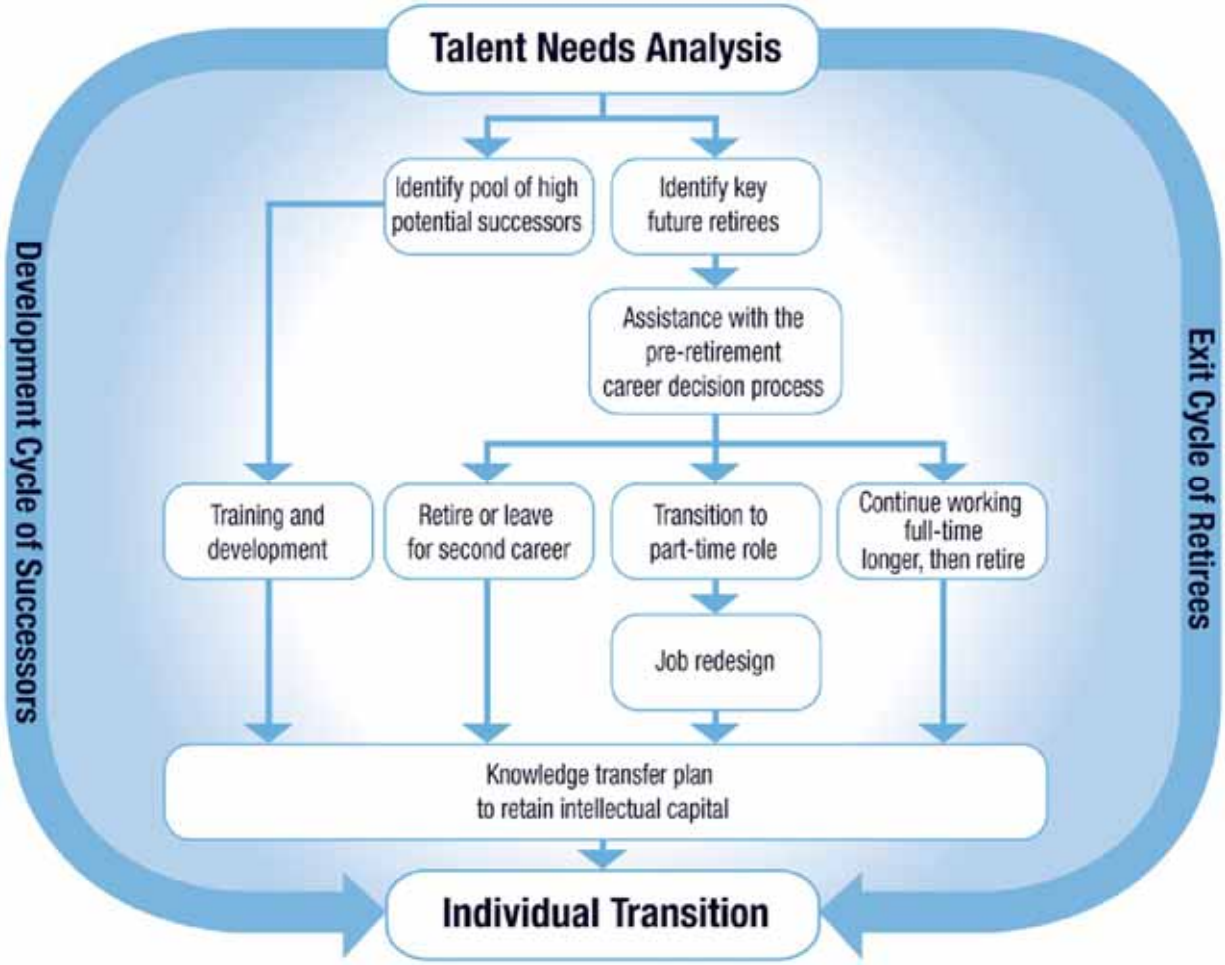
In the future, employers will face much greater challenges to ensure an adequate supply of qualified workers. Employers will have to provide proactive and flexible work arrangements for all employees and be much more sensitive to their needs. Flexible work schedules have already created some opportunities for women with children, but

they are important for older workers and those with disabilities as well. Similarly, training should be a constant concern for workers at every stage of their careers.

Recruitment Strategies

The purpose of recruitment strategies is to identify and target the right people and bring them into the company. This requires a clear understanding of the skills and abilities that will be needed in the future to replace retiring workers and succeed in a changing marketplace. Figure 5 illustrates the strategy of balancing recruiting and retention to match future needs.

Figure 5.
Managing the Talent Pipeline



Source: Manpower (2007). *The New Agenda for an Older Workforce*. Milwaukee, WI: Manpower, Inc.

It will become increasingly critical for employers to identify potential workers with the skills that will yield a competitive advantage. In addition to skills, however, infrastructure companies need to recruit workers who have the attitudes and values that are the hallmarks of those who serve people with disabilities. By practicing the proactive workforce management strategies outlined in this section, companies can solidify their reputations as employers of choice, and improve their recruiting and retention efforts. In light of the economic constraints most companies are experiencing, a good reputation can help overcome the inability to offer attractive financial packages to new recruits who have high potential.

To link recruitment and workforce management, companies can partner with the education and training pipelines that provide entry-level and advanced skills to new and current workers. Partnering with these resources will help them equip students and trainees with appropriate skills, and provide connections for their graduates. Adding work experience and internships to the partnerships allows all parties to assess the quality of the fit between recruit and employer. This strategy can help eliminate trial-and-error in the hiring process.

Another partnership opportunity for employers exists with community-based rehabilitation programs and the State vocational rehabilitation agencies. These organizations and agencies are willing to train new workers with disabilities specifically for partner companies, often at no cost to the companies. The workers are then provided with ongoing assistance, as needed, to ensure their long-term success and retention. And employers can take advantage of tax credits for hiring these workers. This strategy can reduce labor shortages and employ people with disabilities at the same time.

Companies must clearly define the skill sets needed by their infrastructure workers. For each job description, they need to specify essential job functions and list the experiences that typically provide opportunities to learn these skills. Clearly defining skill sets enables a company to assess whether applicants have the entry-level skills to begin productive service and what training they still need to gain increased productivity.

Beside skills, companies need to have interview procedures in place that will reveal an applicant's values and whether they are compatible with the company's mission to serve people with disabilities. Without skills *and* values, the match is not likely to be successful.

Successful Return-to-Work Strategies

This section explores employer programs to prevent disabilities from occurring in their workforces and to manage the return to work of injured or disabled employees. These programs help retain good workers, minimize the long-term impact of injuries and illnesses, and demonstrate that the company values its workers with disabilities. When a disability infrastructure company uses these strategies, it contributes to the supply of infrastructure workers and provides employment for people with disabilities at the same time.

Most employers have disability management (DM) programs to retain current employees who have suffered a disabling injury. Disability management is driven by the need to comply with government mandates, reduce the cost of providing employee benefits, and retain the skills and knowledge of valuable employees.

DM programs are typically offered by external vendors for eligible employees as a benefit of employment. The process of verifying eligibility for benefits is usually much simpler than in public sector services. Compared with public sector services, the workers in these programs often have better prospects for successful return to work: They have been off work for only weeks or months and most still have jobs to return to. Consequently, these DM programs often use different staffing approaches and resources than public sector programs, reducing potential competition between the two systems over the supply of disability management occupations.

DM programs, particularly those that are administered internally, may employ a master's level professional with certification credentials who oversees programs for large work sites or multiple sites, or is used on a contract basis. A lean staff performs a reduced set

of functions in-house; many functions are outsourced to insurance companies or other vendors. Two functions, however, are frequently part of an employer's in-house staff: the return-to-work coordinator and the case manager.

- Return-to-work (RTW) coordinators work with all stakeholders (medical, insurance, supervisors, co-workers) to develop and implement an RTW plan for an employee after an injury or the onset of a temporary disability. RTW coordinators are most common in manufacturing, utilities, construction, and other industries where employees perform physical work. RTW coordinators may have earned specialized credentials through a professional association with continuing education requirements. They may be experienced employees who have no formal rehabilitation credentials but have returned to work themselves after a significant disability event and have received on-the-job training in the RTW process.
- Case managers orchestrate compliance with insurance or medical requirements during the RTW process and facilitate information exchange between the employer and medical providers. Case managers are used in virtually all industries and professions. Most medical case managers are registered nurses with an additional credential; those who manage insurance cases may need only the case manager credential.

Research has found that successful DM programs usually include the following components:

- A strong commitment throughout the workplace to health and safety.
- An employer who makes early, considerate contact with injured/ill workers.
- An employer who offers work accommodation to facilitate RTW.
- An RTW plan that supports returning workers without disadvantaging co-workers or supervisors.
- Supervisors who are trained and included in RTW planning.

- The use of an RTW coordinator or case manager.
- Exchange of information between the employer and medical providers.

This list does not explicitly include ergonomic evaluation because most ergonomics goals are achieved through the work accommodation offer, which often can be developed in an interactive process with the returning worker without incurring the expense of a master's level ergonomist to perform a full evaluation. Employers typically focus on returning injured/ill employees to their original job, perhaps with a modification to accommodate temporary or permanent impairments.

Most employers who are active in groups such as the Disability Management Employer Coalition (www.dmec.org) acknowledge that there is room for improvement in their DM programs, including efforts to identify employees at risk for disability and systematic early intervention to prevent disability. These efforts could reduce the number of disability claimants moving from the employment sector to social services.

Private sector return-to-work and disability management programs are a useful complement to the public sector disability services infrastructure. Progressive employers actively seek to prevent or reduce disability claims, thus reducing the number of people who lose employment and apply to the public sector for services. The private sector does not aggressively compete with the public sector for disability services professionals. The private sector uses master's level professionals conservatively and relies extensively on credentials or designations that have a commercial insurance focus that is not necessary in the public sector, where greater efforts are expended on verifying eligibility for benefits. NCD encourages the public sector to use the recruiting, retention, and workforce management strategies of private sector organizations to reduce the gap between supply and demand in the disability services infrastructure.

SECTION 5. Public Sector Strategies for Building and Maintaining a Sufficient Supply of Disability Infrastructure Occupations

In this section, we describe how the public sector, in partnership with the private sector, can support the nation's efforts to provide a suitable workforce infrastructure for people with disabilities over the next 10 years. "Public sector" refers to the tax-supported federal, State, and local education, health care, and employment programs that serve people with disabilities. The term also includes programs and systems that serve the overall population, including people with disabilities. All these service providers must ensure that they have an adequate supply of qualified personnel to help people with disabilities become labor market participants, improve their overall quality of life, and gain greater access to opportunity.

Publicly funded programs not only require a suitable workforce to meet the increasing demand for their services, they also can lead by example by hiring people with disabilities. The Equal Employment Opportunity Commission, for example, employs people with disabilities at a rate that is nearly 2.5 times higher than the average for all federal agencies. The Social Security Administration has a "Schedule a Hiring" initiative with simplified hiring protocols that make it easier to hire people with disabilities.

Public agencies and programs can establish practices and services that ensure an adequate supply of workers, hire qualified people with disabilities as part of their frontline workforce, and equip workers with the ability to provide high-quality services. These workforce goals can be approached using multiple strategies. First, public sector agencies can adopt the workforce planning management practices already in use in the private sector (outlined in the previous section) to recruit, hire, and retain a sufficient workforce. Second, the mission of many of these programs is to focus on the employment needs of people with disabilities and to provide them with competitive, marketable skills so they gain greater financial independence and improved quality of life. These programs can promote careers in the disability services infrastructure by providing information, education, skill training, connections, and on-the-job support to

their consumers. People with disabilities are underemployed and, because of their knowledge and personal experience, are well-equipped to work in the disability services infrastructure. Publicly funded employment programs need to focus on the opportunities available to people with disabilities in their own services infrastructure. This section will provide an overview of potential opportunities in the public sector. Some of the data presented can be used as benchmarks or performance indicators of outcomes achieved in public sector programs. These measures can give us a sense of the quality of services provided, which we can then use as a baseline to assess improvements anticipated over the next 10 years. It is not enough to have an adequate number of workers; we need an adequate supply of *qualified* workers.

Employment Services for People with Disabilities

State-Federal Vocational Rehabilitation Services System

The flagship of employment services for people with disabilities in the United States is the State-federal vocational rehabilitation (VR) program. Eighty programs, under the leadership of the Rehabilitation Services Administration (RSA) of the U.S. Department of Education, exist throughout the 50 States. Some States have two agencies: one to serve the general population of people with disabilities and a second to serve people with vision impairments. A primary goal of these agencies is to help people with disabilities become more independent through employment.

Each year, these agencies serve more than 600,000 people with disabilities; more than 200,000 of these people obtain jobs in the community. According to 2006 data, more than 205,000 people with disabilities were placed in jobs that year as a result of receiving services from the VR program. Of these, it is estimated that more than 28,000 (14%) were placed in disability services infrastructure jobs. Although this is a fairly high proportion, it can be even higher, as the demand is likely to be much greater in the foreseeable future.

VR agencies and programs need to focus on outreach strategies to infrastructure employers so that connections to jobs are more readily available to consumers of VR

programs. Private-public partnerships for training and placing people with disabilities with infrastructure employers have been successful and should be expanded, and on-the-job training has been a consistently successful strategy for employing people with disabilities. Formal training and education programs for preparing people for infrastructure jobs funded through the VR system also need to be expanded to accommodate the increasing number of referrals from the VR.

In June 2009, the unemployment rate for people with disabilities was 14.3 percent, while the overall rate was 9.5 percent. A month later, in July, the unemployment rate for people with disabilities jumped to 15.1 percent, while the rate for those without disabilities remained at 9.5 percent. Given the high demand for infrastructure positions, many employment and long-term career opportunities should be available in this sector for people with disabilities. Many people with disabilities are placed in entry-level jobs that pay low wages,[22] but this is true for the population in general. However, these jobs need to have career potential so wages can increase and people can attain their desired quality of life.

Studies point to the need to focus on services that build an employer-consumer connection before placement, so doors will open more readily for people with disabilities.[23] Finding a job should not be left to chance; direct support services are needed to help a person get that first placement. Ongoing support and training during the early stages of holding a job also appear to be valuable contributing factors to long-term success. Developing services to help employers hire people with disabilities—such as accommodation support, job-matching, on-the-job support services, and disability management—can also benefit the employment prospects of people with disabilities. VR programs need to build their capacity to be direct intermediaries in the labor market so that many more people with disabilities obtain jobs with career potential.

In 2007, the Government Accountability Office ( ) analyzed the State-federal VR system's ability to serve beneficiaries of Social Service Disability Insurance (SSDI) who were seeking to return to work.[24] The results were uneven, but the report identified certain factors that seemed to achieve desired outcomes. They included the following:

1. Close ties to the business community.
2. Collaboration with other agencies.
3. Spending a greater proportion of their funding on training.

Agencies with a higher proportion of certified counselors were more likely to help beneficiaries become employed and independent of SSDI income supports.

NCD conducted a review of State VR agency programs for youth with disabilities transitioning from school to work and offered recommendations to improve services and outcomes (NCD 2008).[25] The NCD report concluded that transition-age youth were definitely becoming more of a focus for the VR agencies and that programs should concentrate on the following:

1. More rigorous research and evaluation are needed. It was not clear which services contributed to the desired outcomes, because the research base did not have adequate methodologies to establish evidence-based practice guidelines.
2. VR agencies should establish specialized units of professionals dedicated to serve this population, and should devote training resources to this area.
3. VR agencies should continue to build on their collaborations with schools and other community-based organizations to serve these youth.

Finally, GAO conducted a review of the overall performance of the State-federal VR system.[26] The review analyzed how well the system monitored its own performance so that ongoing improvements could be made on the basis of feedback. Conclusions included the following:

1. Monitoring was not timely and needs to be speeded up.
2. Outcomes for specific populations, including transition-age youth and SSDI beneficiaries, are not tracked; thus, it is difficult to measure the success of policy initiatives undertaken for various groups of people with disabilities.

3. The extent to which the VR system meets the needs of the population it is intended to serve is not clear. Although the system serves a large number of people each year, it is not known how many more people need the service.
4. No incentives or sanctions exist to help VR agencies focus efforts on improving their performance in desired directions.

Department of Veterans Affairs

The Department of Veterans Affairs (VA) offers a vocational rehabilitation program to veterans with disabilities. GAO conducted a review of this program in 2008 and prepared a report to Congress.[27] The reported concluded that the VA VR program was improving by having service tracks tailored to the different needs of veterans but that the focus on employment services, as opposed to training and education, was lagging behind. The report recommended that incentives for veterans to attend schools and training programs be extended to veterans who were on track for direct placement into jobs. The VA was commended for collaborating with other programs in pursuit of direct employment, but GAO believed that more could be done.

In particular, the VA VR program was encouraged to continue building on its collaboration with State VR agencies, primarily to take advantage of the employer networks these agencies have in place. The VA VR program was encouraged to build its own relationships with employers to improve direct employment opportunities for veterans with disabilities. Finally, GAO commented that the VA needed to engage in strategic planning to determine its workforce needs, because too many regional offices lack the necessary staff to fully implement the direct employment service program. This is increasingly important as the wars in Iraq and Afghanistan create increasing numbers of veterans with disabilities.

Another significant workforce opportunity is the VA's new Post 9/11 GI Bill of 2008, which took effect in August 2009, creating new education benefits for service members who have been on active duty for 90 or more days since September 10, 2001. These benefits are tiered on the basis of number of days of active duty, which gives currently

and previously activated National Guard and Reserve members the same benefits as active duty service members. The benefits include the following:

1. Up to 100 percent tuition and fee coverage.
2. A monthly housing stipend.
3. Up to $1,000 a year for books and supplies.
4. A one-time relocation allowance.
5. The option to transfer benefits to family members.

It is hoped that the VA will use these generous benefits not only to assist veterans with their career needs but also to connect them to the vocational possibilities of the disability services infrastructure, including the workforce needs of the VA itself.

Ticket to Work of the Social Security Administration

No discussion of employment programs for people with disabilities is complete without mentioning the Ticket to Work and Self-Sufficiency Program based in the Social Security Administration. The program has potential, but to date it has not met expectations as far as helping SSI and SSDI beneficiaries replace benefits with employment.

Several trends offer hope that the Ticket program will improve on its past performance. In July 2008, SSA implemented new rules making the program much more attractive to private sector employment networks (ENs) that serve consumers. The new rules provide a much more favorable environment for collaboration between State VR agencies and ENs. These infrastructure improvements are expected to increase the number of ENs providing services from the 1,200 enrolled in 2008 to 5,000.

The Ticket program is not based on a fee for service. Rather, providers are paid only if they generate employment outcomes leading to termination of SSDI benefits. Many EN providers are private sector nonprofits already participating in other government

programs to serve people with disabilities. Some are for-profit companies that have streamlined methods to secure job placement, which is to be expected under an outcome-based program.

The Ticket program and other SSA initiatives could change the economics of disability insurance and disability services in the United States. While State VR agencies have a mandate to serve people with significant disabilities, the Ticket program makes it more profitable for ENs to serve people with less significant disabilities. Ideally, the Ticket program can secure employment for these people and reduce the numbers of SSDI and SSI beneficiaries. In turn, this would reduce the demand on the Social Security Trust Fund, which is an important goal.

In addition, private sector disability insurance carriers routinely seek to place their long-term disability beneficiaries on SSDI to reduce the carriers' own costs. While many of these people are entitled to SSA disability benefits, the Ticket program could be modified in ways that would motivate insurance carriers to maintain a longer term commitment to help people return to work, thus reducing their own costs over time. SSA has an early intervention demonstration project that would essentially use a return-to-work attempt as part of the disability determination process, with protocols aimed at both VR agencies and ENs. In addition to reducing the rate of approval for SSDI benefits, this program could change the disability culture at SSA into a more employment-focused culture. Many people in the insurance industry and the general public perceive SSDI as a "permanent and total" workers' compensation claim, yet SSDI need not be a direct route to permanent disability status.

Among the quality-monitoring improvements in the new rules, the Ticket program rewards EN providers that help people stay employed for 5 years or more. SSA is also researching other improvements to work incentives that could give beneficiaries a more favorable benefits scenario for seeking employment.

Any public-private partnership of this magnitude—based in an agency as large as SSA, which has other primary goals—is bound to face challenges. But the new Ticket

program rules and other efforts at SSA, combined with private sector investment in serving people with disabilities, are beginning to address those challenges.

Workforce Investment Act (WIA) and One-Stop Centers

Another key program serving people with disabilities is the One-Stop Center created by the Workforce Investment Act of 1998 (WIA). The WIA is designed to integrate the entire workforce development system funded through the Federal Government in each of the States. One-Stop Centers are the hub of this effort—they provide comprehensive services to job-seekers and employers on a local basis throughout the nation. Included in this network of employment services are the Employment Service and the Unemployment Insurance program. The State-federal VR program is also a mandated partner.

State and local Workforce Investment Boards are in place to ensure that services address local needs. These boards must have a majority of private sector representatives as well as representatives from human services agencies, including educational systems. One-Stops are required to collaborate and integrate services with the local offices of the State-federal VR system. This can go as far as co-locating staff from the two systems to ensure coordinated planning and allocation of resources at both the organization and individual consumer levels. GAO studied exemplary One-Stop programs; the findings suggest that One-Stops need to incorporate the following components into their services:[28]

1. Seamless access to all services.
2. Services for employers, with dedicated staff to ensure that employers' needs are considered.
3. Strong collaboration with other community-based programs that increase and focus resources on workforce development.

However, in spite of the intention of the One-Stops to increase accessibility, a recent study indicates that access issues remain for people with disabilities.[29] These issues

include physical access, in that One-Stop locations are not within reasonable distance for many people with disabilities; inaccessible space; and difficult internal program referrals. A 2007 GAO study found that fewer States reported VR co-location sites than in an earlier study, although more reported having electronic referral capabilities.[30] Another study identified the following limitations in One-Stop services for people with disabilities:[31]

1. Inaccessible locations.
2. Inaccessible computer equipment, which WIA consumers are expected to use.
3. Automatic referral of people with disabilities to the VR program without first providing WIA services.
4. WIA outcome measures focused on employment, earnings, and credentials of those who exit the programs. This emphasis may be a disincentive for One-Stops to serve people with disabilities, who, as a group, tend to have lower employment and earnings rates. However, this is one of the very issues WIA programs are designed to address.

Given the problems in recognizing the service needs of people with disabilities, the WIA One-Stops are not likely to be sensitive to the disability services infrastructure. Although these issues may be alleviated to some extent as time goes on, a more deliberate emphasis and focus on the employment and service needs of people with disabilities seems warranted.

New Technologies, New Opportunities

VR and employment programs need to take advantage of new technologies to assist people with their employment needs. Using these technologies, it is possible to imagine new ways to empower people with disabilities to access many more labor market opportunities. VR agencies need to be on the cutting edge of how to use these technologies for the benefit of people with disabilities. Many innovations are being

driven by Web 2.0 technologies, which hold great potential to improve work opportunities and quality of life for people with disabilities everywhere.

New software and computer network technologies, and their broader acceptance and use in our daily lives, suggest a good business case for rehabilitation uses. The new breed of inexpensive, fast, reliable Web-based solutions is empowering persons of all backgrounds to take greater control over their lives, and they are environmentally friendly as well.

The growth of Internet and other technologies, driven by the reduced costs of global communication, is changing how we think, socialize, shop, and learn, and influencing how we will work in the future. Technological innovation is driving change—behavioral change in particular. The change is good news for people with disabilities, and it is here to stay. Trends worth highlighting include social networks built on Web 2.0 technology, and SaaS (software-as-a-service) and Cloud Computing, which enable companies to bring transformative innovation to the world of work.

Social networks are having a huge impact on how people socialize, gather information, stay informed, and solve problems. As this new medium gains wider acceptance and adoption in both personal and work environments, it can be further customized to focus on particular subsets of populations, targeting their specific needs and wants. We can explore new applications of social network platforms to create communities specific to people with disabilities, in which people with similar interests and needs can exchange volumes of useful information instantly and at minimal cost.

To see how this might work in practice, consider www.myvetwork.com, a fast-growing social network platform, custom-designed for persons associated with the U.S. military (active duty or veterans) and their spouses, families, and friends. (Compliance is not required of nongovernment organization Web sites, but the Internet sites mentioned here should comply with Section 508 of the ADA. The degree of compliance may change at any site at any time.) Recognizing this group's unique needs and challenges,

MyVetwork is creating a unique, independent, trusted source of information driven by its members' collective interests and desire to stay in touch.

The second trend is the proliferation of technologies that hold the promise of changing how work is done or—even more important—where it is done. The advent of the Internet makes it possible for work to come to us. The barriers to flexible work have been removed, benefitting both workers and the companies they serve. People have the freedom to structure their time around family and other needs. Workers are empowered and new opportunities exist for those who have traditionally been left out of the workforce. People with disabilities, retirees, stay-at-home moms, dislocated workers from industries that permanently left local communities—these people have a vast array of skills, and now they can offer their services to companies that are increasingly looking for talent that may not be available in their local labor markets.

The opportunity for cost savings and improved productivity for corporations is tremendous, and they are starting to adopt the new mindset. Industry leaders in SaaS and Cloud Computing are developing technologies that enable them to link corporations looking for talent with "virtual workers" and home-based workers who prefer to work flexible hours or work from a distance. It is all about options and choices benefiting both individuals and the corporations that employ them. People with disabilities can make those choices on a large scale for the very first time, as much as any other group of workers, and they can realize the benefits of working from home or from any other location they desire.

A technology platform that provides services to both employers and teams of employees is called www.livework.com. LiveWork offers employers high-quality work and accountability, and independent workers (referred to as "experts") gain an infrastructure and the option of working for multiple companies. Both the companies and the experts can count on efficiency and community. With LiveWork, companies can outsource work to communities of virtual workers without the need to sign lengthy contracts with outsourcers. Any business can advertise its need for virtual workers and workers can find projects, as well as promoting their own services. Each worker's profile includes information about his or her work history, reputation, and so on.

LiveOps (www.liveopps.com) has developed the leading on-demand contact center platform, which it uses to operate a virtual work community of 20,000 independent agents in the call center space. LiveOps is in a unique position to take this concept to the next level and create the next-generation technology platform that could revolutionize the world of work: an online marketplace that enables teams of free agents to sell their expertise and services to buyers of labor. This networked community of workers is a central market where buyers and sellers can convene, create work teams, converge, and transact business.

LiveOps intends to do for the world of work what eBay did for commerce, and technology has advanced to the point that such an endeavor is possible. At the same time, three worldwide trends are converging to create a perfect environment for a global labor market: ever-increasing productivity, globalization, and environmental stewardship.

A nondiscriminatory virtual employment market is further supported by the corporate trend of using talent management and applicant tracking software (also delivered as SaaS) to automate recruitment, assessment, hiring, and on-boarding processes. The automation helps employers with compliance while at the same time having a positive effect on employment of special groups. It is a win-win situation for employees and employers. People with disabilities need to have access to these technologies so they can participate competitively in these new labor markets.

Health Care for People with Disabilities

Access to health care is a major concern of people with disabilities everywhere.[32] Studies describe either the lack of access to appropriate treatment or the receipt of inappropriate or perhaps even harmful treatment as a result of the lack of knowledge and experience of treatment providers.

One solution being considered in health care reform is the “medical home model,” built around the relationship between the primary care physician and the patient. The physician

is expected to get to know the patient and his or her needs, and coordinate all needed care with other treatment providers. If this approach is successful, it will help ensure that people with disabilities get the treatment they need, at the right time and from the right provider. However, there are not enough primary care physicians to met current and future demand, especially if this model is introduced as part of health care reform.

Electronic medical records are touted as a technology that can improve the quality of services and reduce costs at the same time. These systems have the potential to provide substantial benefits to physicians, clinic practices, and health care organizations. They can facilitate workflow and improve the quality of patient care and patient safety. The Institute of Medicine has identified the application of information technology as a primary means to improve the quality of health care. However, health care IT professionals are in short supply. Recognizing this, the Administration and Congress included the Health Information Technology for Economic and Clinical Health Act (HITECH) as part of the American Recovery and Reinvestment Act (ARRA), and provided $19 billion for health IT. Not only is this investment potentially significant for the health of people with disabilities, it presents career opportunities for them that the VR and education systems need to pursue.

The current health care reform debate (fall of 2009) is of central importance to everyone who is concerned about the health of this significant population. The debate seems to focus primarily on the costs associated with various reform proposals rather than on the quality of care provided. Of course, cost is a factor in quality, but it is not the only factor.

ARRA and the various health care bills being debated all include investments in the quantity and quality of health care personnel at all levels of the continuum. To illustrate, on July 28, 2009, the Department of Health and Human Services announced that $200 million in ARRA funding was available for the training and financial support of health care professionals. These funds will be used for scholarships, loans, grants, primary care training programs, and increasing the diversity of the professional workforce, among other purposes. Another $300 million in ARRA workforce funds will be used to expand and develop the Health Resources and Services Administration’s

(HRSA's) National Health Service Corps. When health care reform becomes a reality, it is likely that more services will be needed to meet the increased demand. Given that a shortfall in personnel is projected under current scenarios, any increase in services will only increase the supply-demand gap. Using ARRA and health care reform funding not only to expand but also to improve the quality of services will be imperative, if costs are to be controlled and outcomes improved.

It is not clear how the anemic economy will fare in the next few years; however, evidence exists of increasing demands on the Medicare system as applications for SSDI benefits rapidly escalate. This is to be expected, with many people nearing retirement age or being laid off. Under more favorable circumstances, they might continue working despite health conditions. But with no work available, these conditions can be used to obtain SSDI along with Medicare. Even before the economic downturn, it was clear that Medicare funding streams would not be sufficient for future needs. Now the recession is likely to bring more beneficiaries into the system, with a corresponding shortfall in tax revenue owing to high levels of unemployment, putting Medicare funding in a vise.

A core issue in the current debate is that providing more services to more people will increase the pressure on the health care system and will continue to drive up costs, as demand outstrips supply. Depending how the issue of cost is resolved, many different things could happen. If more costs are shifted to employers, they might lay more people off or keep wages low, thus further reducing the supply of disability service workers. If costs are moderated by controls placed on what health care providers can charge, incentives to enter the field will be diminished, thus contributing to a future imbalance between supply and demand. Until health care reform becomes a reality, it will be difficult to anticipate and plan for sufficient infrastructure staffing. Many administrators of health care and social service programs hesitate to use stimulus money to hire staff, because the funding is only temporary and the means to maintain these new staffing levels are not likely to emerge in the current economy. Thus, whatever programming can be done in the short term with stimulus funds to train and upgrade the skills of current health care personnel would seem to be a wise investment. Similarly, reducing

the costs of entering the health care field by providing funds for tuition and related education/training costs, including improving access to needed credentials, would likely entice more people to pursue health care careers and mitigate the projection of an imbalance between supply and demand.

Education and Youth with Disabilities

The education system focuses on providing the foundation for students to become productive, independent citizens. For most, this means pursuing postsecondary education and training, or becoming employed. Employment for youth with disabilities is a concern for the VR system and for the schools, but in spite of efforts over the past decade to increase collaboration between VR agencies and schools, improvements in outcomes are lagging. In general, unemployment rates for youth ages 16 to 19 years are about three times higher than the rates for older workers. For those 19 to 24 years old, the rate improves somewhat but is still about double the rate of other age groups. Of course, employment rates are lower because many in these age groups are in educational and training programs. It is well known that early employment experiences and successful completion of academic and training programs translates into long-term gains in employment, financial independence, and quality of life. It is important that youth with disabilities become engaged in personally productive activities, such as further education and employment, to whatever extent possible after they leave secondary education.

One national study presents an exceptionally robust and useful window on the impact of education on employment-related experience of youth with disabilities. Longitudinal research sponsored by the Department of Education and conducted by SRI International has followed a nationally representative sample of more than 11,000 special education students since 2000. A 2009 report presented findings describing the experiences of these youth, who had left high school by 2005.[33] In some instances, data collected from them was comparable to data collected from youth in the general population. Comparisons of the data enable us to measure the similarities in the post-high school experiences of youth with and without disabilities. Much of the effort in policymaking and practice innovations over the past 30 years has been devoted to providing accommodations to youth with disabilities so

they can compete with their peers when they reach adulthood. The following are some of the more salient peer comparison findings from the 2005 data (unless otherwise noted, these results refer to youth with disabilities):

1. Forty-five percent of youth with disabilities continued on to some postsecondary education within 4 years of leaving high school, while 53 percent of youth without disabilities did so.
2. Fewer were likely to be attending 4-year institutions (8% vs. 29% of youth without disabilities).
3. Fifty-five percent of those who were identified as having a disability during their secondary education did not consider themselves as having a disability during their postsecondary experiences.
4. Of those who reported their disability status to their postsecondary institution (37%), fewer received accommodations than when they attended secondary schools (24% vs. 84%).
5. A large majority who received accommodations believed that they were helpful and that they were getting the right assistance.
6. Almost 90 percent of the students reported that they were pursuing a specific degree or certificate.
7. Seventy-two percent reported having worked at some time since leaving high school, with some holding up to three jobs. Of the latter, 58 percent reported working full time at one of their jobs.
8. Of those who held jobs, 19 percent reported that their employers were aware of their disabilities and 3 percent reported receiving accommodations.
9. A majority of working youth reported liking their jobs (85%), being well treated (87%), and receiving good pay and advancement opportunities (67% and 78%, respectively).
10. Eighty-five percent had been engaged in employment, postsecondary education. or training since leaving high school.

11. Approximately 20 percent did not complete high school. Differences between them and their counterparts who finished high school showed up almost immediately.
12. Noncompleters were less likely to enroll in postsecondary education (51% vs.17%) and more likely to have engaged the criminal justice system.

These findings show that a high proportion of youth with disabilities actively prepare for their futures in positive ways, in numbers that are comparable to those for youth without disabilities. However, certain evident disparities—in completing secondary education and moving on to postsecondary opportunities, particularly 4-year programs, and in access to accommodations during postsecondary education—require ongoing attention. Any gaps at this early stage of career building and community participation will be more difficult to make up as time goes on.

Community Colleges

The system of community colleges throughout the United States is the perfect resource to help youth with disabilities transition to productive adulthood. Community colleges are increasingly seen as the key link between students and their careers. One of their strengths is their focus on career and technical education (CTE), which often directly connects students with work experiences.

The College and Careers Initiative, sponsored by the U.S. Department of Education, funds programs that link high school students with career tracks that extend to associate or bachelor's degree programs, or certification programs. These programs make direct connections between high school and postsecondary curricula, eliminating the problem students often face of having to take courses that are irrelevant to their career pursuits. The programs also strive to eliminate the problem of transfer credits between 2-year and 4-year colleges.

CTE programs include employers as partners to ensure that students acquire needed skills and experiences, and that job opportunities are available when students complete

their programs. The goal is to keep students involved all the way through to completion and to connect them with high-demand jobs. This is a highly promising approach to address the workforce imbalance in the disability services industry. The career pathways pioneered by community colleges should be adopted as a workforce development strategy. For example, in the health care industry, a career pathway would enable youth to become nurse aides, then practical nurses, and eventually registered nurses or even nurse practitioners.

Summary

In the three critical sectors of education, health care, and employment, major efforts to provide opportunities to people with disabilities are meeting with success. Many people with disabilities are participating in life arenas of their choice because they took advantage of a disability services infrastructure that offered a continuum of opportunities. And many businesses, educational institutions, and community-based organizations are providing needed accommodations, enabling all of society to benefit from the contributions of people with disabilities. But although many positive signs and trends are apparent, discrepancies in key quality-of-life areas remain to be overcome. Positive momentum is threatened by workforce shortages that were projected even before the current recession.

Near-term efforts are needed to engage the political process to do the following:

- Maintain current services.
- Invest now in accommodating current and future workforces.
- Strategically plan how public and private sectors will work together to engage all people with disabilities in economic and social infrastructures.

This can be the era when the United States moves from a gaping patchwork of programs to a strategically driven disability services infrastructure, staffed by highly qualified workers.

SECTION 6. **Recommendations**

This NCD review indicates that the disability services infrastructure has grown stronger over the past 20 years and has addressed serious deficiencies associated with the quality of life of people with disabilities. However, most of the indicators suggest that quality of life for these people still lags behind that of others in our society. The infrastructure must be enhanced, both in terms of the number of workers needed to fill the required positions and in terms of the skill levels, tenures, and organizational supports provided to them, including wages and benefits. Data indicates that the need for these services will increase, especially as the baby boomers age into their retirement years, increasing the demands on infrastructure resources. Couple the increased demand with the boomers' withdrawal from the workforce, and the imbalance between supply and demand is inevitable. Knowing in advance that this will happen compels a proactive response as soon as possible. We should not let any difficulties deflect us from the goal of ensuring that all services and their expected outcomes support participation by people with disabilities to the same extent that they support the participation of other citizens in any social enterprise. The following recommendations focus on actions that should be considered in this light.

Recommendation 1:

Establish a mechanism to track ongoing economic, social, labor market, and professional developments so that new information can be used to redirect planning and actions in support of the disability services infrastructure. The reality of the future workforce may bear little resemblance to the projections provided here, and unforeseen events and forces might change the balance between supply and demand. These events and forces must be identified and accounted for quickly. The Departments of Labor and Education should partner to provide leadership to the nation on this issue.

Recommendation 2:

Currently, not all occupations specific to the disability services infrastructure are tracked by the Bureau of Labor Statistics (BLS), which makes it difficult to plan for

shortages. In addition, these occupations are not well known to the general public, because information about them is hard to find. More definitive coverage of these occupations in the BLS data system would be very useful in overcoming workforce supply and demand imbalances.

Recommendation 3:

Among its many potential labor sources, our society needs to fully tap the underutilized pool of workers with disabilities. The infrastructure agencies—including the State-federal vocational rehabilitation (VR) system, the Department of Veterans Affairs (VA), and private sector companies that serve people with disabilities—must begin planning strategically to hire more workers from the population they serve. Accommodations are critical to making this happen. Infrastructure buildings and transportation systems need to be fully accessible if significant employment gains are to be made by people with disabilities. The Department of Transportation should be in the forefront, leading the way to resolving transportation issues.

Recommendation 4:

Ensure that partnership opportunities are encouraged between the public and private sectors. Combined public-private initiatives will be required to provide the strategic planning to fully fund and provide for the social, educational, and health care needs of all citizens, not just those of older people or people with disabilities. Given their presence in communities in each of the 50 States, VR agencies and Workforce Investment Act (WIA) One-Stops are ideally positioned to ramp up collaboration with each other and with local employers and education-training programs.

Recommendation 5:

Establish systematic efforts to acquire information on the supply of infrastructure workers. Collect data from universities, training programs, professional organizations, and unions to track current and future workforce supply. The private sector and all levels of government must pay attention to how education and

training resources, including those of employers, should be realigned for the development of the future workforce. Supply pipelines for infrastructure occupations need resources to expand current education and training programs, and to create new ones. Facilities and faculty/trainers need to be available quickly and in sufficient numbers. The National Institute on Disability and Rehabilitation Research should establish appropriate data collection systems.

Recommendation 6:

Promote opportunities to encourage new entrants into critical infrastructure occupations, such as home health aide, personal care assistant, mental health worker, and rehabilitation counselor. Publicize career opportunities in these and related infrastructure occupations through a variety of media channels, including social networking media. Target school- and college-age youth, educational institutions, and community employment support agencies. Schools, colleges, community-based organizations, and employers should expand their offerings, and career counseling personnel should encourage youth to consider careers in these occupations. In particular, vocational rehabilitation agencies and programs need to inform consumers with disabilities about opportunities in these occupations. Again, the federal Departments of Labor and Education should share the lead in this effort.

Recommendation 7:

Infrastructure employers will have to increase the salaries and benefits, and provide training to upgrade the skills and value of their employees if they are to attract and maintain a suitable infrastructure workforce. Providing greater flexibility in work schedules and hourly work arrangements would attract a greater diversity of workers. Employers need to offer incentives to older workers to keep them on the job longer. Professional and business associations should promote this effort with their memberships.

Recommendation 8:

Many of the disability infrastructure occupations with strong future demand characteristics have credentialing requirements. Because these requirements

ensure a high level of service quality, they must not be weakened or compromised. However, developing new ways to achieve the necessary competencies and credentials would turn transferable opportunities into viable solutions to worker shortages. Workers who have already demonstrated successful tenure in related occupations should not be discouraged from pursuing opportunities in other infrastructure occupations.

Facilitating career advancement for people in lower tier jobs will require creative approaches to overcoming credentialing barriers where they exist. Employers, credentialing agencies, and education and training programs should develop creative alternative credentialing opportunities. Gaining credentials for higher level jobs through education and training while on the job is one approach to developing these opportunities. Distance learning opportunities, coupled with on-the-job training, need to be tapped to create new credentialing avenues. Overcoming credentialing barriers that prohibit movement of skilled workers across infrastructure occupations should become a high priority. The Department of Education should partner with State and professional credentialing bodies to create smoother pathways to enter and advance in disability infrastructure careers.

Recommendation 9:

Programs that serve people with disabilities, including the State/federal vocational rehabilitation system, as well as Work Force Investment programs intended to assist the general population, need to work more closely with one another and partner more with infrastructure employers to ensure that an adequate flow of job candidates, with and without disabilities, is channeled to fill job openings. These programs need to be fully accessible, including facility and services accessibility. They also need to use new Internet technologies to support service delivery. Infrastructure employers need to see these programs as valued recruiting resources for the workers they need. The programs need to include performance measures that show their success at placing candidates into infrastructure jobs. Such indicators will be useful to achieve a better workforce supply and demand

balance. Leadership for this effort should rest with the Departments of Labor and Education, as well as the VA and the Social Security Administration.

Recommendation 10:

An ongoing, coordinated effort is required to systematically monitor how well the disability services infrastructure is responding to people's needs. A consortium of federal agencies—each with responsibility for some aspect of quality of life for people with disabilities—should design a system to collect and share data. The agencies would include the Census Bureau, the Departments of Labor and Education, and the Centers for Medicare and Medicaid Services.

Recommendation 11:

Research must be funded to develop a strong evidence base for the services offered by employment, health care, and education support programs. Improved practice is needed to serve job candidates as well as employers, to ensure that properly trained workers are successfully hired, retained, and provided with career opportunities in infrastructure occupations. The Departments of Education and Labor and the National Institutes of Health have important roles to play in implementing this recommendation.

People with disabilities from all walks of life and all backgrounds are a vital component of our society. It is time to implement these recommendations and commit resources to pursue opportunities for their full participation in all aspects of our society and economy.

APPENDIX A. **Literature Abstracts**

Abstracts for Section 2: National Trends, Gaps and Barriers, and Their Implications for People with Disabilities and the Disability Services Industry

Education Issues

Carlson, E., Daley, T., Bitterman, A., Heinzen, H., Keller, B., Markowitz, J., Riley, J., & Westat (2009). *Early School Transitions and the Social Behavior of Children with Disabilities: Selected Findings from the Pre-Elementary Education Longitudinal Study*. Washington, DC: National Center for Special Education Research.

Purpose: Reviews the 5-year Pre-Elementary Education Longitudinal Study (PEELS), which examines the characteristics of 3,104 children with disabilities ages 3–5 who received special education services in preschool.

Findings:

- 70% of children between school years 2003–04 and 2004–05 transitioned to a new grade, school, or program.
- There were no significant differences based on teacher's reports relative to ease of transition.
- There were some differences based on parent reports relative to ease of transition.
- Many children who move from preschool to kindergarten are declassified.
- School readiness plays an important role in ease of transition.
- Teachers, especially special education teachers, used a variety of strategies to facilitate transition.
- Teachers reported more behavioral issues than parents.
- Males who received special education services for 3 years had more behavioral problems.

- Males and females who received special education services for 3 years had significantly lower social skills than those who received services for less than 3 years.

Kundu, M., & Dutta, A. (2003). Disability-related services: Needs and satisfaction of postsecondary students. *Rehabilitation Education, 17*(1), 45–54.

Purpose: Determine university need for and satisfaction with disability-related support services.

Findings:

- Over the decade studied, there was a 90% increase in the number of colleges and universities admitting people with disabilities.
- Proportion of postsecondary students with disabilities increased from 2.6% in 1978 to 17% in 2000.
- About 6% of all undergraduates and 4% of all graduates and first-professional students identified themselves as having a disability.
- Institutions of higher education must enhance the size and diversity of disability-related support services. However, many educational settings have not kept pace with the increases in the number of students enrolling in their institutions.
- Accessibility and availability of support services have traditionally played a decisive role in the selection of a postsecondary institution by a student with a disability.
- Of 3,680 institutions admitting students with disabilities from 1996 through 1998, 98% provided at least one support service, 88% provided alternative test-taking formats or additional time, 77% offered tutorial services, 69% offered readers/note-takers, 62% provided registration assistance or priority class registration, 55% provided assistive listening devices or talking computers, 45%

offered sign language interpreters/translators, and 42% offered course substitutions or waivers.

- Many of the hindrances encountered by students in obtaining support services are the direct result of unrecognized need rather than lack of institutional ability.
- Men expressed a higher need for services than women; married and separated/divorced students had more need than single students; sophomores, graduate students, and those pursuing other degrees reported a higher level of need than other students.
- Sophomores had more satisfaction with services, men had higher satisfaction than women, students with a good GPA (3.0–4.0) were more satisfied, and those who had never married or were separated/divorced expressed greater satisfaction.

Torres-Burgo, N., Reyes-Wasson, P., & Brusca-Vega, R. (1999). Perceptions and needs of Hispanic and non-Hispanic parents of children receiving learning disability services. *Bilingual Research Journal*, *23*(4)*,* 319–333.

Purpose: To (a) determine whether and how the reported involvement and perceptions of Hispanic and non-Hispanic parents of children with learning disabilities differed with respect to the special education process in a large, culturally diverse urban school district, and (b) suggest ways in which the involvement of parents from diverse cultural and linguistic backgrounds might be advanced by local school personnel.

Findings:

- Hispanic parents of children with disabilities are at risk for poor treatment in the public school system; for example, opportunity for meaningful dialogue with parents is compromised when special ed teachers speak only English.
- Many urban parents, regardless of their cultural and linguistic backgrounds, are not adequately included in some of the most basic aspects of the special ed process in the public school system; for example, knowing what an Individualized Education Plan was and receiving a copy of their child's IEP.
- While Hispanic and non-Hispanic parents are relatively satisfied with the services provided, urban parents, particularly urban Hispanic parents, are often provided with superficial opportunities for involvement in the special ed process rather than the extensive parent-professional interaction necessary to form equal partnerships.
- Strategies to enhance the quality of involvement were proposed (p. 330).

Wagner, M., Newman, L., Cameto Renee, P., Levine, P., and Marder, C. (2007). *Perceptions and Expectations of Youth with Disabilities: A Special Topic Report of Findings from the National Longitudinal Transition Study-2 (NLTS2)*. Washington, DC: National Center for Special Education Research.

Purpose: Discusses the findings of a survey of youths with disabilities regarding their subjective experiences.

Findings:

- Between 59% and 89% responded favorably to attributes about themselves such as being nice, being proud of themselves, able to handle challenges, feeling useful and important, and feeling that life is full of interesting things to do.
- 60% reported no recent feelings of depression, loneliness, or being disliked by others.
- Three in five gave themselves high marks on self-realization.
- One in 10 reported not feeling useful or important.
- 12% rarely or never felt hopeful about the future.
- More than half responded favorably regarding their performance in the arts, with computers, and in athletics.
- Parents had more favorable views than the youths' themselves of their children's strengths.
- More than half felt they could confront their peers when they upset them.
- Two-thirds felt comfortable seeking help from adults.
- Half scored high on personal autonomy.
- Eight in 10 scored high on psychological empowerment.

- Receiving instruction in transition planning did not affect scores on personal autonomy and psychological empowerment.
- Most had positive views of school.
- Most had no problems with school.
- Most felt school was pretty safe.
- Most felt they were a part of their school.
- Half felt they receive necessary supports/services.
- 1–11% reported negative views of school.
- Three out of 10 reported no involvement in school.
- Most reported positive relationships with parents.
- About half felt they had caring friends.
- 3% reported negative views of personal relationships.
- Most expected to graduate from high school; fewer expected to attend college.
- Most expected to become employed but were not confident they would earn enough to be financially self-sufficient.
- Most expected to live independently.
- Youth with ADD/ADHD reported trouble paying attention in school.
- Youth with orthopedic disabilities reported weal athletic and mechanical skill.
- Youth with autism were less engaged in school activities and friendships.
- Youth with sensory or orthopedic disabilities reported having a disability more than youth with learning or speech/language disabilities.
- Youth with visual impairments reported a strong sense of being able to handle things and not feeling depressed. They also reported strong involvement in school and with peers/friends.
- Youth with mental retardation reported not feeling cared about by adults at school, not feeling useful, and feeling less hopeful about the future.

- Girls were more likely to report being sensitive to others.
- Boys were more likely to report being good athletes.
- Adolescent girls were more likely to seek friend/sibling support.
- White youth sought friend/sibling support more than African American youth.
- Youth from middle income homes were more likely to seek friend/sibling support than those from lower income homes.
- Older youths were less likely to participate in school activities that younger youths.

Employment

Capella, M. E. (2003). Comparing employment outcomes of vocational rehabilitation consumers with hearing loss to other consumers and the general labor force. *Rehabilitation Counseling Bulletin*, *47*, 24–33.

Purpose: Discusses a comparison study of four aspects of employment (occupational category, earnings, projected job growth, and transferable skill levels) that can be used to evaluate postclosure outcomes for vocational rehabilitation (VR) consumers with hearting loss, VR consumers with other disabilities, and the general population.

Findings:

- There were few differences between the two VR groups.
- The general population had better outcomes across all four categories.
- VR consumers are employed in lower skill jobs than those in the general population.

Crudden, A., Sansing, W., & Butler, S. (2005). Overcoming barriers to employment: Strategies of rehabilitation providers. *Journal of Visual Impairment and Blindness*, *99*, 325–335.

Purpose: Summarizes focus groups with rehabilitation providers relative to attitudinal, transportation, and print barriers, and possible strategies for overcoming them in the area of employment of persons with visual impairments.

Findings:

- Employer education and increased exposure to persons with visual impairments was a strategy for overcoming attitudinal barriers.
- Strategies for overcoming transportation barriers include developing a network of volunteer drivers and increasing efforts to improve the transportation systems for multiple clients via grant funds.
- Strategies for overcoming print barriers include further research on the impact of assistive technology, identifying the key aspects of superior assistive technology training programs, and research that would identify better methods for streamlining paperwork for providers, which would result in more focused job development/placement efforts on behalf of clients.

Fabian, E. (2007). Urban youth with disabilities: Factors affecting transition employment. *Rehabilitation Counseling Bulletin*, *50*(3), 130–138.

Purpose: To determine from a sample of predominately minority youth participating in a transition-to-work program (Bridges) what demographic, disability, and background factors and what individual characteristics and experiences distinguish students who get jobs from those who do not, as well as the nature of the jobs they obtain.

Findings:

- 68% of the youth participating in the Bridges program secured competitive jobs during high school, with average hourly earnings above the minimum wage.
- Girls in the sample secured jobs at a significantly lower rate than boys (63% to 69%), although there were no wage differences.
- Previous vocational experience is a significant factor in predicting employment during school for these youth.
- No significant relationship emerged between having a career goal and getting a job.
- The majority of students obtained service-sector jobs in retail and food service businesses.

Implications:

- Rehabilitation counselors in urban areas should think and work more systematically to develop partnerships with school personnel who are designing vocationally related curriculum and career experiences for youth, even before they enter secondary school.

Kessler, R. C., Heeringa, S., Lakoma, M. D., Petukhova, M., Rupp, A. E., Schoenbaum, M., Wang, P. S., & Zaslavsky, A. M. (2008). Individual and societal effects of mental disorders on earnings in the United States: Results from the national comorbidity survey replication. *American Journal of Psychiatry, 165*(6), 703–711.

Purpose: The purpose of this report was to update previous estimates of the association between mental disorders and earnings (lost earnings owing to mental disorders). Estimates for 2002 are based on data from the National Comorbidity Survey Replication (NCS-R).

Findings:

- Serious mental illness was estimated to be associated with a loss of $193.2 billion in personal earnings in the total US population in 2002.
- To put this number in perspective, it is larger than the $145 billion economic stimulus package proposed by President Bush in January 2008.
- This estimate is much higher than earlier estimates ($44.1 billion in 1985, $77 billion in 1992).
- These differences can be easily explained by two factors: (1) inflation (adjusting 1985 data to 2002 dollars: $83.1 billion, adjusting 1992 data: $107.7), and (2) controlling for education, marital status, and household size.
- Irrespective of the reasons for differences in estimates across the studies, all three studies found that mental disorders are associated with massive losses of productive human capital.
- This finding adds to a growing body of evidence that impaired functioning associated with mental disorders carries an enormous societal burden.
- Three-fourths of the total association between serious mental illness and earning in the NCS-R is due to lower earnings among employed persons with

serious mental illness; the remaining one-fourth is due to a lower probability of having any earnings at all among persons with serious mental illness.

- Appropriate policy solutions might include increased job training and vocational rehabilitation for workers with serious mental illness and increased enforcement of the ADA.
- Some interventions, such as those based on a social skills training model or an occupational rehabilitation model, might be effective in decreasing unemployment and improving job performance among people with serious mental illness without decreasing symptoms of mental illness.

Saunders, J. L., Leahy, M. J., McGlynn, C., & Estrada-Hernandez, N. (2006). Predictors of employment outcomes for persons with disabilities: An integrative review of potential evidenced-based factors. *Journal of Applied Rehabilitation Counseling, 37*(2)*,* 3–20.

Purpose: To review and compile the results of nearly a quarter century of rehabilitation research examining employment outcomes of people with disabilities. A discussion of implications, recommendations, and limitations is provided in the context of the need for evidenced-based practice in rehabilitation counseling and knowledge translation approaches in rehabilitation research.

Findings:

- Some research-based evidence suggests that the following variables are significant in relation to employment outcomes: number of months in the longest lasting job; rehabilitation background; transferable skills; attorney involvement; cultural opportunities; extent of reading and interests; family adjustment; social support; transportation source; valence; wages; personality or interpersonal skills; intelligence; aptitude; adaptability; satisfactoriness; manager RTW Scale; McCarron-Dial; attitudes toward self-employment outcomes; working alliance; consumer involvement; program intervention; vocational evaluation of assessment; client training; counselor training; VR services; college; financial variables.
- The synthesis of these studies provided an opportunity to identify and review some of the problems that inhibit the ability to clearly identify what has been learned in the past 25 years and translate that knowledge into evidenced-based practices. (See summary on p. 17.)

Schur, L., Kruse, D., & Blanck, P. (2005). Corporate culture and the employment of persons with disabilities. *Behavioral Sciences and the Law, 23*, 3–20.

Purpose: Examines the role of corporate culture in the employment of people with disabilities and how corporations can develop supportive cultures that benefit people with disabilities, nondisabled employees, and the organization as a whole.

Findings:

- Employment not only increases financial resources but helps incorporate people with disabilities fully into mainstream society by increasing their social networks, civic skills, independence, and sense of efficacy and inclusion from filling a valued social role.
- Employment levels of people with disabilities remain well below those of nondisabled people, and the majority of nonemployed people with disabilities would prefer to be working. Only 28.6% of the working age people reporting a work limitation were employed in 2002, compared with 76.6% not reporting a disability.
- Using an even broader definition of disability, the 2000 census found that 56.6% of the 30 million working age Americans who reported functional or activity limitations were employed, compared with 77.2% of those without such limitations. Employment rates are lowest among those with several functional or activity limitations, of whom only 25.4% were employed in 1999.
- 67% want to work.
- Low employment rates contribute to high rates of poverty.
- Corporate culture can create attitudinal, behavioral, and physical barriers for workers and job applicants with disabilities.
- While the different levels of culture often reinforce one another, incongruities and conflicts may exist among them. For example, the expressed commitment to hiring people with disabilities may be accepted at the second level of

organizational culture (the level of shared meaning) but not at the most basic level (the unstated and often unconscious assumptions of the organization).

- This lack of acceptance may in turn be reflected in the third level of culture, so that the physical environment remains inaccessible, jobs are structured in ways that make it difficult for people with disabilities to work there, and coworker and supervisor attitudes remain unchanged.
- 20% of employers said the greatest barrier to people with disabilities finding employment is discrimination, prejudice, or employer reluctance to hire them.
- 22% of private sector employers reported that attitudes and stereotypes were barriers to employment of people with disabilities in their own firms.
- 32% said it was difficult or very difficult to change supervisor and coworker attitudes, while only 17% said it was difficult to create flexibility or modify return-to-work policies.
- 81% of private sector employers said visible top management commitment was effective or very effective for reducing barriers to employment for people with disabilities, while 62% said this about staff training, and 59% said this about mentoring efforts.
- U.S. employers found a lower rate of lost time days due to illness and injury among companies that used (1) employee involvement programs (stress and participation in decisions are inversely related; (2) conflict resolution and grievance procedures; (3) workforce stabilization and continuity policies; and (4) early support and assistance programs for employees with chronic illness or injuries.
- Supervisor and coworker attitudes toward employees with disabilities reflect several influences: stereotypes, negative affect or discomfort in being around people with disabilities, strain caused by communication difficulties, personality factors, and previous contact with people with disabilities.
- Supervisor and coworker attitudes in turn affect: performance expectations, performance evaluations, willingness to work with a person with a disability, and hiring into jobs with discretionary work activities (more responsibility).

- Employees with disabilities use a number of strategies to shape expectations in the workforce: concealing the disability; communicating information about disability to reduce discomfort/clarify norms; requesting help to clarify expected behaviors; emphasizing similarity to others through shared interests, opinions, and values; and becoming a “superworker” to dispel stereotypes and modify others’ expectations.
- The biggest problem with established job methodologies is not the unsuitability of jobs but rather finding an organization that is willing to break the mold and give people a chance to prove their capabilities.
- Accommodations are likely to provoke a response (to be perceived as unfair) if they are salient and relevant to coworkers.
- 31% of employers reported that a barrier to employing people with disabilities was the lack of supervisory knowledge about accommodations; only 16% said that the cost of accommodations was a barrier.
- Many of the steps to change corporate culture for better employment for people with disabilities have potential benefits for all employees, not just those with disabilities (e.g., universal accommodation).
- These factors contribute to the success of workplace diversity programs: commitment by top management, making diversity a part of company philosophy (not a PR tool), linking diversity goals to performance evaluations, involving employees at all levels, and ongoing education and outreach.
- Effects of diversity programs depend greatly on the organizational context and the way in which they are implemented.
- If employment prospects of people with disabilities are to be improved significantly, attention must be paid to the ways in which corporate culture creates or reinforces obstacles for employees with disabilities, and how those obstacles can be removed or overcome.

Health, Safety, Well-being

Christensen, K. M., Blair, M. E., & Holt, J. M. (2007). The built environment, evacuations, and individuals with disabilities. Journal of Disability Policy Studies, 17(4), 249–254.

Purpose: To clarify assumptions associated with emergency evacuations through more informed understanding of the complexity of evacuation issues for people with disabilities and provide a framework for evaluation of the appropriateness of policies and planning initiatives.

Findings:

- There are four types of evacuations: protective, preventive, rescue, and reconstructive. (Also called preparedness, prevention, response, and recovery.)
- These distinctions are important, as each phase requires different considerations.
- Protective: Long-term preimpact response (e.g., regional relocation before a hurricane, individual preparation for a future event)
- Preventive: Short-term preimpact response associated with less predictable/localized events without time for relocation (e.g., bomb threat)
- Rescue: Short-term postimpact response immediately following emergency to achieve personal safety (e.g., exiting a burning building)
- Reconstructive: Long-term postimpact response (e.g., camps or temporary housing because of continued safety or health concerns)
- Three overlying factors affecting all evacuations: (1) behavior of the individual, (2) planned systems involved in event, and (3) environment (built environment) in which event occurs.
- When the built environment properly accommodates evacuation, planned systems are not necessary.

- Developing a framework for policy and preparation allows for easier identification and understanding of related issues.
- Use Americans with Disabilities Act Accessibility Guidelines (ADAAG) for Accessible Egress .
- The current ADA design requirements for accessible egress are primarily focused on facilitating the planned system of rescue evacuation response. This is unfortunate, because the intent of ADAAG is to ensure an accessible built environment, which will not be achieved by planned systems in inaccessible environments.
- To address this issue, the U.S. Access Board proposed adoption of ADAAG requirements for “hardened” evacuation elevators as well as horizontal exits.
- Individuals are required to respond to multiple discrete/implied instructions/directions that may not be supportive of accessible evacuation programs, which places a disproportionate burden on the person with a disability to secure personal safety.
- Emergency planning should include criteria for recognizing the various forms of evacuation and for evaluating proper response. ADAAG should not be applied regardless of the form of evacuation until appropriate response analysis is conducted, which could result in practices and policies more consistent with ADAAG intent
- While preventive and rescue evacuations receive the most research attention, very little attention has been given to the behavior of people with disabilities in emergency situations.
- There is a need for scholarly study, advocacy, and policy improvements related to the various forms of emergency evacuation response for people with disabilities, specifically with regard to the built environment factor.
- Disaster planning and emergency response must recognize various factors at play in any evacuation. Policy and planning continues to emphasize helping the

person with a disability adjust and accept the existing environment rather than altering the environment to accommodate disability needs.

- Until such a shift is realized, policies and planning measures intended to secure equal participation and safety of people with disabilities in emergency evacuations will continue to be less effective and put these people at greater risk of injury or death in emergency evacuation situations.

Frain, M. P., Berven, N. L., Chan, F., & Tschopp, M. K. (2008). Family resiliency, uncertainty, optimism, and the quality of life of individuals with HIV/AIDS. *Rehabilitation Counseling Bulletin*, *52*, 16–27.

Purpose: To contribute to the understanding of quality of life issues experienced by a sample of persons with HIV/AIDS by applying theories of family resiliency and cognitive appraisal concepts of uncertainty and optimism using a Web-based questionnaire of 125 people with HIV/AIDS.

Findings:

- Disease progression (clinical) was not found to be related to quality of life.
- Family resiliency variables were found to predict quality of life.
- Cognitive appraisal variables were found to predict quality of life.

Mold, F. (2003). A review and commentary of the social factors which influence stroke care: Issues of inequality in qualitative literature. *Health and Social Care in the Community, 11*(5), 405–414.

Purpose: Assess how well the processes that might lead to inequity in the delivery and uptake of stroke services are currently understood by reviewing the current qualitative literature.

Findings:

- Nurses who have a positive attitude toward stroke patients believe that they made a valuable contribution to stroke rehabilitation and that patients benefit from their care.
- Nurses who held less positive views of stroke patients viewed them as uncooperative.
- Patient motivation not only influenced clinicians' perspectives of patients, but also constituted the basis through which clinical decisions were made.
- Nurses, doctors, and rehabilitation therapists judge patients' motivation on the basis of their demeanor and compliance with rehab therapies.
- Older people encountered negative attitudes toward them, especially when interacting with health care professionals. These attitudes did not include direct rudeness but subtle indicators of ageism, including neglect or lack of equal consultation regarding their health care.
- Health care professionals perpetuated age stereotypes. Loss of function in an older stroke patient affected the professionals' decision to rehabilitate—they were making clinical judgments on the basis of age and perceived recovery potential.
- Social workers also held negative misconceptions about age, resulting in less assistance to older patients in dealing with health and social issues.

- Acute difficulties exist in matching an individual's needs with the realities of the social care system. Patients must conform, adapt, and be suited to criteria imposed by the health care system.
- Four core factors affect access to services: (1) availability of certain health services and limited availability of services to some social groups; (2) varying quality of identical services provided to different social groups; (3) costs (financial or otherwise, such as time off from work) associated with accessing health care services; and (4) provision of information where there is a lack of clarity about available services for specific groups, such as minorities.
- Three mechanisms related to socioeconomic status affect interaction between patients and clinicians: (1) socioeconomic distance between social classes and the influence of this on the quality of the doctor-patient interaction; (2) differences in health knowledge, beliefs, and behavior that are grounded in these class differences; and (3) professional control, whereby clinicians control the consultation process.
- Ethnic minority patients have several barriers to stroke services: limited translation of printed information, cultural assumptions about the cause and recovery process of stroke, and differences in health knowledge.
- Three aspects of resource allocation influence care delivery: distribution of resources at local levels, financial constraints, and application of eligibility criteria in providing medical and community services.
- The individual's portrayal of self influences the delivery and uptake of services. People give meaning to their illness according to socially constructed views based on their socioeconomic status, age, gender, or ethnic identity, and this influences how service users respond to professionals providing care.

Stone, R. I., & Wiener, J. M. (2001). *Who Will Care for Us? Addressing the Long-Term Care Workforce Crisis*. Washington, DC: The Urban Institute.

Purpose: Provide a broad overview of long-term care frontline workforce issues.

Findings:

- Long-term care providers report unprecedented vacancies and turnover rates for paraprofessional workers as a result of low wages and benefits, hard working conditions, heavy workloads, and a job that has been stigmatized by society.
- The overwhelming majority of frontline long-term care workers are women: 55% are white, 35% are black, and 10% are Hispanic.
- Most workers are relatively disadvantaged economically and have low levels of educational attainment.
- One source set the turnover rate at 45% for nursing homes and about 10% for home health programs. Other sources place nursing home turnover at over 100% per year.
- Personal and home care assistance is the fourth-fastest-growing occupation, with a dramatic 84.7% growth rate. The number of home health aides is expected to increase by 74.6% and that of nursing assistants by 25.4%
- Recruiting and retaining frontline long-term care workers have become a priority for many States. State initiatives have included increasing fringe benefits, developing career ladders, increasing/improving training, and develop new worker pools (former welfare recipients).

White, G. W., Fox, M. H., Rooney, C., & Rowland, J. (2007). *Final Report: Findings of the Nobody Left Behind: Preparedness for Persons with Mobility Impairments Research Project*. Lawrence, KS: Research and Training Center on Independent Living.

Purpose: The Nobody Left Behind (NLB): Disaster Preparedness for Persons with Mobility Impairments research project explored disability-related disaster and emergency response practices at local emergency management agencies. The project examined whether disaster plans and emergency response systems include health, safety, and survival needs for people with mobility impairments. The researchers also examined morbidity/mortality of such persons in emergency situations and any best practices to prevent injuries and save lives.

Findings:

- 43% of emergency managers had some idea of the number of people with mobility impairments; 27% used census or self-reported registries to identify this population. Frustration exists with volunteer self-registry, as only a small percentage of people who would need assistance actually register.
- The majority of emergency managers are not trained in special needs populations, which includes those with mobility impairments.
- There is little or no representation of persons with mobility impairments at the planning or revision stages of the emergency plan.
- The majority of emergency managers did not know how many people with mobility impairments lived in their jurisdiction.
- Only 21% of emergency managers are planning to develop guidelines for assisting persons with disabilities.
- Emergency managers would benefit from educational courses, reliable surveillance tools, and developing specific guidelines to address emergency management issues for people with disabilities.

- Members of the disability community should develop individual and disability-specific preparedness plans and get involved in local disaster planning.

Independent Living

Brown, J. D., Moraes, S., & Mayhew, J. (2005). Service needs of foster families with children who have disabilities. *Journal of Child and Family Studies, 14*(3), 417–429.

Purpose: To examine the service needs of foster families with children who have disabilities in a large Canadian city. Literature suggests that foster parents emphasize the value of training regarding special needs, communication with professionals, counseling services, respite, peer support, and community resources.

Findings:

- Foster parents were asked one open-ended question: What services or supports would be helpful to you?
- Foster parents indicated that there needed to be more support in the community; for example, support groups.
- Better public awareness and education about disabilities was necessary, as well as more integrated recreational and education opportunities for children with disabilities.
- Additional financial support would be helpful.
- Schools that understand the child's needs were helpful, as was good communication with the teachers. Specialized program availability and access in the local school were helpful.
- An understanding and supportive social worker was seen as helpful.
- Information about the child's history—medical information, classes on aboriginal culture and information about community services, training, and workshops—is helpful.

- There is a need for more specific information on disabilities in general and the disabilities of the children in their care.
- Community and health care were useful, as was specific medical equipment for their foster child to use.
- Services including music therapy, occupational therapy, speech therapy, play therapy, access to private therapists for assessments, in-home therapies, counseling are helpful.
- Services to support transitions of foster children into new school settings, home settings, and independent living situations are helpful.
- Foster parents mentioned respite care and the need for public awareness and education on children with disabilities.

Summary: Ten areas of services or supports identified by foster parents as helpful: support in the community, financial resources, accommodating school system, good relationships with social workers, information, comprehensive medical care, access to professionals, services for aboriginal children and families, and transitional services and respite.

Hernandez, B., McCollough, S., Balcazar, F. E., & Keys, C. (2008). Accessibility of public accommodations in three ethnic minority communities. *Journal of Disability Policy Studies, 19*(2), 80–85.

Purpose: To assess compliance with public accommodations provisions (Title III) of the ADA, which require removal of physical, procedural, and attitudinal barriers that prohibit people with disabilities from entering public establishments and accessing their goods and services. Physical accessibility was assessed for 90 establishments in three ethnic minority communities.

Findings:

- 25.6% were fully accessible; 47.8% were accessible with minor assistance; and 26.7% were inaccessible with minor assistance.
- Establishments identified as for-profit tended to be more accessible than nonprofit establishments (one reason is that for-profits tend to be franchises that are part of a larger corporation with more financial resources).
- Findings indicate that much work remains to improve the ADA compliance of establishments that are open to the public.
- Underserved communities may be in particular need of improving their compliance with Title III of the ADA.
- 45% of the predominantly minority sample had not heard of ADA.
- The top three accessibility issues were signage, doors, and entrances: 73% had signage issues, 50.1% had problems with doors not being wide enough or too heavy to open, and 46.6% had problems with entrances that persons with disabilities could not enter independently.
- Businesses and establishments in older neighborhoods tend to have more physical barriers, because they were constructed prior to the ADA.

Minkler, M., Hammel, J., Gill, C. J., Magasi, S., Vasquez, V. B., Bristo, M., & Coleman, D. (2008). Community-based participatory research in disability and long-term care policy. *Journal of Disability Policy Studies, 19*(2), 114–126.

Purpose: To analyze a Chicago-based research project that documented the experiences of 200 people with disabilities as they attempted to transition out of nursing homes to less restrictive community living. Participants were involved in an empowerment and systems and policy change partnership program called Social Action Group (SAG).

Findings:

- Participation in SAG by disabled persons and action on the part of the University of Chicago and two independent living centers was demonstrated.
- The SAG model was successful in supporting the transition of disabled persons out of nursing homes.
- Strong opposition exists among nursing homes and labor lobbies to rebalancing resources toward community living.
- The project was successful in demonstrating the efficacy of consumer-directed choice and community living support.
- In addition to service providers and persons with disabilities, the inclusion of academics in future projects was seen as extremely important.

Pyke, J., & Atcheson, V. (1993). Social recreation services: Issues from a case management perspective. *Psychosocial Rehabilitation Journal, 17(2)*, 121–130.

Purpose: Identify barriers to accessing and using social recreation services by persons with psychiatric disabilities, as reported by case managers in Canada.

Findings:

- 43% of inpatients were identified as having unmet needs in the social recreational domain, but only 12% were referred to a resource to meet those needs upon discharge.
- For those who were referred, satisfaction ratings were excellent (23%), good (36%), and satisfactory (27%).
- 88% of case managers reported that they had one or more clients using a social recreation service. A total of 97 clients (33%) of 320 clients served by 24 case managers were recruited for study.
- In the judgment of case managers, on the basis of their knowledge of their clients, an additional 107 clients could potentially benefit from such a service.
- The majority of case managers cited program accessibility (geographic location/transportation) and hours of operation as the two most significant barriers. The third barrier was the perception that clients did not want to attend programs with other mentally ill people. The fourth and fifth ranked barriers were money and attendance expectations.
- Hours of operation were more problematic for women.
- The three barriers most frequently cited by practitioners were lack of time to accompany clients to programs, lack of staff education or training about recreation/leisure, and lack of awareness of available resources.
- Suggestions for improving access to social recreation services: advocating for lower user fees; providing a transportation subsidy; meeting with social rec services to discuss activities and support that would increase participation;

providing consultation/support to mainstream services to make them more user friendly; orienting staff to the value of recreation; incorporating leisure counseling into staff training; training staff members to facilitate the development and use of social skills; Identifying people who might assist with linking, escorting, and supporting clients to attend and use social recreation services; and assigning responsibility for maintaining an up-to-date inventory of social recreation services.

- The disparity between the number of clients actually using social recreation services and those that could use such services is largely due to the poor fit between clients' needs and the perceptions of providers.
- Social recreation services tend to be overlooked or undervalued not only by providers but also by planners.

Abstracts for Section 3: Disability Services Infrastructure Occupations—Supply and Demand

Harris-Kojetin, L., Lipson, D., Fielding, J., Kiefer, K., & Stone R. I. (2004). Recent Findings on Frontline Long-Term Care Workers: A Research Synthesis 1999–2003. Washington, DC: U.S. Department of Health and Human Services, Institute for the Future of Aging Services.

Purpose: Discusses research findings since 1999 in home, community-based, and nursing home settings.

Findings:

- Evaluation is an important component to building the evidence base for what works to develop a qualified and stable LTC workforce
- The following interventions have demonstrated positive effects on retention/turnover rates: peer mentoring for new CANs, an education and payment incentive program; and the Wellspring Model, which focuses on cultural and organizational change from top management

---

Iglehart, J. K. (2008). Grassroots activism and the pursuit of an expanded physician supply. *New England Journal of Medicine, 358*(16), 1741–1749.

Purpose: Health policy report on physician supply shortages in the United States predicted to occur around 2020 and issues related to accommodating a growing population with fewer physicians.

Findings:

- Although much focus is directed to providing health insurance for the 47 million Americans who do not have it, few raise the question of whether there will be enough doctors and nurses if everyone gains coverage.

- The total number of students enrolled in medical (allopathic) schools remained essentially the same from 1980 through 2000 (16,000 graduates), while the U.S. population increased by approximately 71 million.
- Because of the time required to train a physician (8–15 years), the United States must plan well in advance of 2020, when the Council on Graduate Medical Education (COGME) estimates that the shortage will occur.
- Other reasons to increase the supply of physicians: the growing population (25 million every decade); aging baby boomers with health needs; the pending retirement of a large cohort of physicians; and the increasing emphasis physicians under 50 years old are placing on lifestyle issues (more personal time, fewer responsibilities).
- COGME estimates a shortage of 85,000 physicians by 2020, other estimates of shortage range from 55,000 to 200,000. The largest shortfall will be among specialists.
- Questions about the supply of physicians are not on the radar screens of most federal policymakers, who tend to track physician supply according to whether or not Medicare payment rates to physicians are adequate to ensure beneficiary care. Physician access remains good for most people, with some notable problems finding a specialist.
- Who has the most trouble seeing a doctor? Those without insurance and those covered by Medicaid, which pays very low fees for services.

Nevidjon, B., & Ives-Erickson, J. (2001). *The Nursing Shortage: Solutions for the Short and Long Term*. Silver Spring, MD: American Nurses Association.

Purpose: Discusses the current nursing shortage and suggests solutions.

Findings:

- Nurses themselves are the most important recruiters for nurses.
- Education settings need to target children for the nursing profession earlier than high school.
- Organizations need to pay attention to the employee market to understand what people are looking for in the work environment.
- Nurses need to become more vocal in lobbying for increased federal funding.

Paraprofessional Healthcare Institute. (2008). *State Chart Book on Wages for Personal and Home Care Aides, 1999–2006*. San Francisco: Center for Personal Assistance Services, University of California.

Purpose: Provides wage information for personal and home care aides in 50 States over a 7-year period.

Findings:

- In a 7-year period, there was a 14% increase (nationally) in wages before the adjustment for inflation. The “real wage” declined 4%.
- No wages were above the 25% federal poverty line.

Purcell, P. (2008). *CRS Report for Congress: Older Workers: Employment and Retirement Trends*. Washington, DC: Congressional Research Service.

Purpose: Discusses the impact on the labor force as baby boomers approach retirement age.

Findings:

- As baby boomers reach retirement age, there will be fewer new entrants in the labor force.
- As the labor force decreases, economic growth will decrease.
- Because of poor economic conditions, many people are working past the age of 62.
- Older Americans are increasingly working full time.
- Employers are encouraging older workers to remain on the job because of the lack of new workers.

Stone, R. I., & Weiner, J. M. (2001). *Who Will Care for Us? Addressing the Long-Term Care Workforce Crisis*. Washington, DC: The Urban Institute.

Purpose: Discusses issues affecting long-term care frontline workers

Findings:

- Low wage and benefits, hard working conditions, heavy workloads, and stigmatization of workers in this field make recruitment and retention difficult.
- There are unprecedented vacancies and turnover rates in the field.
- Federal and State policymakers acknowledge that this issue needs to be addressed.
- These issues will worsen over time as demand increases.

Center for Health Workforce Studies, School of Public Health. (2008). *Healthcare Employment Projections: An Analysis of Bureau of Labor Statistics Occupational Projections, 2006–2016*. Albany, NY: University at Albany.

Purpose: Summarizes labor projections for health care occupations in health care settings for the period 2006–2016.

Findings:

- The health sector is the fastest growing employment sector.
- One million registered nurses will be needed between 2006 and 2016.
- Home health aides, health office staff, registered nurses, orderlies, and medical assistants are the fastest growing job categories.

Paraprofessional Healthcare Institute. (2003). *State-based Initiatives to Improve the Recruitment and Retention of the Paraprofessional Long-Term Care Workforce.* Washington, DC: U.S. Department of Health and Human Services, Institute for the Future of Aging Services, Paraprofessional Healthcare Institute

Purpose: Discusses a nationwide initiative to improve recruitment and retention of direct care workers in the long-term care field. Focuses on five States: California, Wisconsin, North Carolina, Massachusetts, and Pennsylvania.

Findings:

- States and providers need reliable information on how to improve recruitment and retention in the long-term care workforce. State efforts to recruit and retain LTC workers were not evaluated, and information is not provided on which initiatives were most effective.
- Policy and practice changes are needed to achieve change.
- Providers need to share information.

U.S. Department of Health and Human Services. (2003). *The Future Supply of Long-Term Workers in Relation to the Aging Baby Boom Generation: Report to Congress*. Washington, DC: U.S. Department of Health and Human Services.

Purpose: To analyze information about the causes of shortages of direct care workers in long-term care settings and develop recommendations for the future.

Findings:

- It is critical to retain existing long-term care workers and attract new ones.
- Pay and working conditions will play a key role in attracting new workers.
- Current and new employees will need to play a much bigger role in retaining and attracting new workers.

U.S. Department of Health and Human Services, Department of Veterans Affairs and Department of Labor, Office of the Assistant Secretary for Planning and Evaluation. (2006). *The Supply and Demand of Professional Social Workers Providing Long-Term Care Services: Report to Congress*.

Purpose: Discusses the potential for professional social workers to work in long-term care settings.

Findings:

- By 2050, 110,000 social workers will be needed in LTC settings.
- Efforts are currently under way to incorporate age-related content into the social work curriculum.
- Some services provided by social workers in LTC settings can be performed by other disciplines.

U.S. Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation. (2006).*The Supply of Direct Support Professionals Serving Individuals with Intellectual Disabilities and Other Developmental Disabilities: Report to Congress*.

Purpose: Discusses the reasons for shortages of direct support professionals who work with persons with intellectual and other developmental disabilities.

Findings:

- There will be a need for more direct support workers as the family members who currently care for persons with intellectual and other developmental disabilities age.
- It will be necessary to make these jobs as attractive as possible. as there will be competition with LTC jobs.

Health Resources and Services Administration, Bureau of Health Professions. (2008). *The Adequacy of Pharmacist Supply 2004 to 2030*. Washington, DC: U.S. Department of Health and Human Services.

Purpose: Discusses the results of the Pharmacist Supply and Requirements Model (PhSRM) to project the future adequacy of pharmacist supply in the United States.

Findings:

- The projected shortfall of pharmacists has diminished since HRSA's 2000 *Report to Congress* because of an increase in the number of pharmacy technicians (and their expanded scope of practice), increased wages, and improved technology. Also, more people are entering pharmacy schools, and the number of schools and programs has increased.

- There is still a need for the Pharmacist Loan Repayment Demonstration to encourage employment in rural and low-income areas, and in prisons.

Steinwald, A. B. (2008). *Primary Care Professionals: Recent Supply Trends, Projections, and Valuation of Services*. Washington, DC: U. S. Government Accountability Office.

Purpose: Examines recent trends for primary care professionals and projections for future supply.

Findings:

- The supply of nonphysician professionals is increasing faster than the number of physicians.
- Physicians are entering specialty fields because of the undervaluing of primary care, including lower payment rates.

The Lewin Group. (2006). *Ensuring a Qualified Long-Term Care Workforce: From Pre-Employment Screens to On-the-Job Monitoring*. Washington, DC: U.S. Department of Health and Human Services.

Purpose: Discusses a study in four States that assessed the efficacy of different approaches to preemployment screening and on-the-job monitoring of nurse assistants to prevent resident abuse in nursing homes.

Findings:

- It is difficult to ascertain the efficacy of nurse aide registries and criminal background checks in preventing abuse, because different States have different processes for screening and tracking.

- Criminal background checks are necessary and are a valuable tool for employers, but they are only one element of preventing abuse.
- There is a correlation between criminal history and incidents of abuse.
- There are not enough policies in place that support postemployment strategies

---

Williams, T. E., & Ellison, E. C. (2008). Population analysis predicts a future critical shortage of general surgeons. *Surgery*, 548–555.

Purpose: As the U.S. population increases, there has been no similar increase in medical school enrollments, thus creating a future shortage of physicians, specifically general surgeons.

Findings:

- By 2010, there may be a shortage of 1,300 surgeons.
- By 2020, there may be a shortage of 1,875 surgeons.
- By 2050, there may be a shortage of 6,000 surgeons.
- The government must increase funding for surgery trainees to prevent shortages.

Wilson, Eaton, & Kamanu (2002). *Extended Care Career Ladder Initiative (ECCLI) Round 2: Evaluation Report*. Cambridge, MA: John F. Kennedy School of Government, Harvard University Faculty Research Working Papers Series.

Purpose: Discusses an evaluation of the first year of the ECCLI project in Massachusetts. ECCLI was a response to high staff turnover and job vacancies among paraprofessionals in long-term care. Long-term care providers were asked to create projects that focused on both quality care for consumers and good jobs and opportunities for workers by partnering with other providers and workforce development organizations.

Findings:

- More educational training is needed for all paraprofessionals.
- Wages need to be increased and publicized.
- A career ladder program should be implemented.
- More formal structures need to be involved to implement culture and practice change.
- Ninety percent of employees indicated that they were committed to their job.
- Quality of care improvements were demonstrated.
- The sharing of expertise was seen as important.
- Providers should involve workforce partners early on.
- Funding/reimbursement delays are harmful to providers.

Abstracts for Section 4: Private Sector Strategies for Building and Maintaining a Sufficient Supply of Disability Infrastructure Occupations

Ball, P., Monaco, G., Schmeling, J., Schartz, H., & Blanck, P. (2005). Disability as diversity in Fortune 100 companies. *Behavioral Sciences and the Law, 23*, 97–121.

Purpose: Investigate the inclusion of people with disabilities in the diversity policies of the most successful businesses in the United States by examining the publicly available workforce and supplier diversity policies of the top 100 companies on *Fortune Magazine*'s list of the 500 most profitable companies in the nation.

Findings:

- 92 of the 100 most prosperous companies in the nation have policies that express a commitment to promoting diversity in the workplace. Many of these companies also have policies that support minority-owned suppliers.
- Although many corporate diversity policies include racial, ethnic, cultural, and gender components, fewer than half have written diversity policies that expressly include people with disabilities, and even fewer have supplier diversity statements that do so.
- A significant portion of Fortune 100 companies recognize the role of people with disabilities in a diverse workforce (42% expressly mention disability).
- Technology sector employers are the most consistent in their inclusion of people with disabilities in the diversity policy statements, along with the few chemical companies on the list.
- Diversity policies among financial companies tend to be less specific about the definition of diversity, and these companies were less likely to have such policies.
- Many companies that recognize people with disabilities as an important element of a diverse workforce do not state this commitment with regard to efforts to recruit and retain people with disabilities.

- While it is encouraging that most successful companies show significant efforts to include people with disabilities, there is room for improvement.
- There are three major types of diversity policy: (1) those that explicitly include people with disabilities in the definition of diversity; (2) those that are nonspecific as to what constitutes diversity; and (3) those that mention minority, gender, or other status but do not specifically mention disability.
- Many companies fail to explicitly recognize the role of people with disabilities in building a diverse marketplace.
- Even companies that include people with disabilities in their policies do not always support the policies with actions that actively promote inclusion.

Bricout, J.C. (2004). Using telework to enhance return-to-work outcomes for individuals with spinal cord injuries. *NeuroRehabilitation, 19,* 147–159.

Purpose: Discusses strategies for successfully implementing telework as a return-to-work strategy for persons with spinal cord injuries, using a disability management program as a venue for examining and enhancing individual, workgroup, and organizational readiness.

Findings:

- Having telework as part of a formal disability management program can promote employer and personal decisions to support return to work for people who are temporarily sidelined by major disability events such as spinal cord injuries.
- 7.5% of all workers with disabilities do home-based work with computers versus 5.9% of the general population (source: 1991 and 1997 Current Population Survey).
- Additional costs of equipment or software for teleworkers with significant disabilities can be partly borne by State vocational rehabilitation agencies.
- Telework advantages: overcome mobility and scheduling challenges; reduce office space and overhead costs, improve productivity, and increase employee retention.
- Telework disadvantages: employee productivity can decrease if employees are not well-matched to telework, and teleworkers can become isolated with reduced career advancement and mobility. When people with disabilities are not visible in the workplace, it is harder to reduce employer and employee biases against them.
- Successful teleworkers have character traits such as independence and initiative, as well as computer literacy and self-management skills and aptitudes.

Franche, R., Cullen, K., Clarke, J., Irvin, E., Sinclair, S., Frank, J., & the Institute for Work and Health (IWH) Workplace-based RTW Intervention Literature Review Research Team. (2005). Workplace-based return-to-work interventions: A systematic review of the quantitative literature. *Journal of Occupational Rehabilitation, 15*(4), 607–631.

Purpose: A systematic literature review located 10 higher quality quantitative studies among a total of 4,124 papers identified by search, to find the quantitative basis to justify common workplace practices supporting return to work (RTW) of injured/ill workers.

Findings:

- Strong evidence that work disability duration is significantly reduced by work accommodation offers and contact between the health care provider and the workplace.
- Moderate evidence that disability duration is reduced by interventions that include early contact with the worker by the workplace, ergonomic worksite visits, and presence of an RTW coordinator.
- Moderate evidence exists that the five intervention components listed in the first two bullet points reduce costs associated with work disability duration.
- Evidence for sustainability of these effects over time was insufficient or limited.
- Evidence was insufficient regarding the impact of supernumerary replacement. (Reviewer's note: This was an attempt to quantify that the RTW plan doesn't disadvantage coworkers and supervisors, an issue addressed more broadly by the IWH paper in 2006.)
- Evidence levels regarding the impact of the intervention components on qualify-of-life outcomes was insufficient or mixed. (Reviewer's note: Broader quality-of-life issues are usually not a concern in workplace-based interventions. Many government programs assume that maintaining employment and avoiding public assistance is itself a measure of quality-of-life.)

Helm, R. E., Powell, N. J., & Nieuwenhuijsen, E. R. (1999). A return-to-work program for injured workers: A reassignment model. *Work 12*, 123–131.

Purpose: Present a strategy for preventing permanent disability in significant disability events requiring accommodation through reassignment to new job positions to keep a person in the workplace with the current employer. Such a strategy could ultimately help people with impairments enjoy greater independence and social engagement, and reduce demand for public assistance.

Findings: The Americans with Disabilities Act requires employers to engage in an interactive process to accommodate employees with disabilities up to and including reassignment to vacant jobs with capacity requirements that match the capabilities of employees.

This requirement exceeds the requirements of workers' compensation, in which many employers typically either return employees to their former jobs or move them into permanent disability (where they may also use public assistance).

Medical providers often justify the decision to place employees on permanent disability rather than reassign them to new positions, because providers focus on work restrictions rather than matching residual capabilities with requirements in other positions.

Larger manufacturers are well-served by adding occupational therapists (OTs) to their staff to manage accommodations and reassignments and the associated program.

This program includes the following elements:

- OT performs job analyses, including functional capacity requirements of vacant positions available for reassignment.

- OT meets with supervisor and employee to understand perspective and needs of each in order to identify and negotiate mutually acceptable reassignments.
- OT coaches employees in new job to ensure successful placement.
- OT follows up with both supervisor and employee to ensure job retention.
- OT participates in collective bargaining to secure broader support for reassignments.

Henry, A. D., & Lucca, A. M. (2004). Facilitators and barriers to employment: The perspectives of people with psychiatric disabilities and employment service providers. *Work*, *22*, 169–182.

Purpose: As they conducted 12 focus groups across Massachusetts with 44 adults with serious mental illness (SMI) and 30 providers, researchers examined the perspectives of people with SMI and employment service providers regarding factors that most directly help or hinder consumer efforts to obtain and maintain employment.

Findings:

- While SMI may restrict work participation, the impact of SMI can be moderated by environmental factors or by other non-SMI characteristics of the person.
- Factors that can be significant facilitators or barriers include individualized approach to matching jobs to consumer interests; supportive, mutual consumer-provider relationship; family support; transportation; access to trained benefit counselors; and a medical hierarchy that accords low status to rehabilitation goals and providers.
- Participants regarded other factors as more significant barriers to sustained employment than SMI, and these other factors (when positive) can be facilitators.
- Consumers focused on how their SMI can amplify on-the-job stress. Even employment success could trigger anxiety and fear of relapse.
- Consumers and providers alike noted that someone with poor symptom control might have difficulty working, but all emphasized the therapeutic value of work.
- Overdependency on mental health and entitlement programs were viewed as barriers. Social Security work incentives were viewed as complex, confusing systems that create employment barriers despite their intended purpose of facilitating. No providers spoke of actively encouraging consumers to leave the disability rolls, and most knew only a handful of people who had successfully transitioned off disability.

Kant, J., Jansen, N.W.H., van Amelsvoort, L. G., Van Leusden, R., & Berkouwer, A. (2008). Structured early consultation with occupational physician reduces sickness absence among office workers at high risk for long-term sickness absence: A randomized controlled trial. *Journal of Occupational Rehabilitation*, *18*, 79–86.

Purpose: To examine the efficacy of structured early consultation in preventing or reducing sickness absence among employees at high risk for future long-term sickness. A 34-item screening questionnaire was used to identify employees at high risk for sickness absence greater than 28 days. Questions included demographic, workplace, health, and psychosocial factors. Subjects in the experimental group (n = 147) received a structured early consult with their occupational physician (OP), in some cases followed by targeted intervention. There were 152 in the control group.

Findings:

- Modified intention-to-treat analysis revealed substantial differences ($p = 0.007$) in total sickness absence duration over 1-year followup between the experimental (mean 18.98; SD 29.50) and control group (mean 31.13; SD 55.47).
- Per-protocol analysis showed the proportion of long-term sickness absences (>28 days) over 1-year followup was significantly ($p = 0.048$) lower in the experimental (9.1%) versus control group (18.3%).

Klein, D., Schmeling, J., & Blanck, P. (2005). Emerging technologies and corporate culture at Microsoft: A methodological note. *Behavioral Sciences and the Law, 23*, 65–96.

Purpose: Explores factors important in the study and examination of corporate culture and change with a focus on the technological methods used to conduct a study of accessible technology and corporate culture at Microsoft. Advantages and challenges of emerging technologies are reviewed.

Findings:

- Examined Microsoft's efforts to enhance diversity, specifically toward inclusion of persons with disabilities in its workforce, and efforts to improve product and service accessibility for persons with disabilities for both its workforce and its customers.
- Public at large and disability advocates influence corporate behavior and culture related to persons with disabilities. Technology, both at Microsoft and at other IT companies, plays a role.
- Corporate culture is defined as a system of assumptions generally agreed upon in the organization. The major reason for having a corporate culture is that it motivates people to change their behavior in line with the corporate necessity without a direct tie to financial compensation.
- What role corporate culture plays currently or will play in the future of increased employment for people with disabilities has yet to be determined.
- Some diversity research includes disability as a category of interest, but the focus remains on gender, race, and sexual orientation.
- Most existing research on disability has focused on supervisor and coworker attitudes and their effects on employees with disabilities.

- A better understanding of corporate culture may help expose ways to improve the employment status and lives of people with disability in a way that is supported within their cultures.
- Both economic incentives and regulatory compliance have direct and indirect implications for corporate culture, as well as the employment rates of people with disabilities.
- Technologies developed for and used by people with disabilities can have broader impacts for the workforce and can be adopted company-wide when they provide advantages for productivity.
- Universal tools once considered assistive technology—such as screen readers, spell checkers, voice recognition software, and the like—have been implemented in companies and result in improved productivity for all workers.
- Explored how employee personal experience, corporate leadership, and stakeholder feedback affected product development related to people with disabilities; how the company's development of accessible technology and software changed; employee retention and career advancement; and external product demand and revenue.
- Ultimately, a disability research agenda will include a goal to learn how corporate change improves the lives of people with disabilities. Current research is inconclusive about whether emerging technologies create change in organizations.
- Digitizing work product has business benefits for improving processes in a corporation. One benefit is that it may provide greater flexibility for accommodating people with sensory and cognitive disabilities (e.g., through the use of screen readers and voice recognition).
- Many other alternative methods for data input and output are available, and can be customized to meet the needs of individuals and their environments.
- Ad hoc digital documents can be a rich source of information about corporate culture and people with disabilities.

- Many people with disabilities find unconventional ways to function within a system when the system is not flexible enough to allow them to work efficiently.
- Electronic/digital research data have advantages over traditional types of data with regard to storage and portability (e.g., flash drives)
- Ease of finding information, flexibility in storing and management, and ease of communications for digital information reduce problems with data collection, decrease data collection time, and ease the burden on respondents.
- Collaboration and flexibility of management and peers has advantages for people with disabilities—responding to an email or marking up a digital document allows extra time for those who may have difficulty communicating orally or face to face.
- This approach also fosters a peer-level support or mentoring system that could help people with certain types of disability polish their communications before sending them.
- This system allows for greater use of assistive technology and may promote a greater level of parity with others in the organization.
- The organization, mission, and personnel of the accessible technologies group at Microsoft changed many times during the study, and members of the group expressed frustration at the difficulty of creating long-term change in developing accessible software.
- Many suggested that the most reliable way to ensure inclusion of accessibility would be to start with upper management, especially at the highest levels.
- Technological changes affect how technology is used by people with disabilities, which opens up more and richer areas of exploration for researchers.
- Software automation increases opportunities for people with disabilities. Technologies such as calendars and scheduling software, or just-in-time training, can be useful for persons who need prompting to do particular tasks or

to do them in a certain order. Handheld devices might replace job coaches in some instances.

- Automation can eliminate or streamline repetitive tasks, which might reduce the need for input/output systems (such as keyboards) for persons with motor impairments, GPS systems for directions, and so on.
- Potentially large amounts of information and innovative uses of technological solutions are two-sided coins: They offer the possibility of producing more rich data than can be accessed and organized with efficiency, as well as the likelihood of inefficiencies in identifying the best information in the data set.
- Adapting to emerging technologies and understanding the underlying social systems will be an ongoing process.

Mitra, S., & Bruck, D. (2004). The early intervention project. *Journal of Disability Policy Studies*, *15*(3), 159–167.

Purpose: Describe the Social Security Administration's Early Intervention research project to test a system of screening and incentives to divert SSDI disability applicants into a return-to-work program that may help some stay in the workplace and remain off benefits, thus reducing costs to the SSA Trust Fund.

Findings: Currently, SSA offers to help beneficiaries return to work after they have expended great effort to prove they cannot work. This confusing offer is often viewed with distrust or fear.

An eligibility screening process identifies applicants who have a high probability of eventual acceptance as claimants yet still have the potential to return to work.

Incentives to participate include the following:

- 12 months of temporary cash stipends equaling the disability benefit the participant might eventually have qualified for;
- immediate Medicare coverage for 3 years (eliminating a 2-year waiting period);
- access to State Medicaid buy-in programs, and
- employment services under an Intensive Service and Barrier Removal Model with broader scope of services, or an Employment Services Market System Model based on savings projected from return to work.
- The project relies on effectiveness and accuracy of eligibility screening, adequacy of incentives, and effectiveness of service delivery methods. Three State pilots will fine-tune the services and service delivery. The national demonstration of 5,000 treatment and 5,000 control group members provides a statistically valid test of the systems.

Molde, H., Grasdal, A., & Eriksen, H. R. (2003). Does early intervention with a light mobilization program reduce long-term sick leave for low back pain? A 3-year follow-up study. *Spine*, *15*(28), 2309–2315.

Purpose: This study explored the long-term impact of a light mobilization program on clinical and economic outcomes of patients with subacute low back pain. Patients placed on a sick list for 8 to 12 weeks for low back pain were randomized. Experimental subjects (n = 237) were treated at a spine clinic receiving information, reassurance, and encouragement to engage in physical activity as normally as possible. Control subjects (n = 220) received treatment in a primary care setting.

Findings:

- Initial results at the end of 12 months were as follows: 68.4% of the intervention group were off sick leave, compared with 56.4% of the control group.
- The reduced sick days of the intervention group over 3 years (average 125.7 days per person vs. 169.6 days for the control group) was caused primarily by more rapid return to work during the first year. There was no significant difference in sick days between the two groups in the second and third year.
- The reduced sick days of the intervention group did not increase the risk of reoccurrence (Reviewer's note: This invalidates one of the primary excuses for not pursuing early intervention).
- At 6-month followup, intervention patients were less likely to use bed rest and more likely to use stretching and walking to cope with back pain, compared with the control group. At 12-month followup, the intervention group was significantly different from the control group only by increased use of stretching.
- Economic returns of intervention: Reduced sick days and increased production led to a net benefit over 3 years of approximately $2,822 per person for treating the 237 intervention patients.

O'Connell, E. (2008). *Telework: An Opportunity to Promote Employment of People with Disabilities: Review of Literature*. Shrewsbury, MA: Center for Health Policy and Research, University of Massachusetts Medical School.

Purpose: Introduces topic of telework and reviews the literature on the use of telework as an accommodation for supporting employment of people with disabilities.

Findings:

- Telework is an employment arrangement in which an employee or contractor works at a remote location and uses communications technology such as computers, telephones, videophones, and faxes to interact with other workers.
- "Telecommuting" is often used interchangeably with "telework."
- Telework is most appropriate for jobs that involve much use of telecommunications equipment, that can be performed individually, and that allow flexibility in determining work hours. Jobs that are particularly suitable for telework include word processing, customer service, computer programming, accounting, billing, claims processing, data entry, dispatching, editing, filling orders, researching, report writing, scheduling, transcription, graphics, auditing, and record-keeping.
- There were 11.5 million teleworkers in the United States in 1999; 45 million Americans worked remotely at least one day in 2006; including 28.7 million who teleworked at least once a month, up 10% from 2005 and 39% from 2002. Of these, 12.4 million were direct employees of companies, while 16.2 million were contract teleworkers.
- Three out of five teleworkers were male, and most (79%) were married or living with a partner. Teleworkers were relatively high earners, with 40% living in households that earned more than $75,000 per year and 21% living in households that earned $40,000–$74,999. Only 20% lived in households that

earned less than $40,000 per year. Teleworkers were well-educated, with 72% having graduated from college.

- The teleworking population can be divided along occupational and gender lines, with a predominantly male professional segment and a largely female clerical segment.
- Benefits to teleworkers: fewer distractions/interruptions; increased flexibility; reduced commuting time; reduced costs for fuel, car maintenance, tolls, public transportation, etc.; greater job satisfaction and morale; and reduced work-related clothing and food costs.
- Benefits to employers: reduced real estate costs, increased productivity, reduced absenteeism, greater employee loyalty and enthusiasm, enhanced ability to recruit new workers, continued operations during inclement weather/emergencies, improved quality of internal communications, and improved ability to retain employees who would otherwise leave because of life changes such as increased family responsibilities, relocation, or disability-related illness.
- It is estimated that telework results in $7,500 savings per employee per year.
- Benefits to society: reduced production of vehicular carbon emissions and other pollutants that cause global climate change, reduced traffic congestion, less reliance on fossil fuels, reduced costs of road maintenance and transportation infrastructure.
- From an employer's perspective, one of the biggest barriers to telework is a lack of information about, and experience with, this work arrangement. Other concerns include data security, lack of technical support resources for teleworkers, and liability for home-based worksite injuries.
- From an employee's perspective, concerns include fear of feeling lonely, becoming isolated from the workgroup, and losing "social capital" at work. Also, worry about worse relationships with supervisors and the possibility of receiving

poorer performance ratings, which will cause them to be stuck in dead-end jobs without opportunity for career advancement.

- Best practice: honest self-assessment to determine whether telework would be a satisfactory arrangement. Must be comfortable working independently and with reduced personal contact, must have good time management and written/oral communication skills, and must be technologically literate. The employer and/or employee must agree to and maintain a communication plan, clearly define responsibilities and expectations, provide training on telework-related issues, schedule periodic in-person meetings, provide computer equipment to ensure compatibility, create signed employer/employee agreements regarding use of computers and data security, ensure compliance with OSHA and liability for accidents, and telework frequently enough to work out kinks.
- Telework is of particular interest to people with disabilities, because it offers a way to expand work opportunities in situations in which it would otherwise be difficult to work.
- For many people with disabilities, symptoms can fluctuate unpredictably—telework can provide the flexibility needed to maintain long-term employment.
- Disability-related discrimination is likely to be reduced—when the workplace is virtual (nonphysical), people with disabilities are completely integrated.
- Increasing the availability of telework for unemployed persons in the United States alone would save employers between $48 and $96 billion dollars annually in reduced short- and long-term disability payments, workers' compensation, and personnel replacement costs.
- Offering telework as an accommodation is one way employers can comply with the ADA.
- Most employers began offering telework in response to employee needs; only 10% reported hiring new employees with disabilities into telework positions.

- Most companies approved telework on an “as needed” basis for current employees. Companies were more willing to allow employees with a work history to telework than to hire new employees into telework positions.
- Most employers were not willing to provide technology-related home modifications such as Internet connections and communications equipment.
- Almost half of employers reported that some jobs could be done by telework.
- A major issue for people with disabilities is that telework requires a level of knowledge and skill using information technology; studies have found that computer use and Internet access are lower among people with disabilities than among the general population.
- Technological barriers can restrict access to electronic information for many potential users with disabilities. Barriers may involve the availability of assistive technologies to enable people with disabilities to engage in telework or compatibility between an employee’s assistive technology and the hardware, software, applications, and interface used by the employer. Some of these barriers are the result of the emphasis on designing assistive technology rather than universally designed technology.
- For people with disabilities, telework reduces the in-person interaction that would typically occur in a work environment; therefore, teleworkers must find ways outside work to meet their social and recreational needs, which may be difficult for people who are already socially isolated.

Olson, D. L. (1999). An onsite ergonomic program: A model for industry. *Work*, *13*, 229–238.

Purpose: Ergonomics is the science of fitting the job to the worker. This article identifies key components of comprehensive ergonomic programs used to reduce the risk of cumulative trauma disorders and similar injuries, thus reducing injuries and costs.

Findings:

- A GAO literature review identified core elements of ergonomic programs: management commitment, employee involvement, hazard identification, hazard controls, training and education, and appropriate medical management.
- Program startup begins with a thorough analysis of OSHA 300 logs documenting accidents and injuries, physician visits, work restrictions, and time off work. Other tools include worker complaints, health risk assessments, consultant or safety committee inspections, and confidential employee surveys.
- Risk factors include repetition, static or awkward postures, vibration, tool design, extreme temperatures, stressors, lack of control over work, distractions, cognitive workload, and environmental issues such as perceived management hostility.
- A program uses engineering, administrative, and work practice controls to correct or control exposure to workplace hazards present in workstations, tools, and the jobs themselves.
- Modified duty programs provide early, gradual return to work from disability events. To prevent problems, an employee on restricted duty and the foreman should both sign a form each day verifying compliance with restrictions from both sides.

Rodger, S. A., & de Jonge, D. M. (2005). Integrating technology in the workplace for people with spinal cord injury. *International Journal of Therapy and Rehabilitation*,*12*, 14–20.

Purpose: Discusses barriers and supports to effective use of technology at work from the perspective of 11 users of technology with spinal cord injuries.

Findings:

- It is important to identify the technology that is needed.
- Acquiring technology can be challenging because of lack of control over decisions about what technology to purchase and issues with installation and servicing.
- Customizing and learning how to use the technology can become an issue owing to factors such as lack of time, cost, and complexity of the technology.
- Often, users experience pain and discomfort when using technology in the workplace because of poor workstation design.
- Self-advocacy skills are an important component of successfully using technology.

Schur, L., Kruse, D., & Blanck, P. (2005). Corporate culture and the employment of persons with disabilities. *Behavioral Sciences and the Law, 23*, 3–20.

Purpose: Examines the role of corporate culture in the employment of people with disabilities and how corporations can develop supportive cultures that benefit people with disabilities, nondisabled employees, and the organization as a whole.

Findings:

- Employment not only increases financial resources but helps incorporate people with disabilities fully into mainstream society by increasing their social networks, civic skills, independence, and the sense of efficacy and inclusion they get from filling a valued social role.
- Employment levels of people with disabilities remain well below those of nondisabled people, and the majority of nonemployed people with disabilities would prefer to be working. Only 28.6% of working-age people reporting a work limitation were employed in 2002, compared with 76.6% who did not report a disability.
- Using an even broader definition of disability, the 2000 census found that 56.6% of the 30 million working-age Americans reporting functional or activity limitations were employed, compared with 77.2% of those without such limitations. Employment rates are lowest among those with several functional or activity limitations, of whom only 25.4% were employed in 1999.
- 67% of people with disabilities want to work.
- Low employment rates contribute to high rates of poverty.
- Corporate culture can create attitudinal, behavioral, and physical barriers for workers and job applicants with disabilities.
- While the different levels of culture often reinforce one another, incongruities and conflicts may exist among them. For example, there may be an expressed commitment to hiring people with disabilities at second level of organizational

culture (shared meaning), but this commitment may not be accepted at the most basic level – the unstated and often unconscious assumptions of the organization.

- This lack of acceptance may in turn be reflected in the third level of culture, so that the physical environment remains inaccessible, jobs are structured in ways that make it difficult for people with disabilities to work there, and coworker and supervisor attitudes remain unchanged.
- 20% of employers said the greatest barrier to people with disabilities finding employment is discrimination, prejudice, or employer reluctance to hire them.
- 22% of private sector employers reported that attitudes and stereotypes were barriers to the employment of people with disabilities in their own firms.
- 32% said it was difficult or very difficult to change supervisor and coworker attitudes, while only 17% said this about creating flexibility and modifying their return-to-work policies.
- 81% of private sector employers said visible top management commitment was effective or very effective in reducing barriers to employment for people with disabilities, while 62% said this about staff training, and 59% said this about mentoring efforts.
- U.S. employers found a lower rate of lost time days due to illness and injury among companies that used (1) employee involvement programs (stress and participation in decisions are inversely related), (2) conflict resolution and grievance procedures, (3) workforce stabilization and continuity policies, and (4) early support and assistance programs for employees with chronic illness or injuries.
- Supervisor and coworker attitudes toward employees with disabilities reflect several influences: stereotypes, discomfort being around people with disabilities, strain caused by communication difficulties, personality factors, and previous contact with people with disabilities.
- Supervisor and coworker attitudes affect performance expectations, performance evaluations, willingness to work with a person with a disability, and hiring into jobs with discretionary work activities (more responsibility).

- Employees with disabilities use a number of strategies to shape expectations in the workforce: concealing the disability; communicating information about the disability to reduce discomfort/clarify norms; requesting help to clarify expected behaviors; emphasizing similarity to others through shared interests, opinions, and values; and becoming a “superworker” to dispel stereotypes and modify others’ expectations.
- Established job methodologies—the biggest problem is not the unsuitability of jobs but rather finding an organization that is willing to break the mold and allow people a chance to prove their capability.
- Accommodations are likely to provoke a response (to be perceived as unfair) when they are salient and relevant to coworkers.
- 31% of employers said that a barrier to employing people with disabilities was the lack of supervisor knowledge about accommodations; only 16% said that the cost of accommodations was a barrier.
- Many of the steps to change corporate culture for better employment for people with disabilities have potential benefits for all employees, not just those with disabilities (e.g., universal design)
- *Factors that contribute to the success of workplace diversit*y programs are commitment by top management, making diversity part of the company philosophy (not a PR tool), linking diversity goals to performance evaluations, involving employees at all levels, ongoing education, and outreach.
- The effects of diversity programs depend greatly on the organizational context and the way they are implemented.
- If employment prospects of people with disabilities are to be improved significantly, attention must be paid to the ways in which corporate culture creates or reinforces obstacles for employees with disabilities, and how those obstacles can be removed or overcome.

Shaw, W. S. (2006). Controlled case study of supervisor training to optimize injury response in the food processing industry. *Work, 26*, 107–114.

Purpose: Toward the goal of reducing disability claims or duration of claims, a group of supervisors at a food-processing plant received a four-hour training covering employee communication, RTW problem-solving skills, and ergonomics. A control group was held out of training for 7 months. Each group was responsible for 400 employees.

Findings:

- The first group of supervisors to receive training showed a 47% reduction in the number of new workers' compensation claims filed during the first 7 months.
- Prior to training, the second group of supervisors showed a 19% reduction in claims during the 7-month period.
- Following training, the second group of supervisors showed a further 19% reduction in new claims, for a total reduction of 38% over 12 months.
- In both groups, the number of active claims remained fairly constant.
- Supervisors expressed confidence in their increased ability to deal with claims-related issues.

Social Security As Part of an Integrated National Disability Policy, testimony to the Social Security Advisory Board Discussion Forum on the Definition of Disability, April 14, 2004.

Purpose: Virginia Reno, vice president for income security policy of the National Academy of Social Insurance, was asked to present the view that the current Social Security disability program framework can be maintained (with modest changes) and be consistent with an integrated national disability policy. This testimony is based in large part on the findings of the Academy's Disability Policy Panel.

Findings:

- The Social Security definition of disability is not in conflict with a 21st century view of disability. Wage replacement remains important and is not replaced by the Americans with Disabilities Act. Particular programs will have varying definitions of disability that are driven by their expressed purpose; the Social Security definition of disability is very strict.
- Social Security Disability Insurance (SSDI) is not a strong deterrent to work because benefits and income replacement rates are modest, U.S. disability spending is low by international standards, and people turn to disability benefits only as a last resort.
- It is argued that liberalized eligibility criteria and rising income replacement rates of the SSDI benefit have caused people to leave the labor force and turn to SSDI. But the 1984 expansion of SSDI eligibility criteria was only a return to "a responsible center" from extraordinarily restrictive policies in the Reagan years. The claim that replacement rates rose during the 1980s and 1990s is focused on older men at the bottom of the wage distribution. This is not a flaw in the SSDI benefit formula but the result of an aberration in the wage structure of the U.S. economy.
- Why did the disability rolls grow in the 1990s? Three possible explanations: (1) restrictions on other disability benefits pushed people to SSDI; (2) global

changes in the competitive workforce have made the workplace more "unforgiving"; and (3) fewer early retirement options drive more work disability applications.

- Recovery and return to work from SSDI may be better than the "fewer than 1% on the SSDI rolls return to work" statistic makes it appear. In the mid-1990s, the Academy's Disability Policy Panel found that after 6 years on SSDI rolls, 3.5% had recovered or returned to work. When those who died or reached retirement age were excluded, 6.2% had recovered or returned to work.

Thornton, Zeitzer, Bruyerre, Golden, & Houtenville. (2003). What Works and Looking Ahead: A Comparative Study of UK and US Policies and Practices Facilitating Return to Work for People with Disabilities. *US/UK Pathways to Work in the 21st Century Seminar and Workshop*, May 1–2, , Washington, DC.

Purpose: Independent research organizations in the United States and the United Kingdom were commissioned to review the research on "what works" in facilitating return to work for people with disabilities, and to consider current developments in light of the evidence.

Findings:

- Demographics: Employment rates among people with disabilities are falling in the United States and remain relatively stable in the UK. There is a common trend of younger people coming onto the Social Security Disability Insurance (SSDI) rolls in the United States and onto incapacity benefits in the UK. Mental disorders are the most common primary condition in both systems.
- Making work pay: Incentives to leave benefits for employment may be easier to use in the United States, while UK's tax credit for people with disabilities is a more generous means-tested benefit than the U.S. earned income tax credit

and also schedules the benefit out during the year rather than forcing the taxpayer to wait for tax returns.

- Access to health insurance for people with disabilities who want to work is a serious concern in the United States; it is not an issue in the UK, which has universal health insurance.
- The UK does not link disability benefit entitlement with inability to work, as the United States does. This may explain why the UK has higher rates of disability, but it also may explain why disability entitlement is a dead end for many in the United States. The UK links employment support with disability benefits in an early intervention scenario through its Jobcentre Plus.
- U.S. employer tax credits support initial accommodations, which helps with return to work or hiring but not longer term support. The UK's Access to Work program provides 3 years of support, which can be extended, with employers often willing to pay for less expensive initial supports.

Tompa, E., de Oliveira, C., Dolinschi, R., & Irvin, E. (2008). A systematic review of disability management interventions with economic evaluations. *Journal of Occupational Rehabilitation, 18,* 16–26.

Purpose: A systematic literature review of disability management interventions asks the question "What is the credible evidence that incremental investment in disability management interventions is worth undertaking?" Researchers found 17 disability management interventions with economic analyses; 8 were of high or medium quality. The review notes the lack of studies providing high-quality, reliable economic data.

Findings:

- Insufficient evidence supporting the economic merits of disability management interventions in five specific industry sectors; only one study per sector.
- Strong evidence supporting the economic merits of multisector disability management interventions based in a systems-level perspective (three of four studies; the fourth appeared to contain this also but didn't clearly articulate this).
- By intervention components, the study found moderate evidence for interventions including education, physiotherapy and work/vocational rehabilitation, and limited evidence for a behavioral component.
- By intervention features, the study found moderate evidence for interventions including a work accommodation offer, contact between health care provider and workplace, early contact with worker by workplace, ergonomic worksite visits, and management by a return-to-work coordinator.

Wooten, L. P., & James, E. H. (2005). Challenges of organizational learning: Perpetuation of discrimination against employees with disabilities. *Behavioral Sciences and the Law, 23,* 123–141.

Purpose: To examine why organizations struggle with learning how to prevent discrimination against their employees with disabilities. The authors contend that failures in eliminating disability discrimination reflect difficulties of organizational learning.

With increased information about workforce diversity, organizations should have a better understanding of how to prevent discrimination and create a work environment that accommodates the needs of disabled employees.

Organizational learning requires the organization to adapt continuously to a changing business environment by drawing on knowledge—a repertoire of skills and routines— that influences decision making.

Findings:

- One of the most frequent codes for barriers to learning was *discriminatory organizational routines*—harassment of disabled employees, unwillingness to provide reasonable accommodations, and negative images of disabled employees—where some organizations lacked routines to manage the challenges of discrimination. These discriminatory routines consciously perpetuate negative behavior. The institutionalization of discriminatory routines produces a work environment in which disabled employees are perceived as damaged goods or second class citizens.
- Another barrier to learning was *organizational defense routines*—management's denial or justification of discrimination and disassociation from the discriminatory behaviors—to prevent the organizations from experiencing embarrassment. This tendency to cover up negative information may result in

missed learning opportunities and the continuation of the behavior that caused the initial problem.

- Reliance on *reactive learning* was another barrier—the organization failed to address the underlying cause of discriminatory behavior or had a myopic focus on strategic goals while neglecting to develop an inclusive work environment. This led to a failure in learning what factors within the organization could be seen as the cause of the problem and failure to resolve those specific issues.
- *Window dressing*—the organization focused on impression management or a surface-level commitment with regard to disabled employees—was also identified. Without a deep-seated change of managerial practices, organizational learning does not occur.
- Lack of *vicarious learning* emerged as the last category—learning from the previous mistakes of other organizations and the pressure of interest groups. To engage in vicarious learning, organizations need a reference point. There are few reference points for successful ADA implementation.

Summary:

- Several organizationally based learning theories explain the difficulty organizations have with creating a disability-friendly work environment. These barriers to learning are embedded in complex defense mechanisms and discriminatory organizational routines.
- Businesses can learn by partnering with nonprofit organizations and government agencies and by learning how to comply with the ADA.

Abstracts for Section 5: Public Sector Strategies for Building and Maintaining a Sufficient Supply of Disability Infrastructure Occupations

Benz, M. R., Lindstrom, L., & Yovanoff, P. (2000). Improving graduation and employment outcomes of students with disabilities: Predictive factors and student perspectives. *Exceptional Children, 66*(4), 509–529.

Purpose: The article reports on findings from two studies. The first study examined student and program factors that predicted participants' graduation with a standard high school diploma and placement in employment or continuing education. The second study examined participants' perceptions of the program and staff characteristics that were most important in helping them achieve their education and transition goals.

Findings:

- Career-related work experience and completion of student-identified transition goals were highly associated with improved graduation and employment outcomes.
- Individualization of services around student goals and personalized attention from staff were highly valued by participants.
- The percentage of youth with disabilities graduating with a high school diploma has remained constant at about 30% over the past 10 years.
- Research suggests that the following programmatic factors contribute to better postsecondary employment and education outcomes for students with disabilities:
    - Participation in vocational education classes during the last 2 years of high school, especially classes that offer occupationally specific instruction.
    - Participation in paid work experience in the community during the last 2 years of high school.

  - Competence in functional academic skills (reading, math, writing, problem solving); community living skills (money management, community access); personal-social skills (getting along with others); vocational skills (career awareness, job search); and self-determination skills (self-advocacy, goal-setting).
  - Participation in transition planning.
  - Graduation from high school.
  - Lack of continuing instructional needs in functional academic, vocational, and personal-social areas after leaving school.
- Several organizational factors also have been identified as associated with exemplary secondary and transition programs and better outcomes for students, including (a) the use of written interagency agreements between schools and adult agencies to structure provision of collaborative transition services, and (b) establishment of key positions funded jointly by schools and adult agencies, such as vocational rehabilitation to deliver direct services to students in transition.
- Several student-related factors were negatively associated with school performance and completion, including (a) being identified as emotionally disturbed, (b) having a prior history of absenteeism or course failure, and (c) being 3 or more years behind grade level in reading and math.
- Several school-related factors were positively associated with school performance and completion rates, including (a) direct, individualized tutoring and support to complete homework assignments, attend class, and stay focused on school; (b) participation in vocational education classes, particularly in grades 11 and 12; and (c) participation in community-based work experience programs during the last 2 years of high school.
- The majority of high school students with learning and behavioral disabilities said their placement in special education had not helped them academically, and they objected to what they viewed as the low-level, irrelevant, and

duplicative (with regular education) instruction they received, though they acknowledged that they had not mastered basic academic skills and that special education was warranted.

- These youth did not want to be supported by special education staff in the general education classroom, as that would draw attention to their academic difficulties.
- What they wanted was instruction in a challenging and relevant curriculum that would prepare them for life after school without requiring the “special education” label to participate.
- Graduation with a standard high school diploma and engagement in work or schooling activities were both strongly predicted by student participation in two or more career-related, paid jobs while in school and by completion of four or more student-identified transition goals.
- Individualization of program services around student-identified goals, the accomplishment of personally meaningful activities, and the emergence of self-awareness and self-confidence as a foundation for future accomplishments were identified by students as important benefits of transition programs.
- The participants also identified important roles of transition program staff: (a) discuss problems with school, family, and friends; (b) provide specific support for education and transition goals (one-to-one tutoring and counseling); (c) assist with other issues that affect success (accompanying youth to court to resolve legal problems); and (d) provide general support to solve the real-life problems that arose during the early transition years after leaving school.
- Components and services associated with improved secondary performance and postschool outcomes included (a) direct support for students in general education classes delivered in a way that does not highlight affiliation with special education; (b) participation in paid work experiences that are related to students’ career interests; (c) instruction in vocational education, functional

academic, and other transition content; and (d) completion of student-identified transition goals.

Implications for practice:

- Focus secondary and transition services concurrently on the two goals of school completion and postschool preparation.
- Promote curricular relevance and student self-determination through student-centered planning and individualized services.
- Expand the use of collaborative service delivery programs as a mechanism for delivering transition services.
- Extend secondary school reform efforts to include career development, applied learning in the community, and transition planning as a central part of the regular curriculum for all students.

Bolton, B. F., Bellini, J. L., & Brookings, J. B. (2000). Predicting client outcomes from personal history, functional limitations, and rehabilitation services. *Rehabilitation Counseling Bulletin, 44*(1), 10–21.

Purpose: How much variance in employment outcomes can be explained by three sets of predictor variables that represent the three phases of the vocational rehabilitation (VR) process? Which variables made the largest contributions to the explanation of employment outcomes?

Findings:

- The research sample included more than 4,000 VR clients from five disability categories: orthopedic, chronic medical, psychiatric, mental retardation, and learning disabilities.
- If we understand the determinants of successful outcomes, we can intervene to increase the likelihood of success for VR clients.
- Rehab outcomes have been extensively researched, but few studies have assessed the predictability of outcomes from variable sets that reflect the multiple phases of the VR process while controlling for effects of disability.
- The optimal combination of personal history, functional limitations, and services received explained approximately a third of the variability in competitive employment for VR clients (range of 24–40% of the various disability groups).
- The optimal combination of personal history, functional limitations, and services explained approximately one-eighth (12%) of the variability in salary among competitively employed VR clients (range of 9–17% across disability groups).
- Personal history typically accounted for 5% of the variance in competitive employment and salary outcomes (range of 1–8%).
- Counselor-rated functional limitations made almost no addition to the prediction of competitive employment and a very modest contribution (4%) to salary.

- Service variables contributed substantially to prediction of employment and explained an average of 26% of the variance beyond what was already explained by personal history and functional limitations. Service variables contributed only modestly to the explanation of variation in weekly salaries (2%).
- Job placement was by far the most important single variable contributing to the prediction of competitive employment (bivariate correlation of .50). Job placement made virtually no contribution to prediction of weekly salary at closure.
- Personal history was the second most important variable for predicting both competitive employment and salary at closure (with the exception of competitive employment for the mentally retarded sample and salary for the chronic medical sample).
- Training had considerable variability in explanatory capability. Provision of training made a unique contribution to predicting competitive employment for all five disability groups but made relatively larger contributions for the orthopedic and mentally retarded (MR) samples.
- Time in rehabilitation had virtually no effect on predicting competitive employment but was the second largest service variable in predicting salary for most disability groups; it contributed negatively to predicting employment for the MR sample but positively to predicting salary for the orthopedic, psychiatric, and learning disabled samples.
- Total cost contributed to prediction of employment for the orthopedic, psychiatric, and MR groups, and to predicting salary for the chronic medical and psychiatric groups.
- Provision of personal adjustment, restoration, and maintenance services had virtually no effect on predicting employment outcomes for the five disability groups.

- Functional limitations were generally unimportant in predicting employment, although the relationships between functional limitations and salary at closure were of slightly greater magnitude.
- The following functional limitations contributed to the prediction of salary: adaptive behavior for the chronic medical and MR groups; cognition for the orthopedic and chronic medical groups; physical capacity for the orthopedic, chronic medical, and MR groups; and vocational qualifications for the orthopedic, psychiatric, and MR samples.
- The overwhelming importance of job placement demonstrated in this investigation supports an increased emphasis on the topic in both rehabilitation counselor education progress and State VR agency training for counselors.

Summary:

- Competitive employment is more predictable and thus more susceptible to improvement than salary at closure.
- Personal history information constitutes a quantitative basis for calculating an estimate of client case difficulty for use by VR counselors.
- Job placement services should receive greater emphasis in VR counselor education services.
- Functional limitations should continue to be evaluated by counselors in conjunction with the VR client diagnostic and service planning phase.

Disability Services Sector Workforce Development Strategy: A 5-Year Framework, 2007–2011. Tasmania, Australia: Department of Health and Human Services.

Purpose: Government and nongovernment disability service providers seek to develop a cross-sector workforce of creative, innovative, and highly skilled people who have the knowledge and attributes to provide effective and efficient services of Tasmanians with disabilities and their families, both now and into the future. The goal is effective, targeted workforce development initiatives that are aligned with business planning and meet the needs of the disability services sector.

Findings:

- Creation and sustainability of an efficient and productive workforce requires more than an adequate number of workers. It requires a flexible approach for workers, which helps people balance work and life, and aims to improve morale and job function.
- The client must be at the center of professional learning programs.
- Professional learning must be ongoing and intrinsic to the work of disability services officers.
- Workplace learning raises the profile of the disability service sector and fosters professionalism.
- Disability services is a profession of choice, and professional learning will make the sector attractive.
- Links among vision, goals, operational plans, and learning development strategies are important. Such links do not currently exist.
- Workforce development will be aligned with and address the needs of the three elements of the workforce: the system, the individual, and the workplace.
- For the disability services sector to maintain a pathway of continuous service delivery enhancement to people with disabilities, a learning culture needs to be supported at the sector level.

- The disability services sector needs to focus on the acquisition, sharing, and use of knowledge to foster a learning sector culture through open communication.
- Individual development in the sector will be supported and encouraged through the enhancement of skills, knowledge, and learning ability, which will ensure continued organizational as well as individual growth.

Fishman, M. E., Barnow, B., Glosser, A., & Gardiner, K. (2004). *Recruiting and Retaining a Quality Paraprofessional Long-Term Care Workforce: Building Collaboratives with the Nation's Workforce Investment System*. Washington, DC: The Lewin Group.

Purpose: Describes both the long-term care sector and the workforce investment system in an effort to build understanding of both systems.

Findings:

- Collaboration between the two systems is mutually beneficial.
- Collaboration should include advertising job openings at One-Stop Centers; participation of employers on Workforce Investment Boards (WIBs); encouraging local WIBs to make long-term training a priority; promoting on-the-job training; working with employer intermediary organizations to recruit, train, and support staff; and exploring ways to make jobs more attractive

---

Gervey, R., Ratemo, M., Halper, A., Brucker, D., & Berkowitz, M, (2007). Ticket-to-Work project: Evaluation of an assertive outreach approach to increase ticket assignment and use of the One-Stop system by SSA beneficiaries in an urban county in New Jersey. *Journal of Vocational Rehabilitation, 26*, 79–88.

Purpose: To evaluate the effectiveness of an assertive outreach effort to increase Ticket-to-Work (TTW) enrollment and use of the One-Stop Career Center System by SSA beneficiaries in a densely populated, urban county in New Jersey.

SSA's national and regional attempts to notify beneficiaries about the Ticket program have resulted in a very low enrollment of SSA beneficiaries in the new work incentives program. The current project was designed to determine whether the TTW program could be enhanced through a more assertive person-to-person, phone-initiated outreach marketing approach.

Findings:

- 6% (34/557) of SSA beneficiaries spoken to directly responded positively to the invitation to explore employment or training opportunities or to visit the One-Stop Career Center.
- Two-thirds (347/557) were successfully contacted for the 3-month followup. Of these, eight reported being employed, although none had used the ticket. Two who were not working reported assigning their ticket.
- 61% of all beneficiaries contacted stated that they were too ill to work; 35% indicated no interest in working; and 4% were beyond the age of 65 and should not have been on the SS list to receive the Ticked to Work notice or were deceased.
- The assertive outreach effort increased contact with SSA beneficiaries more than a standard mailing campaign, but there seemed to be little or no apparent cost benefit to assertive outreach efforts.

- **Summary:** The key element in the success of the Ticket to Work program was for the private sector to be able to identify and recruit highly qualified job seekers from the SSA rolls. Instead of being a program that targeted beneficiaries with the most successful education and work background, the program was marketing to all SSA beneficiaries, resulting in a less attractive pool of customers.

Kauff, J., Kirby, G., & Pavetti, L. (2005). *Linking TANF Recipients with Paraprofessional Long-Term Care Jobs.* Washington DC: Mathematica Policy Research Inc.

Purpose: To examine the suitability of Temporary Assistance for Needy Families (TANF) recipients for employment as certified nurse aides (CNAs) and home health aides, and the feasibility of training recipients for these paraprofessional jobs.

Findings:

- 56% of TANF recipients in Illinois, Maryland, South Carolina, and the District of Columbia had moderate to high potential for entry into long-term care (LTC) employment on the basis of their demographic and current job characteristics.
- 12% of all recipients in the four sites have a criminal record or dependence on drugs or alcohol that would disqualify them from LTC employment.
- 37% of recipients have poor English skills or poor physical and mental health, which would disqualify them from LTC employment.
- The total potential pool of new LTC workers was 56% (40,000 TANF recipients)—people who have a high or average probability of substantial employment generally and no or moderate liabilities to LTC employment specifically.
- Strong links between the providers of LTC training programs for TANF recipients and employers facilitate successful links to employment.

- Job shadowing or work experience components of LTC training are beneficial.
- Tapping into multiple sources of funding to support training programs can reduce the risk of programs folding and expand the array of program services and target populations.
- Links between the LTC training programs and the TANF system can provide funding for trainees (e.g., transportation stipends, child care subsidies) as well as access to supportive services, including staff who can provide case management services and help address personal issues.
- Retention services, including such supportive services as case management and child care or transportation assistance, might help to reduce employee turnover and ensure more continuity in patient care.

Challenges to implementing an LTC training program for TANF recipients:

- Additional LTC training program selection criteria (e.g., proof of reliable child care or transportation) can limit the pool of trainees.
- "Work first" (not allowing education and training as the principal activity) limits training opportunities.
- Few take advantage of advanced training opportunities. Many people are not aware that these opportunities exist, and advanced training is often not accessible.

Implications: Before policymakers and program administrators invest in linking TANF with the LTC industry, they should evaluate existing programs or design, implement, and evaluate smaller scale demonstration projects to answer questions about how programs affect participant outcomes or the costs relative to the benefits.

Kirby, G., Pevetti, L., Max, J., & Gregory, J. (2005). *TANF Recipients As Potential Long-Term Care Workers: An Assessment of the Prospects in the District of Columbia, Illinois, Maryland, and South Carolina*. Washington, DC: Mathematica Policy Research Inc.

Purpose: Discusses the characteristics of long-term care jobs and individuals in these positions, as well as the characteristics of TANF recipients and the likelihood of attracting them to LTC training and jobs.

Findings:

- Barriers such as transportation and child care need to be considered in designing an LTC training program.
- Trainees should be provided with assistance during training and after job placement.
- Better marketing strategies are needed to encourage TANF recipients to consider the LTC field.
- Welfare offices should be encouraged to support recipients' choice of LTC training.

Luecking, R. G., & Fabian, E. S. (2000). Paid internships and employment success for youth in transition. *Career Development for Exceptional Individuals, 23*(2), 205–221.

Purpose: This article presents information on the characteristics and postschool outcomes of youth who participated in the Marriott Foundation's Bridges from School to Work internship program at seven national sites from 1993 to 1997. This study specifically examined whether gender, race, or primary disability affected internship performance and completion, and to what extent demographic, work behavior, and work setting factors during the internship contributed to postschool employment success at 6-, 12-, and 18-month followup intervals.

Findings:

- There were uniformly high rates of internship placement and completion among all categories of primary disability, race, and gender.

6 months after internship completion

- Enrollment in postsecondary education was the most frequently cited reason for not working at all three intervals, followed by not being able to find work.
- The two work behavior variables—completion of internship and whether a job offer occurred—were the strongest predictors of outcome.
- The only demographic variable associated with employment outcome at six months was whether the student had a learning disability; students with an LD were slightly more likely than students in other disability groups to be working at six months.

12 months after internship

- Work behaviors were most predictive of outcome, with students who received a job offer after internship completion being three times more likely to be employed at 12 months.

- Students with emotional disabilities were about half as likely to be employed at 12 months, and students with minority backgrounds also were less likely to be employed.

18 months after internship

- Work behaviors were no longer significant predictors of outcome. Instead, the strongest predictors were demographic factors, specifically type of disability and ethnicity. Students with emotional disabilities were almost three times less likely to be employed than others, and minority students were about half as likely to be working than nonminority students.

Summary:

- A structured internship experience is beneficial for students across demographic characteristics, disability factors, and educational placement data.
- Data from the six-month postinternship group reveal that students who perform better during the internship experience will also be more likely to be working after they leave school.
- The students who received a job offer were the most likely to be employed at 12 months, emphasizing the importance of acquiring adequate work skills to sustain performance after leaving school.
- There is need for ongoing postschool vocational and career support services to sustain performance gains achieved during school years.
- Some youth (e.g., those with emotional disabilities) may need nonwork ancillary services (e.g., counseling and case management) in conjunction with the paid work experience to achieve better employment outcomes.

Liu, S., Ireys, H. T., & Thornton, C. (2008). Participants in the Medicaid Buy-In program, 2000–2004. *Journal of Disability Policy Studies, 19*(2), 95–102.

Purpose: Provides a descriptive profile of enrollment, expenditures, and earnings for Buy-In participants in 27 States between 2000 and 2004.

Findings:

- As of December 2005, 31 States were operating a Medicaid Buy-In program, with total nationwide enrollment of approximately 70,000.
- The Medicaid Buy-In program grew significantly during a period when most State Medicaid programs operated under severe budgetary pressure.
- Cross-State comparisons suggest that program design shapes enrollment and outcomes.
- Among 126,606 participants enrolled in the Buy-In program in 27 States from 2000–2004, 49% were males and 77% were white.
- Average age of Buy-In participants was nearly 45 years; 46% were between 21 and 44, and 51% were between 45 and 64.
- 31% of Buy-In participants between 2000 and 2004 had a mental illness or other mental disorder. Mental retardation and musculoskeletal conditions were the primary disabling conditions for 12% and 9%, respectively. Only 2% had a sensory disorder, including vision, hearing, and speech. 21% had an impairment other than these four conditions.
- The States varied in the type of conditions that were most common in their enrolled populations, possibly owing to differences in outreach approaches, specific asset and income eligibility criteria, and eligibility criteria for other Medicaid options. For example, New Hampshire had the highest share of participants with mental illness (56%) and West Virginia had the lowest (5%).
- Many persons had received other disability benefits, such as SSI or SSDI, before participating in the Buy-In. At the time of enrollment, nearly 69%

received only SSDI benefits, 2% received only SSI benefits, and 3% received both SSI and SSDI.

- Total annual earnings among the 62,528 Buy-In participants in 2004 who had reported earnings (only 66% reported earnings, as some did not have to report earnings for various reasons) were $453 million, with an average of $7,246 per person. This average amount was equivalent to 78% of the federal poverty level (FPL), which was $9,310 in for a single person. About one fourth had incomes above FPL, and 7% had incomes above 200% of FPL.
- Younger and nonwhite persons were disproportionately represented in the top-earner group. Individuals age 21–44 years accounted for 60% of the high earners but only 45% of the Buy-In participants. Nonwhite persons made up 37% of the top earners but only 19% of overall participants.
- Persons who received SSDI made up a large majority of the participants (70%) but only 20% of the top earners (possibly because of SGA (Substantial Gainful Employment)-related disincentives and possible loss of benefits). Participants with no involvement in SSDI or SSI accounted for 79% of top earners but only 25% overall.
- The majority of Buy-In participants had earnings below SGA, the limit at which SSDI benefits are terminated. Hence, although the program functions as a work incentive, it may not lead to large numbers of people exiting SSDI or SSI.
- A disproportionate percentage of Buy-In participants with the highest earnings were those without SSDI/SSI, which suggests that the Buy-In could serve a preventive role by helping certain persons with disabilities avoid becoming dependent on cash assistance.

Metzel, D. S., & Giordano, A. (2007). Locations of employment services and people with disabilities: A geographical analysis of accessibility. *Journal of Disability Policy Studies*, *18*(2), 88–97.

Purpose: As a first step in assessing the accessibility of the locations of employment services, this study compared the locations of VR and One-Stop services with areas that had high numbers of nonemployment among people with disabilities and high numbers of unemployment in the general population. The objective was to determine at the national and State levels how geographically accessible these services are to nonemployed people with disabilities.

Guidelines established by the Rehabilitation Act of 1973 were not provided for determining sites for VR services; as a result, there is considerable variation in the number and location of field offices among and within the States.

A body of knowledge has established how location and distance have been used to disadvantage particular groups of people who are already socially and economically disadvantaged.

Findings:

- Nonemployed people with disabilities (NEPWD) were more likely than unemployed people to live near one another.
- Overall, employment services in the Northeast and in parts of the South were inadequately sited to meet the numbers and locations of people in need.
- One-Stops appeared to be only slightly better located than VRs in California, Florida, Louisiana, Michigan, Missouri, New Jersey, and Oklahoma.
- In Arkansas, Idaho, North Dakota, and Wyoming, VR services were better located than One-Stops.
- Illinois, Louisiana, and Pennsylvania had no VRs in tracts with high numbers of NEPWD.

Summary:

- The study assumed that locations of VR and One-Stop services are critical for accessibility and the use of services.
- VRs and One-Stops are not in the communities that have the strongest need for them.
- There are no formal locational criteria to guide the siting of VRs and One-Stops. One-Stops should be located within a reasonable travel distance for job seekers, but there are no guidelines for determining reasonable distance.
- Program designers should also consider alternative service delivery designs that bring the service to the person in need, such as online applications and staff who meet where it is convenient for the intended users.
- The private sector has turned away from participating in the TTW program, leaving the State VR system as the primary provider of employment services for the Ticket.
- For the TTW program to achieve its initial goal, it may be necessary to "cream" from the SSDI beneficiaries, selecting those with the highest education, most recent employment, and most extensive work and earnings history.

U. S. Government Accountability Office. (2009).*VA Vocational Rehabilitation and Employment: Better Incentives, Workforce Planning, and Performance Reporting Could Improve Program*. Washington, DC: Government Accountability Office.

Purpose: A review of a newly implemented five-track service delivery model for the Veterans Affairs' Vocational Rehabilitation and Employment Program.

Findings:

- Veterans in most need of immediate employment services may be at a disadvantage owing to the current incentive structure.

- There has been improved capacity to serve veterans owing to additional staff and collaborations with other organizations.
- A lack of information relative to staffing needs may limit the ability to provide quality service to those returning from Afghanistan and Iraq, as well as veterans from past conflicts.
- There is a need to develop a strategic workforce planning process with regard to collecting relevant data to plan for appropriate current and future staffing needs.

APPENDIX B. Supply-Demand Charts of Infrastructure Occupations

Occupations: Employment

(Occupational definitions and information about education and training are adapted from the Bureau of Labor Statistics *Occupational Outlook Handbook*, 2008–2009 edition.)

Rehabilitation counselors help people deal with the personal, social, and vocational effects of disabilities. They counsel people with disabilities resulting from birth defects, illness or disease, accidents, or other causes. They evaluate their strengths and limitations; provide personal and vocational counseling; and arrange for medical care, vocational training, and job placement. Rehabilitation counselors interview persons with disabilities and their families; evaluate school and medical reports; and confer with physicians, psychologists, occupational therapists, and employers to determine the capabilities and skills of the individual. They develop rehabilitation programs by conferring with clients; these programs often include training to help clients develop job skills. Rehabilitation counselors also help clients increase their capacity to live independently.

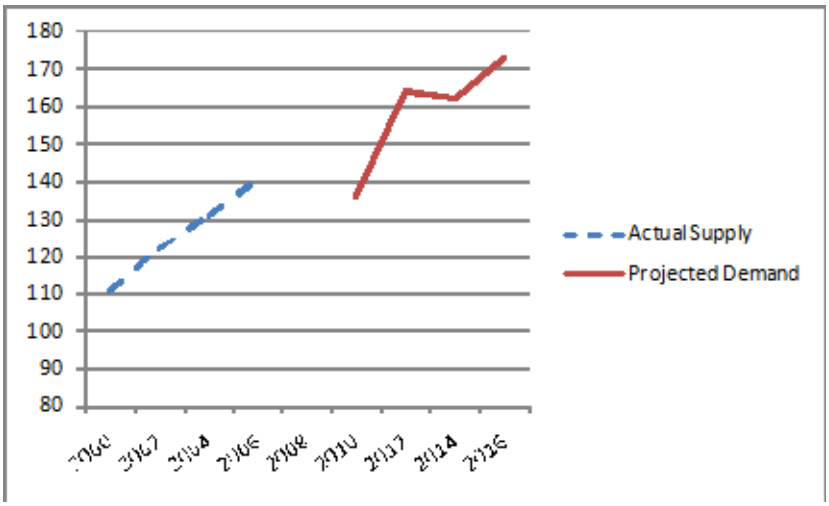
Employment		Total Growth Projected	% Growth[1]	Total Replacement Needs 2006–2016[2]	Percentage with:			Licensure or Certification Required	Income Level
2006	2016				College Plus	Some College	High School Degree		
141,000	173,000	32,000	23	60,000	72.8	18.3	8.9	Yes	Low

1. The average projected increase in these occupations from 2006 to 2016 is 10.4%. Occupations that are growing at a faster rate will have a higher demand.

2. “Total replacement needs” is the sum of employment needs caused by both growth and net replacements.

Projected supply and demand: Although the supply has been growing, demand will continue to increase sharply.

Education and training: A master's degree is usually required to be licensed as a counselor. Some States require counselors in public employment to have a master's degree; others accept a bachelor's degree with appropriate counseling courses. Counselor education programs in colleges and universities are often found in departments of education or psychology. Courses are often grouped into eight core areas: human growth and development, social and cultural diversity, relationships, group work, career development, assessment, research and program evaluation, and professional identity. In an accredited master's degree program, 48 to 60 semester hours of graduate study, including a period of supervised clinical experience in counseling, are required.



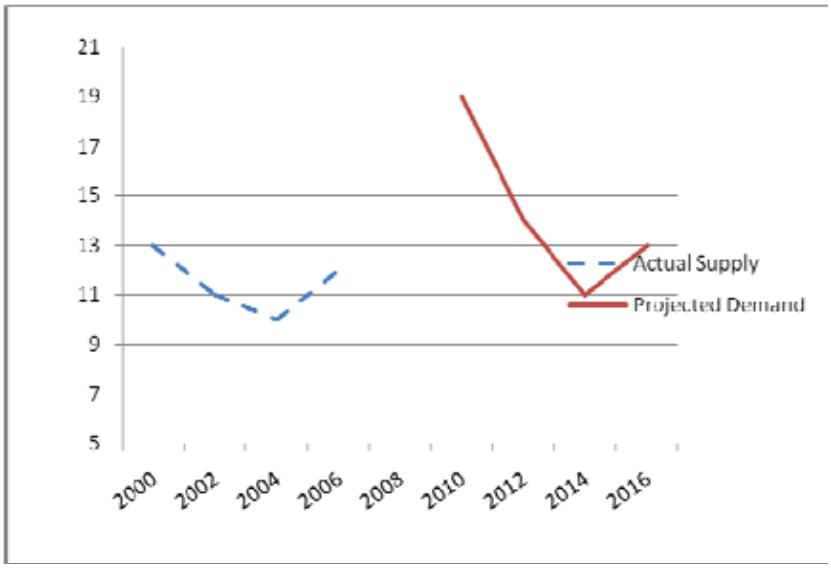
Related fields: These include college student affairs, elementary or secondary school counseling, education, gerontological counseling, marriage and family therapy, substance abuse counseling, rehabilitation counseling, agency or community counseling, clinical mental health counseling, career counseling, and related fields. Counselors work in a wide variety of public and private establishments, including health care facilities; job training, career development, and vocational rehabilitation centers; social agencies; correctional institutions; and residential care facilities, such as halfway houses for criminal offenders and group homes for children, the elderly, and persons with disabilities. Some substance abuse and behavioral disorder counselors work in therapeutic communities where people with addictions live while undergoing treatment. Counselors also work in organizations engaged in community improvement and social change, drug and alcohol rehabilitation programs, and State and local government agencies.

Occupations: Health

Audiologists work with people who have hearing, balance, and related ear problems. They examine people of all ages and identify those with the symptoms of hearing loss and other auditory, balance, and related sensory and neural problems. They then assess the nature and extent of the problems and help the person manage them. Using audiometers, computers, and other testing devices, they measure the loudness at which a person begins to hear sounds, the ability to distinguish between sounds, and the impact of hearing loss on a person's daily life. In addition, audiologists use computer equipment to evaluate and diagnose balance disorders. Audiologists interpret these results and may coordinate them with medical, educational, and psychological information to make a diagnosis and determine a course of treatment.

Employment		Total Growth Projected	% Growth	Total Replace-ment Needs 2006–2016	Percentage with:			Licensure or Certification Required	Income Level
2006	2016				College Plus	Some College	High School Degree		
12,000	13,000	1,000	9.8	1,000	91.2			Varies by State	Very high

Projected supply and demand: The projected supply will closely approximate the demand for audiologists through 2016.



Education and training: A person must have at least a master's degree in

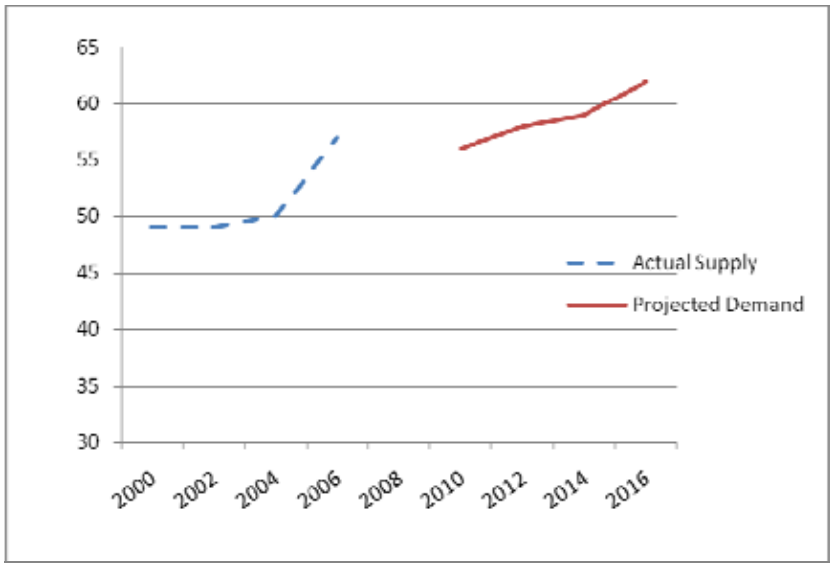
audiology to qualify for a job. However, a first professional or doctoral degree is becoming more common. As of early 2007, eight States required a doctoral degree or its equivalent. The professional doctorate in audiology (Au.D.) requires approximately 8 years of university training and supervised professional experience. Audiologists are regulated by licensure or registration in all 50 States. Forty-one States have continuing education requirements for licensure renewal, the number of hours required varies by State. Twenty States and the District of Columbia also require audiologists to have a Hearing Aid Dispenser license to dispense hearing aids; for the remaining 30 States, an audiologist license is sufficient to dispense hearing aids.

Related fields: These include college student affairs, elementary or secondary school counseling, education, gerontological counseling, marriage and family therapy, substance abuse counseling, rehabilitation counseling, agency or community counseling, clinical mental health counseling, career counseling, and related fields. Counselors work in a wide variety of public and private establishments, including health care facilities; job training, career development, and vocational rehabilitation centers; social agencies; correctional institutions; and residential care facilities, such as halfway houses for criminal offenders and group homes for children, the elderly, and persons with disabilities. Some substance abuse and behavioral disorder counselors work in therapeutic communities where people with addictions live while undergoing treatment. Counselors also work in organizations engaged in community improvement and social change, drug and alcohol rehabilitation programs, and State and local government agencies.

Dieticians and nutritionists plan food and nutrition programs, supervise meal preparation, and oversee the serving of meals. They prevent and treat illnesses by promoting healthy eating habits and recommending dietary modifications. For example, dietitians might teach a patient with high blood pressure how to use less salt when preparing meals or create a diet reduced in fat and sugar for an overweight patient. Dietitians manage food service systems for institutions such as hospitals and schools, promote sound eating habits through education, and conduct research. A dietitian can specialize, becoming a clinical dietitian, community dietitian, management dietitian, or consultant.

Employment		Total Growth Projected	% Growth	Total Replace-ment Needs 2006–2016	Percentage with:			Licensure or Certification Required	Income Level
2006	2016				College Plus	Some College	High School Degree		
57,000	62,000	5,000	8.6	5	71.7	13.6	14.7	Varies by State	Very high

Projected supply and demand: The demand for dieticians through 2016 will be light.



Education and training: Dietitians and nutritionists need at least a bachelor's degree. Licensure, certification, and registration requirements vary by State.

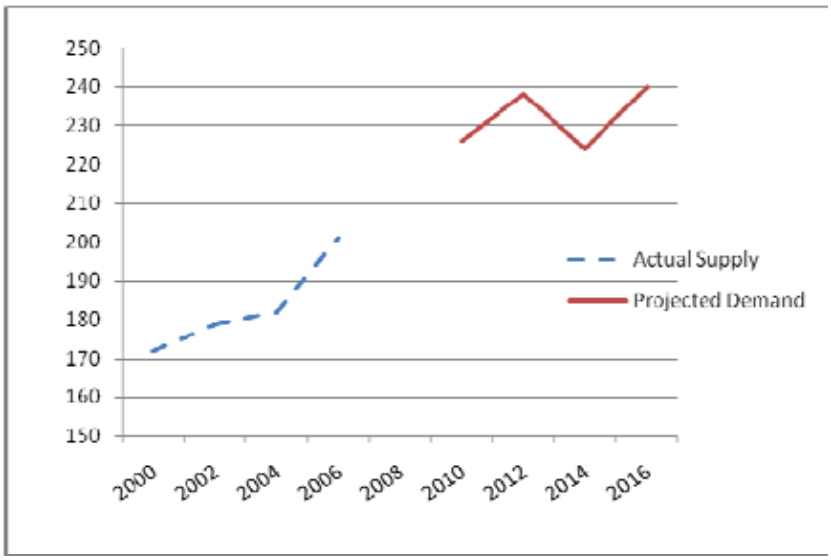
Related fields: Workers in other occupations who may apply the principles of dietetics include food service managers, health educators, dietetic technicians, and registered nurses.

Emergency medical technicians (EMTs) and paramedics attend to persons involved in incidents as varied as automobile accidents, heart attacks, slips and falls, childbirth, and gunshot wounds, all of which require immediate medical attention. EMTs provide this vital service as they care for and transport the sick or injured to a medical facility. In an emergency, EMTs are typically dispatched by a 911 operator, and they often work with police and firefighters. Once they arrive, EMTs or paramedics assess the nature of the patient's condition while trying to determine whether the patient has any preexisting

conditions. Following medical protocols, they provide appropriate care and, when necessary, transport the patient. Some are trained to treat patients with minor injuries on the scene, or they may treat them at their home without transporting them. Emergency treatment is carried out under the medical direction of physicians.

Employment		Total Growth Projected	% Growth	Total Replace-ment Needs 2006–2016	Percentage with:			Licensure or Certification Required	Income Level
2006	2016				College Plus	Some College	High School Degree		
201,000	240,000	39,000	19.2	20	13.9	68.1	18.0	Yes	Low

Projected supply and demand: There will be a strong demand for EMTs through 2016.



Education and training: Generally, a high school diploma is required to enter a training program to become an EMT or a paramedic. Workers must complete a formal training and certification process.

Related fields: Other workers in occupations that require quick and level-headed reactions to life-or-death situations are air traffic controllers, firefighting occupations, physician assistants, police and detectives, and registered nurses.

Home health aides help people who are elderly, disabled, ill, or mentally disabled live in their own homes or in residential care facilities instead of in health facilities or institutions.

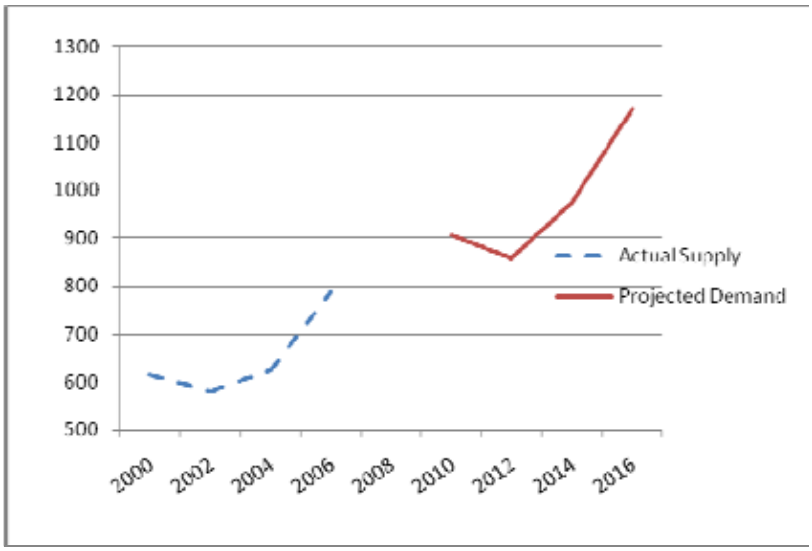
Most personal and home care aides work with elderly or physically or mentally disabled clients who need more extensive personal and home care than family or friends can provide. Some aides work with families in which a parent is incapacitated and small children need care. Others help discharged hospital patients who have relatively short-term needs. Personal and home care aides—also called *homemakers, caregivers, companions*, and *personal attendants*—provide housekeeping and routine personal care services. They clean clients' houses, do laundry, and change bed linens. Aides may plan meals (including special diets), shop for food, and cook. Aides also may help clients get out of bed, bathe, dress, and groom. Some accompany clients to doctors' appointments or on other errands. Personal and home care aides provide instruction and psychological support to their patients. They may advise families and patients on nutrition, cleanliness, and household tasks. Aides also may assist in toilet training a severely mentally handicapped child, or they may just listen to clients talk.

Employment		Total Growth Projected	% Growth	Total Replace-ment Needs 2006–2016	Percentage with:			Licensure or Certification Required	Income Level
2006	2016				College Plus	Some College	High School Degree		
787	1,171	384	48.7	221	7.4	37.3	55.3	Varies	Very low

Projected supply and demand: There will be an extremely strong demand for home health aides through 2016.

Education and training: In some States, the only requirement for employment is on-the-job training, which generally is provided by employers. Other States may require formal training, which is available from community colleges, vocational schools, elder care programs, and home health care agencies.

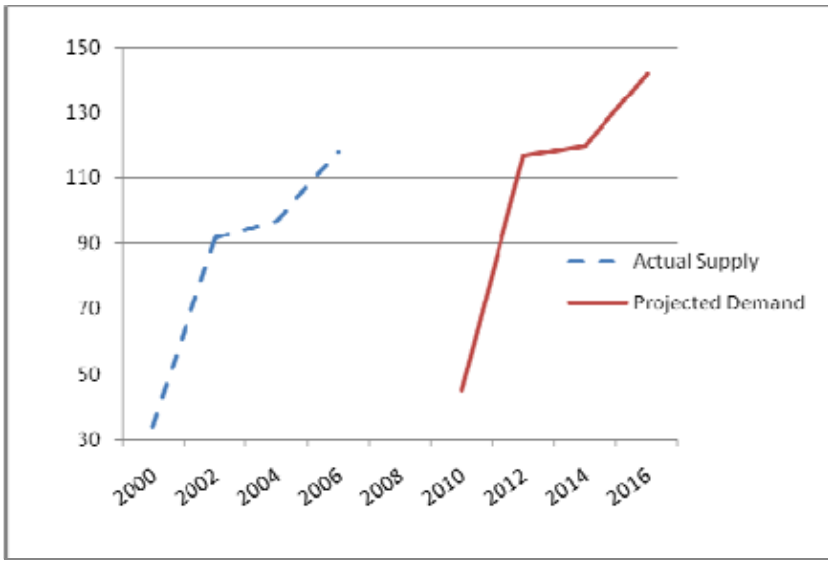
Related fields: Personal and home care aides combine the duties of caregivers and social service workers. Workers in related occupations that involve personal contact to help others include child care workers; nursing, psychiatric, and home health aides; occupational therapist assistants and aides; physical therapist assistants and aides; and social and human service assistants.



Massage therapists provide a means of treating painful ailments; decompressing tired, overworked muscles; reducing stress; rehabilitating injuries; and promoting general health. This is done by manipulating the soft tissue muscles of the body to improve circulation and remove waste products from the muscles. Clients may seek massage for medical benefit or for relaxation purposes, and there is a wide range of massage treatment available to meet these distinct needs. Massage therapy that aims to improve physical health typically differs in duration and technique from massage that is intended to simply relax or rejuvenate clients. The training background of those who perform the two types of massage therapy differs as well.

Employment		Total Growth Projected	% Growth	Total Replace-ment Needs 2006–2016	Percentage with:			Licensure or Certification Required	Income Level
2006	2016				College Plus	Some College	High School Degree		
118,000	142,000	24,000	20.3	9	32.2	49.1	18.7	Varies	High

Projected supply and demand: Although supply has been increasing strongly, demand will continue to be strong as well through 2016.



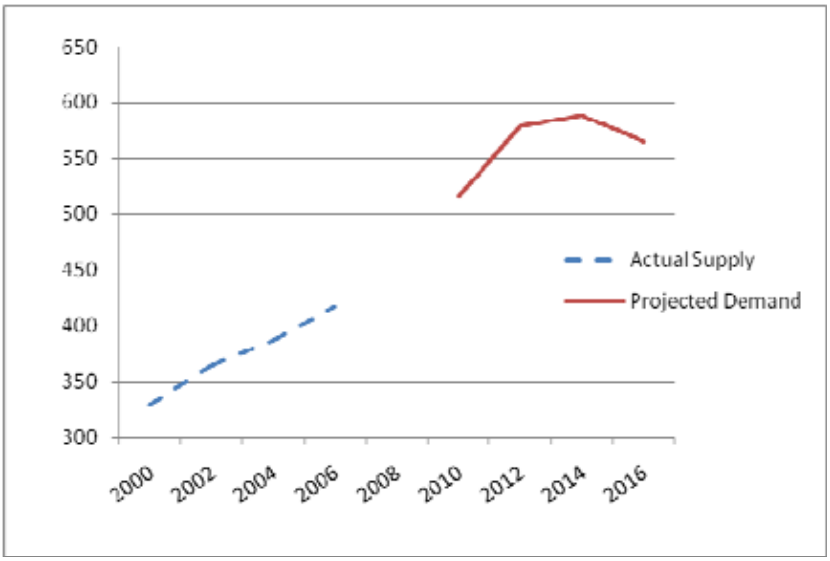
Education and training: In 2007, 38 States and the District of Columbia had laws regulating massage therapy in some way. Most of the boards governing massage therapy in these States require practicing massage therapists to complete a formal education program and pass a national certification examination or a State exam. It is best to check information on licensing, certification, and accreditation on a State-by-State basis.

Related fields: Other workers associated with the health care industry who provide therapy to clients include athletic trainers, physical therapists, physical therapist assistants and aides, chiropractors, and workers in other occupations that use touch to aid healing or relieve stress.

Medical assistants perform administrative and clinical tasks to keep the offices of physicians, podiatrists, chiropractors, and other health practitioners running smoothly. They should not be confused with physician assistants, who examine, diagnose, and treat patients under the direct supervision of a physician. The duties of medical assistants vary from office to office, depending on the location and size of the practice and the practitioner's specialty. In small practices, medical assistants usually do many different kinds of tasks, handling both administrative and clinical duties, and reporting directly to an office manager, physician, or other health practitioner. Those in large practices tend to specialize in a particular area, under the supervision of department administrators.

Employment		Total Growth Projected	% Growth	Total Replace-ment Needs 2006–2016	Percentage with:			Licensure or Certification Required	Income Level
2006	2016				College Plus	Some College	High School Degree		
417,000	565,000	148,000	35.4	93	10.4	58.9	30.6	Varies	Low

Projected supply and demand: The demand for medical assistants through 2016 will be very strong.



Education and training: Some medical assistants are trained on the job, but many complete 1-year or 2-year programs.

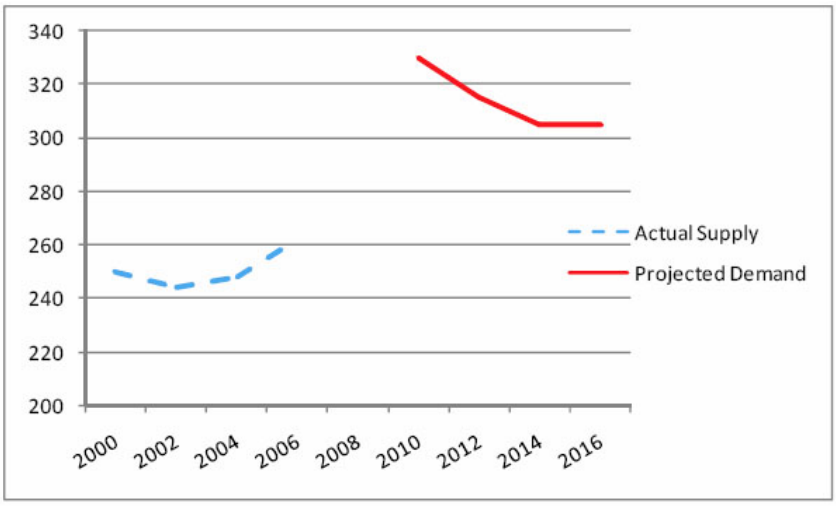
Related fields: Medical assistants perform work similar to that done by other workers in medical support occupations. Administrative medical assistants do work similar to that of medical secretaries, medical transcriptionists, and medical records and health information technicians. Clinical medical assistants perform duties similar to those of dental assistants; dental hygienists; occupational therapist assistants and aides; pharmacy aides; licensed practical and licensed vocational nurses; surgical technologists; physical therapist assistants and aides; and nursing, psychiatric, and home health aides.

Medical and health services managers plan, direct, coordinate, and supervise the delivery of health care. These workers are either specialists in charge of a specific clinical department or generalists who manage an entire facility or system. Future medical and health services managers must be prepared to deal with the integration of

health care delivery systems, technological innovations, an increasingly complex regulatory environment, restructuring of work, and an increased focus on preventive care. They will be called on to improve efficiency in health care facilities and the quality of the care provided. Administrators handle the details of daily operations, including the management of personnel, finances, facility operations, and admissions, while also providing resident care. Clinical managers have training or experience in a specific clinical area and, accordingly, have more specific responsibilities than do generalists. For example, directors of physical therapy are experienced physical therapists, and most health information and medical record administrators have a bachelor's degree in health information or medical record administration. Clinical managers establish and implement policies, objectives, and procedures for their departments; evaluate personnel and work quality; develop reports and budgets; and coordinate activities with other managers. Health information managers are responsible for the maintenance and security of all patient records. Recent regulations enacted by the Federal Government require that all health care providers maintain electronic patient records and that these records be secure. As a result, health information managers must keep up with current computer and software technology, and with legislative requirements. In addition, as patient data is more frequently used for quality management and in medical research, health information managers will ensure that databases are complete, accurate, and available only to authorized personnel.

Employment		Total Growth Projected	% Growth	Total Replace-ment Needs 2006–2016	Percentage with:			Licensure or Certification Required	Income Level
2006	2016				College Plus	Some College	High School Degree		
262,000	305,000	43,000	16.4	92,000	56.6	32	11.4	Yes, for some positions	Very high

Projected supply and demand: There will need to be an additional 40,000 positions by 2016.



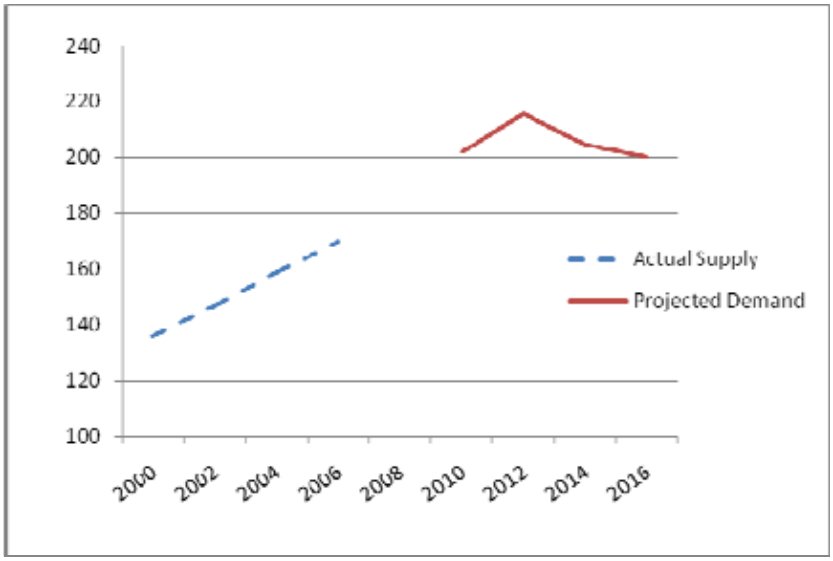
Education and training: A master's degree in one of a number of fields is the standard credential for most generalist positions as a medical or health care manager. A bachelor's degree is sometimes adequate for entry-level positions in smaller facilities or departments. In physicians' offices and other facilities, on-the-job experience may substitute for formal education. Medical and health services managers must be familiar with management principles and practices, including finance and information systems, and must be able to interpret data. Motivating others to implement decisions requires strong leadership abilities. Tact, diplomacy, flexibility, and communication skills are essential, because managers spend most of their time interacting with others. *Licensure.* All States and the District of Columbia require nursing care facility administrators to have a bachelor's degree, pass a licensing examination, complete a State-approved training program, and pursue continuing education. Some States also require licenses for administrators in assisted living facilities. A license is not required in other areas of medical and health services management.

Related fields: Medical and health services managers have training or experience in both health and management. Other occupations requiring knowledge of both fields are insurance underwriters and social and community service managers.

Medical records technicians assemble patients' health information, making sure that patients' initial medical charts are complete, that all forms are completed and properly identified and authenticated, and that all necessary information is in the computer. They regularly communicate with physicians and other health care professionals to clarify diagnoses or to obtain additional information. Technicians regularly use computer

programs to tabulate and analyze data to improve patient care, better control costs, and provide documentation for use in legal actions or research studies.

Employment		Total Growth Projected	% Growth	Total Replace-ment Needs 2006–2016	Percentage with:			Licensure or Certification Required	Income Level
2006	2016				College Plus	Some College	High School Degree		
170,000	200,000	30,000	17.8	39	11.8	51.4	36.8	No	Low



Projected supply and demand: The demand for records technicians through 2016 will be moderately strong.

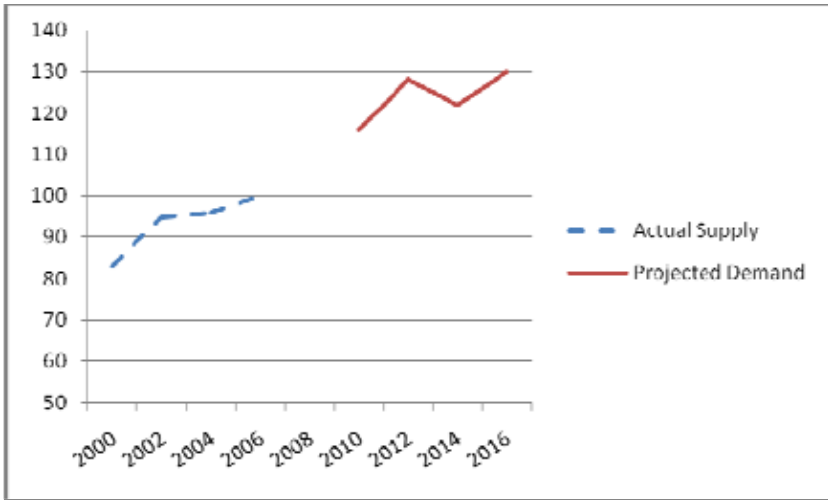
Education and training: Medical records and health information technicians entering the field usually have an associate degree from a community or junior college. Many employers favor technicians who have become registered health information technicians (RHITs). Advancement opportunities for medical record and health information technicians are typically achieved by specialization or promotion to a management position.

Related fields: Medical records and health information technicians need a strong clinical background to analyze the contents of medical records. Medical secretaries and medical transcriptionists also must be knowledgeable about medical terminology, anatomy, and physiology, even though they have little or no direct contact with patients.

Mental health counselors work with individuals, families, and groups to address and treat mental and emotional disorders and to promote mental health. They are trained in a variety of therapeutic techniques used to address issues, including depression, addiction and substance abuse, suicidal impulses, stress, problems with self-esteem, and grief. They also help with job and career concerns; educational decisions; issues related to mental and emotional health; and family, parenting, marital, or other relationship problems. Mental health counselors often work closely with other mental health specialists, such as psychiatrists, psychologists, clinical social workers, psychiatric nurses, and school counselors.

Employment		Total Growth Projected	% Growth	Total Replace-ment Needs 2006–2016	Percentage with:			Licensure or Certification Required	Income Level
2006	2016				College Plus	Some College	High School Degree		
100,000	130,000	30,000	30	50,000	72.8	18.3	8.9	Usually	High

Projected supply and demand: The demand for mental health counselors will remain very high through 2016.



Education and training: Education requirements vary based on occupational specialty and State licensure and certification requirements. A master's degree is usually required to be licensed as a counselor. Some counselors elect to be certified by the National Board for Certified Counselors, Inc., which grants a general practice credential of national certified counselor.

To be certified, a counselor must hold a master's degree with a concentration in counseling from a regionally accredited college or university; have at least 2 years of supervised field experience in a counseling setting (graduates from counselor education programs accredited by the Council for Accreditation of Counseling and Related Educational Programs are exempted); provide two professional endorsements, one of which must be from a recent supervisor; and have a passing score on the board's examination. This national certification is voluntary and is distinct from State licensing. However, in some States, those who pass the national exam are exempted from taking a State certification exam. The board also offers specialty certifications in school, clinical mental health, and addiction counseling. These specialty certifications require passage of a supplemental exam. To maintain their certifications, counselors retake and pass the exam or complete 100 credit hours of acceptable continuing education every 5 years.

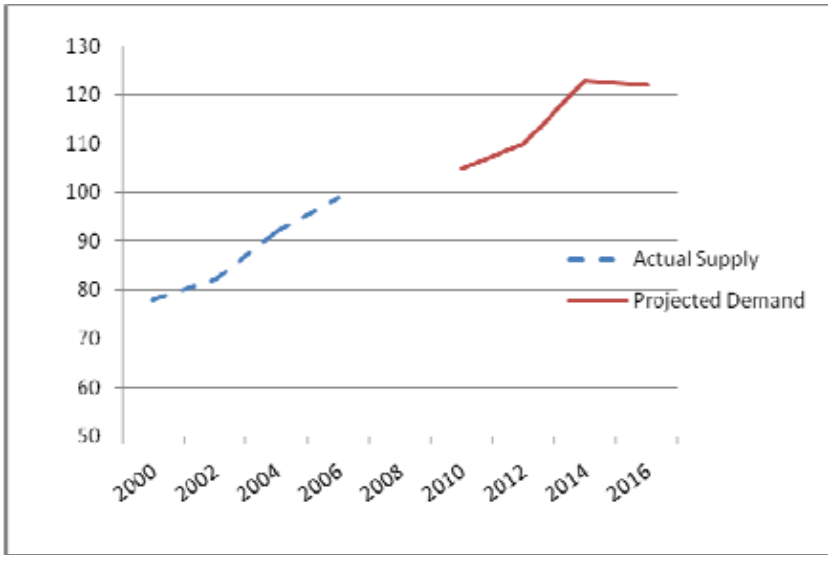
Related fields: These include college student affairs, elementary or secondary school counseling, education, gerontological counseling, marriage and family therapy, substance abuse counseling, rehabilitation counseling, agency or community counseling, clinical mental health counseling, and career counseling. Counselors work in a wide variety of public and private establishments, including health care facilities; job training, career development, and vocational rehabilitation centers; social agencies; correctional institutions; and residential care facilities, such as halfway houses for criminal offenders and group homes for children, the elderly, and persons with disabilities. Some substance abuse and behavioral disorder counselors work in therapeutic communities where people with addictions live while undergoing treatment. Counselors also work in organizations engaged in community improvement and social change, drug and alcohol rehabilitation programs, and State and local government agencies.

Occupational therapists help patients improve their ability to perform tasks in living and working environments. They work with persons who suffer from a mentally, physically, developmentally, or emotionally disabling condition. Occupational therapists use treatments to help patients develop, recover, or maintain daily living and work skills. The therapist helps clients not only to improve their basic motor functions and reasoning abilities but also

compensate for permanent loss of function. The goal is to help clients have independent, productive, and satisfying lives. Occupational therapists help clients to perform all types of activities, from using a computer to caring for daily needs such as dressing, cooking, and eating. Physical exercises may be used to increase strength and dexterity, while other activities may be chosen to improve visual acuity or the ability to discern patterns. For example, a client with short-term memory loss might be encouraged to make lists to aid recall, and a person with coordination problems might be assigned exercises to improve hand-eye coordination. Occupational therapists also use computer programs to help clients improve decision making, abstract reasoning, problem solving, and perceptual skills, as well as memory, sequencing, and coordination—all of which are important for independent living.

Employment		Total Growth Projected	% Growth	Total Replace-ment Needs 2006–2016	Percentage with:			Licensure or Certification Required	Income Level
2006	2016				College Plus	Some College	High School Degree		
99,000	122,000	23,000	23.1	8	89.3	8.8	1.8	Yes	Very high

Projected supply and demand: There will be strong demand through 2016 for occupational therapists.



Education and training: A master's degree or higher in occupational therapy is the minimum requirement for entry into the field. In 2007, 124 master's degree programs offered entry-level education, 66 programs offered

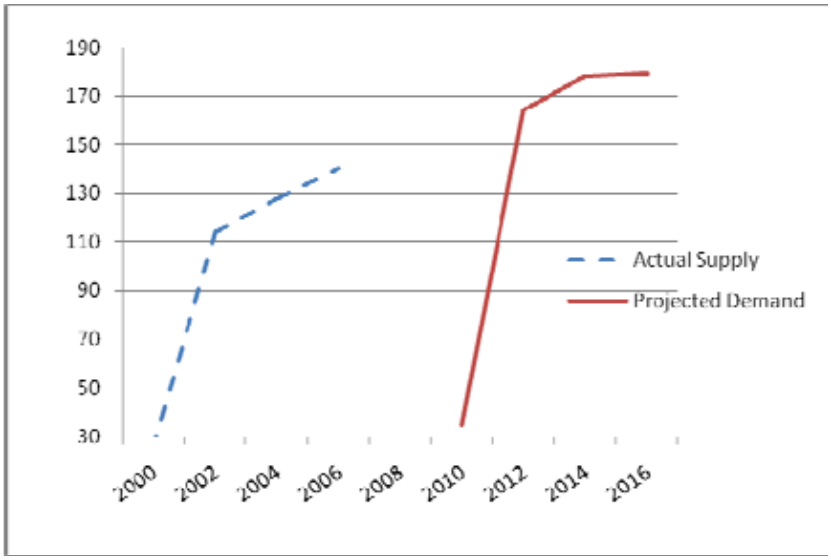
a combined bachelor's and master's degree, and 5 offered an entry-level doctoral degree. Most schools have full-time programs, although a growing number are offering weekend or part-time programs as well. Coursework in occupational therapy programs includes the physical, biological, and behavioral sciences as well as the application of occupational therapy theory and skills. Programs also require the completion of 6 months of supervised fieldwork.

Related fields: Occupational therapists use specialized knowledge to help people perform daily living skills and achieve maximum independence. Other workers who have similar duties include athletic trainers, audiologists, chiropractors, physical therapists, recreational therapists, rehabilitation counselors, respiratory therapists, and speech-language pathologists

Occupational therapy assistants and aides work under the direction of occupational therapists to provide rehabilitative services to persons with mental, physical, emotional, or developmental impairments. The ultimate goal is to improve clients' quality of life and ability to perform daily activities. For example, occupational therapist assistants help injured workers reenter the labor force by teaching them how to compensate for lost motor skills or help persons with learning disabilities increase their independence. *Occupational therapist assistants*, commonly known as *occupational therapy assistants*, help clients with rehabilitative activities and exercises outlined in a treatment plan developed in collaboration with an occupational therapist. Activities range from teaching the proper method of moving from a bed into a wheelchair to the best way to stretch and limber up the muscles of the hand. Assistants monitor the person's activities to make sure that they are performed correctly and to provide encouragement. They also record their client's progress for the occupational therapist. If the treatment is not having the intended effect or the client is not improving as expected, the therapist may alter the treatment program in hopes of obtaining better results. In addition, occupational therapist assistants document the billing of the client's health insurance provider. *Occupational therapist aides* typically prepare materials and assemble equipment used during treatment. They are responsible for a range of clerical tasks, including scheduling

appointments, answering the telephone, restocking or ordering depleted supplies, and filling out insurance forms or other paperwork. Aides are not licensed, so the law does not allow them to perform as wide a range of tasks as occupational therapist assistants.

Employment		Total Growth Projected	% Growth	Total Replace-ment Needs 2006–2016	Percentage with:			Licensure or Certification Required	Income Level
2006	2016				College Plus	Some College	High School Degree		
140,000	179,000	39,000	27.9	14	13.3	85.6		Varies	Low



Projected supply and demand: There will be strong demand for therapy assistants through 2016.

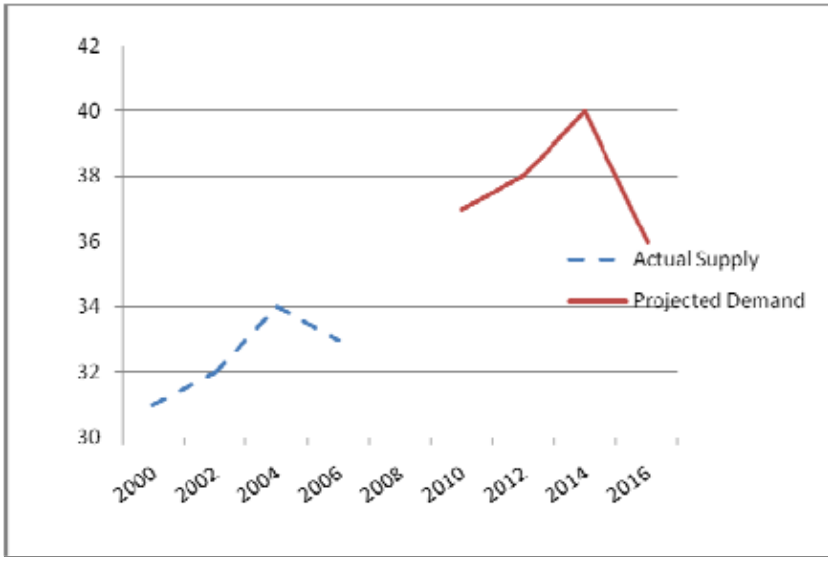
Education and training: An associate degree or a certificate from an accredited community college or technical school is generally required to qualify for occupational therapist assistant jobs. In contrast, occupational therapist aides usually receive most of their training on the job.

Related fields: Occupational therapist assistants and aides work under the supervision and direction of occupational therapists. Other workers in the health care field who work under similar supervision include dental assistants; medical assistants; nursing, psychiatric, and home health aides; personal and home care aides; pharmacy aides; pharmacy technicians; and physical therapist assistants and aides.

Optometrists, also known as *doctors of optometry*, or *ODs*, are the main providers of vision care. They examine people's eyes to diagnose vision problems, such as nearsightedness and farsightedness, and they test patients' depth and color perception and ability to focus and coordinate the eyes. Optometrists may prescribe eyeglasses or contact lenses, or they may prescribe or provide other treatments, such as vision therapy or low-vision rehabilitation. Optometrists also test for glaucoma and other eye diseases, and diagnose conditions caused by systemic diseases such as diabetes and high blood pressure, referring patients to other health practitioners as needed. They administer drugs to patients to aid in the diagnosis of vision problems and to treat eye diseases. Optometrists often provide preoperative and postoperative care to cataract patients, as well as to patients who have had laser vision correction or other eye surgery.

Employment		Total Growth Projected	% Growth	Total Replace-ment Needs 2006–2016	Percentage with:			Licensure or Certification Required	Income Level
2006	2016				College Plus	Some College	High School Degree		
33,000	36,000	4,000	11.3	2	100			Yes	Very high

Projected supply and demand: The demand for optometrists will be moderately strong through 2016.



Education and training: Optometrists need a doctor of optometry degree, which requires the completion of a

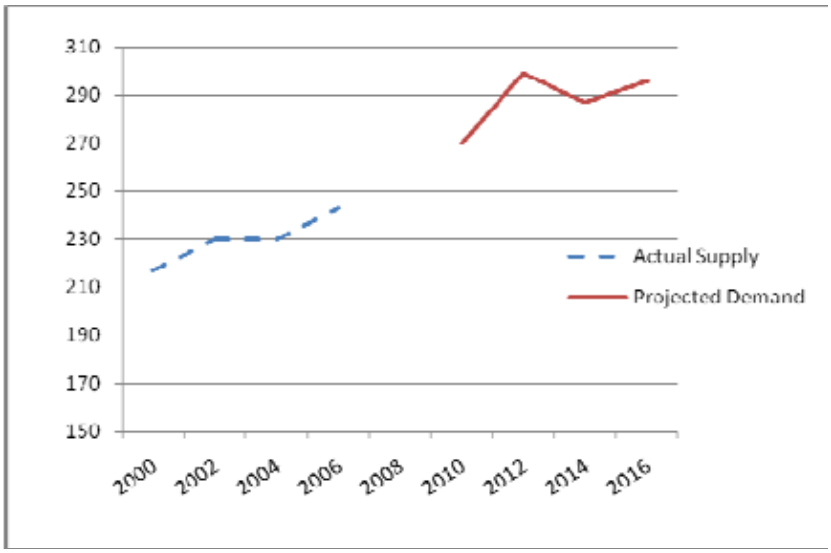
4-year program at an accredited optometry school. In 2006, there were 16 colleges of optometry in the United States and 1 in Puerto Rico that offered programs accredited by the Accreditation Council on Optometric Education of the American Optometric Association. Requirements for admission to optometry schools include college courses in English, mathematics, physics, chemistry, and biology. Because a strong background in science is important, many applicants to optometry school major in a science such as biology or chemistry as undergraduates. Others major in another subject and take many science courses offering laboratory experience.

Related fields: Other workers who apply scientific knowledge to prevent, diagnose, and treat disorders and injuries are chiropractors, dentists, physicians and surgeons, psychologists, podiatrists, and veterinarians.

Pharmacists distribute prescription drugs to people. They also advise their patients, as well as physicians and other health practitioners, on the selection, dosages, interactions, and side effects of medications. Pharmacists monitor the health and progress of patients to ensure the safe and effective use of medication. Compounding—the actual mixing of ingredients to form medications—is a small part of a pharmacist's practice, because most medicines are produced by pharmaceutical companies in a standard dosage and drug delivery form. Most pharmacists work in a community setting (such as a retail drugstore) or a health care facility (such as a hospital, nursing home, mental health institution, or neighborhood health clinic).

Employment		Total Growth Projected	% Growth	Total Replace-ment Needs 2006–2016	Percentage with:			Licensure or Certification Required	Income Level
2006	2016				College Plus	Some College	High School Degree		
243,000	296,000	53,000	21.7	16	97.0	2.9		Yes	Very high

Projected supply and demand: Demand will be strong through 2016.



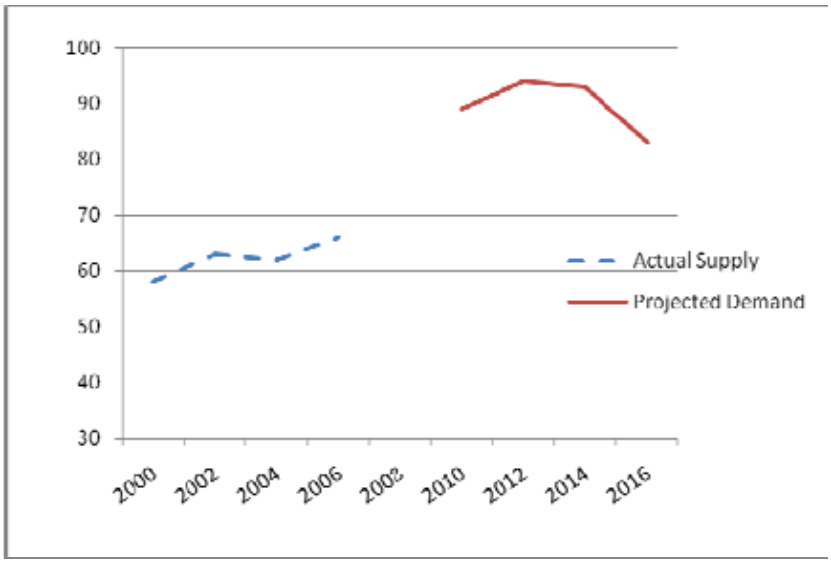
Education and training: Pharmacists must earn a Pharm.D. degree from an accredited college or school of pharmacy. The Pharm.D. degree has replaced the bachelor of pharmacy degree, which is no longer being awarded. To be admitted to a Pharm.D. program, an applicant must have completed at least 2 years of postsecondary study, although most applicants have completed 3 or more years. Other entry requirements usually include courses in mathematics and natural sciences, such as chemistry, biology, and physics, as well as courses in the humanities and social sciences. In 2007, 92 colleges and schools of pharmacy were accredited to confer degrees by the Accreditation Council for Pharmacy Education. About 70 percent of Pharm.D. programs require applicants to take the Pharmacy College Admissions Test .

Related fields: Persons in other professions who may work with pharmaceutical compounds include pharmacy aides, pharmacy technicians, biological scientists, medical scientists, and chemists and materials scientists. Increasingly, pharmacists are involved in patient care and therapy, work that they have in common with physicians and surgeons.

Physician assistants (PAs) are supervised by physicians and surgeons. PAs provide diagnostic, therapeutic, and preventive health care services as delegated by a physician. Working as members of the health care team, they take medical histories, examine and treat patients, order and interpret laboratory tests and x-rays, and make diagnoses. They also treat minor injuries by suturing, splinting, and casting. PAs record progress notes, instruct and counsel patients, and order or carry out therapy. In 48 States and the District of Columbia, physician assistants may prescribe some

medications. The PA may be responsible for managerial duties, such as ordering medical supplies or equipment and supervising technicians and assistants. PAs may be the principal care providers in rural or inner city clinics where a physician is present for only one or two days each week. In such cases, the PA confers with the supervising physician and other medical professionals as needed and as required by law. PAs also may make house calls or go to hospitals and nursing care facilities to check on patients.

Employment		Total Growth Projected	% Growth	Total Replace-ment Needs 2006–2016	Percentage with:			Licensure or Certification Required	Income Level
2006	2016				College Plus	Some College	High School Degree		
66,000	83,000	18,000	27.0	27,000	66.9	25.5	7.6	Yes	Very high



Projected supply and demand: The demand through 2016 for physician assistants will remain very high.

Education and training: Physician assistant education programs usually last at least 2 years and are full time. Most programs are in schools of allied health, academic health centers, medical schools, and 4-year colleges; a few are in community colleges, the military, and hospitals. Many accredited PA programs have clinical teaching affiliations with medical schools. Admission requirements vary, but many programs require two years of college and some work experience in the health care field. Students should take courses in biology, English,

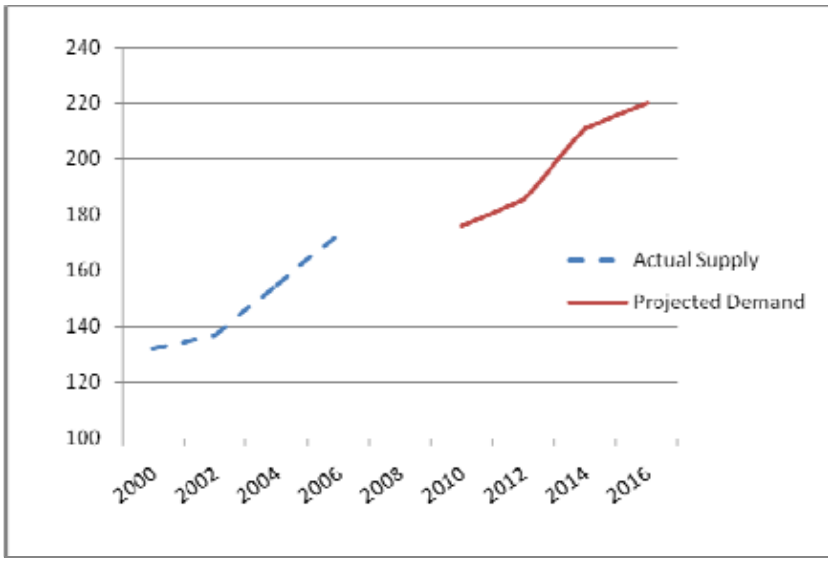
chemistry, mathematics, psychology, and the social sciences. Many PAs have previous experience as registered nurses; others come from varied backgrounds, including military corpsman or medics and allied health occupations such as respiratory therapists, physical therapists, and EMTs and paramedics.

Related fields: Other health care workers who provide direct patient care that requires a similar level of skill and training include audiologists, occupational therapists, physical therapists, registered nurses, and speech-language pathologists.

Physical therapists provide services that help restore function, improve mobility, relieve pain, and prevent or limit permanent physical disabilities for patients suffering from injuries or disease. They restore, maintain, and promote overall fitness and health. Their patients include accident victims and persons with disabling conditions such as low back pain, arthritis, heart disease, fractures, head injuries, and cerebral palsy. Therapists examine patients' medical histories, then test and measure their strength, range of motion, balance and coordination, posture, muscle performance, respiration, and motor function. Next, physical therapists develop plans describing a treatment strategy and its anticipated outcome.

Employment		Total Growth Projected	% Growth	Total Replace-ment Needs 2006–2016	Percentage with:			Licensure or Certification Required	Income Level
2006	2016				College Plus	Some College	High School Degree		
173,000	220,000	47,000	27.1	12	89.3	8.8	1.8	Yes	Very high

Projected supply and demand: The demand for physical therapists will be very strong through 2016.



Education and training: A person who pursues a career as a physical therapist usually need a master's degree from an accredited physical therapy program and a State license, which requires passing scores on national and State examinations. According to the American Physical Therapy Association, there were 209 accredited physical therapist education programs in 2007. Of the accredited programs, 43 offered master's degrees and 166 offered doctoral degrees. Only master's and doctoral degree programs are accredited, in accordance with the Commission on Accreditation in Physical Therapy Education. In the future, a doctoral degree might be the required entry-level degree. Master's degree programs typically last 2 years, and doctoral programs last 3 years.

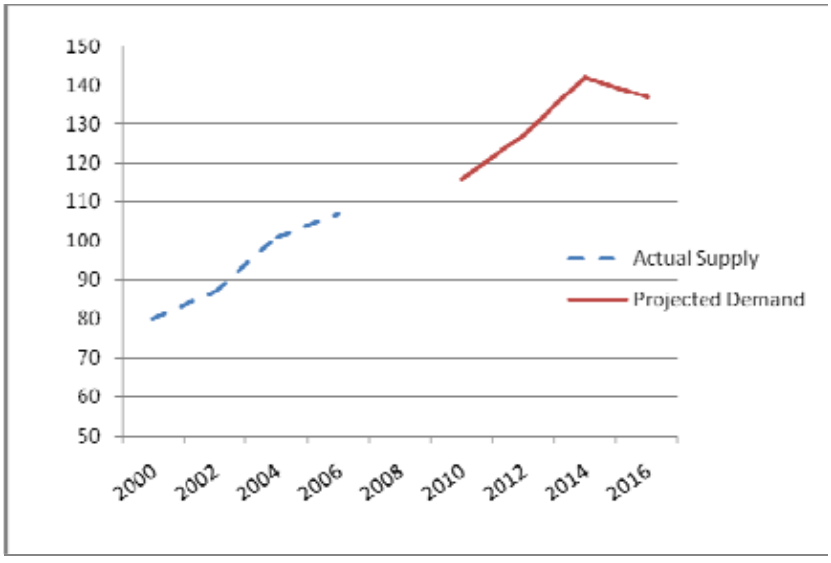
Related fields: Physical therapists rehabilitate people with physical disabilities. Others who work in the rehabilitation field include audiologists, chiropractors, occupational therapists, recreational therapists, rehabilitation counselors, respiratory therapists, and speech-language pathologists.

Physical therapy assistants and aides help physical therapists provide treatment that improves patient mobility, relieves pain, and prevents or lessens physical disabilities. An assistant might help patients exercise or learn to use crutches, or gather and prepare therapy equipment. Patients include accident victims and those with disabling conditions such as lower back pain, arthritis, heart disease, fractures, and cerebral palsy. *Physical therapist assistants* perform a variety of tasks. Under the direction and supervision of physical therapists, they provide part of a patient's treatment, such as exercises,

massages, electrical stimulation, hot and cold packs, and ultrasound. Assistants record the patient's responses to treatment and report the outcome of each treatment to the physical therapist. *Physical therapist aides* help make therapy sessions productive, under the direct supervision of a physical therapist or physical therapist assistant. They usually are responsible for keeping the treatment area clean and organized and for preparing for each patient's therapy. When patients need assistance moving to or from a treatment area, aides push them in a wheelchair or provide them with a shoulder to lean on. Because they are not licensed, aides do not perform the clinical tasks of a physical therapist assistant in States where licensure is required.

Employment		Total Growth Projected	% Growth	Total Replacement Needs 2006–2016	Percentage with:			Licensure or Certification Required	Income Level
2006	2016				College Plus	Some College	High School Degree		
107,000	137,000	31,000	28.9	10	22.9	65.4	11.7	Varies by State	Low

Projected supply and demand: There will be a very strong demand for physical therapy aides through 2016.



Education and training: Employers typically require physical therapist aides to have a high school diploma. They are trained on the job, and most employers provide clinical on-the-job training. In many States, physical therapist assistants are required by law to hold at least an associate degree. According

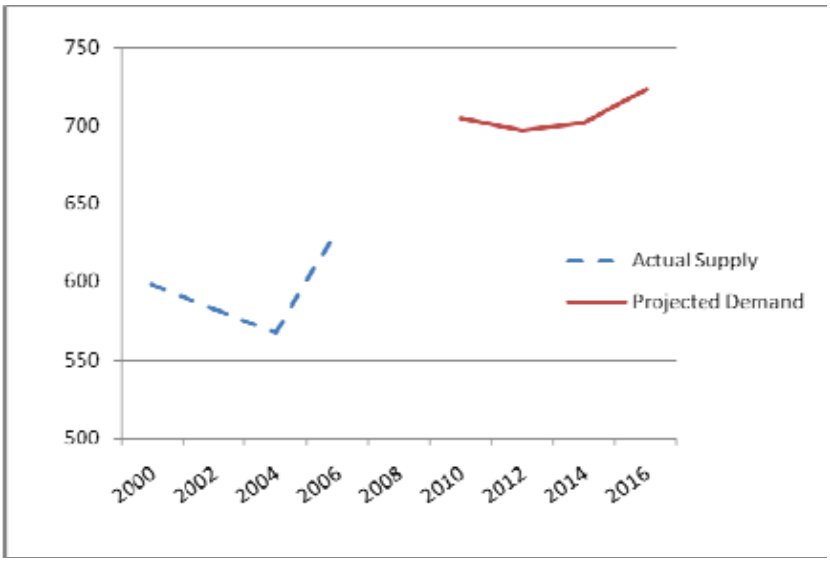
to the American Physical Therapy Association, there were 233 accredited physical therapist assistant programs in the United States as of 2006. Accredited programs usually last 2 years (four semesters) and culminate in an associate degree.

Related fields: Physical therapist assistants and aides work under the supervision of physical therapists. Other workers in the health care field who work under similar supervision include dental assistants; medical assistants; occupational therapist assistants and aides; pharmacy aides; pharmacy technicians; nursing, psychiatric, and home health aides; personal and home care aides; and social and human service assistants.

Physicians and surgeons diagnose illnesses and prescribe and administer treatment for people suffering from injury or disease. Physicians examine patients, obtain medical histories, and order, perform, and interpret diagnostic tests. They counsel patients on diet, hygiene, and preventive health care. There are two types of physicians: MD (doctor of medicine and DO (doctor of osteopathic medicine). MDs also are known as allopathic physicians. While both MDs and DOs may use all accepted methods of treatment, including drugs and surgery, DOs place special emphasis on the body's musculoskeletal system, preventive medicine, and holistic patient care. DOs are most likely to be primary care specialists, although they can be found in all specialties. About half of DOs practice general or family medicine, general internal medicine, or general pediatrics. Physicians work in one or more of several specialties, including, but not limited to, anesthesiology, family and general medicine, general internal medicine, general pediatrics, obstetrics and gynecology, psychiatry, and surgery.

Employment		Total Growth Projected	% Growth	Total Replace-ment Needs 2006–2016	Percentage with:			Licensure or Certification Required	Income Level
2006	2016				College Plus	Some College	High School Degree		
633,000	723,000	90,000	14.2	38	100			Yes	Very high

Projected supply and demand: There is likely to be a moderate demand for physicians through 2016.



Education and training: Formal education and training requirements for physicians are among the most demanding of any occupation—4 years of undergraduate school, 4 years of medical school, and 3 to 8 years of internship and residency, depending on the specialty selected. A few medical schools offer combined undergraduate and medical school programs that last 6 years rather than the customary 8 years.

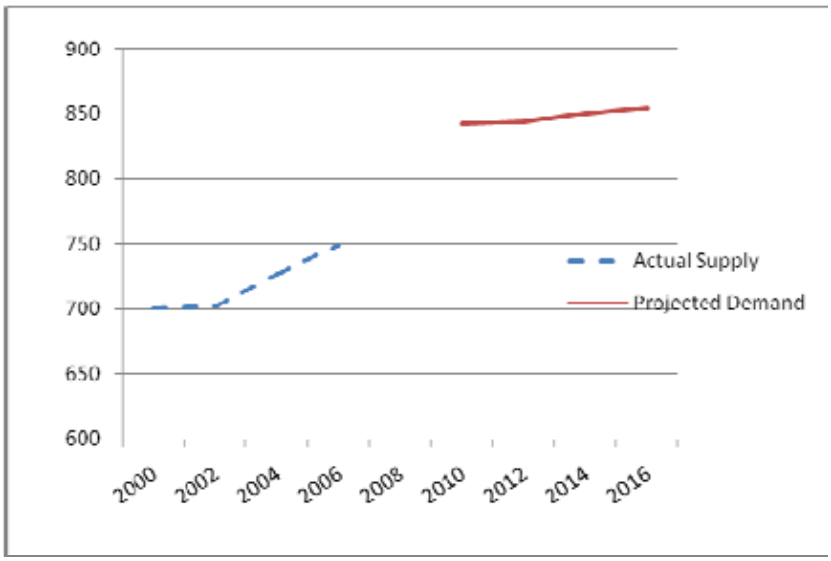
Related fields: Physicians work to prevent, diagnose, and treat diseases, disorders, and injuries. Other health care practitioners who need similar skills and who exercise critical judgment include chiropractors, dentists, optometrists, physician assistants, podiatrists, registered nurses, and veterinarians.

Licensed practical nurses (LPNs) and licensed vocational nurses (LVNs) care for people under the direction of physicians and registered nurses. The nature of the supervision required varies by State and job setting. LPNs care for patients in many ways. Often, they provide basic bedside care; measure and record patients' vital signs, such as height, weight, temperature, blood pressure, pulse, and respiration; prepare and give injections and enemas; monitor catheters; dress wounds; and give alcohol rubs and massages. To help keep patients comfortable, they assist with bathing, dressing, and personal hygiene; moving in bed; standing; and walking. They might also feed patients. Experienced LPNs may supervise nursing assistants and aides. As part of their work, LPNs collect samples for testing, perform routine laboratory tests, and record food and fluid intake and output. They clean and monitor medical equipment.

Sometimes, they help physicians and registered nurses perform tests and procedures. Some LPNs help to deliver, care for, and feed infants. LPNs also monitor their patients and report adverse reactions to medications or treatments. LPNs gather information from patients, including their health history and how they are currently feeling. They may use this information to complete insurance forms, preauthorizations, and referrals, and they share information with registered nurses and doctors to help determine the best course of care for a patient. LPNs often teach family members how to care for a relative or teach patients about good health habits.

Employment		Total Growth Projected	% Growth	Total Replace-ment Needs 2006–2016	Percentage with:			Licensure or Certification Required	Income Level
2006	2016				College Plus	Some College	High School Degree		
749,000	854,000	105,000	14.0	71	7.0	72.4	20.6	Yes	High

Projected Supply and Demand: There will be a moderate demand for practical nurses through 2016.



Education and training: All States and the District of Columbia require LPNs to pass a licensing examination, known as the NCLEX-PN, after completing a State-approved practical nursing program. A high school diploma or its equivalent usually is required for entry, although some programs accept candidates without a diploma, and some programs are part of a high school curriculum.

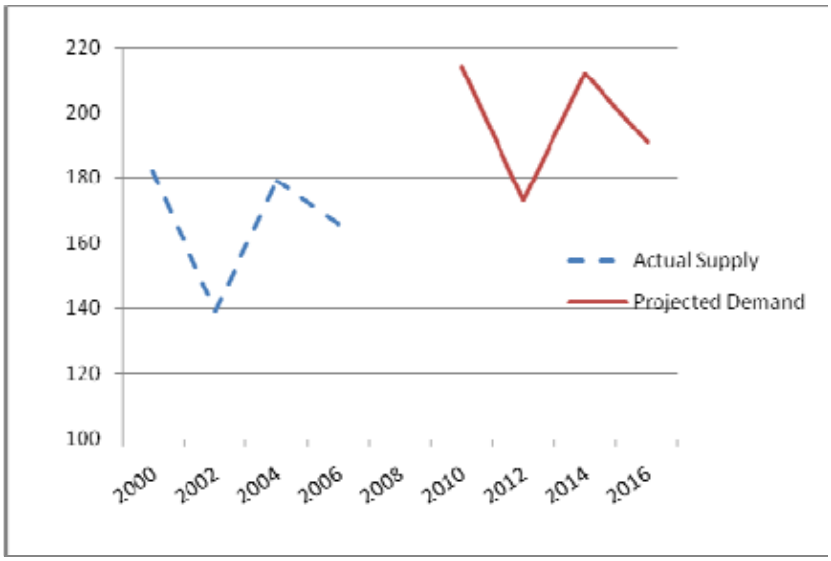
Related fields: LPNs work closely with the people they are helping. So do EMTs and paramedics; medical assistants; nursing, psychiatric, and home health aides; registered nurses; athletic trainers; social and human service assistants; pharmacy technicians; pharmacy aides; and surgical technologists.

Psychologists study the human mind and human behavior. Research psychologists investigate the physical, cognitive, emotional, or social aspects of human behavior. Psychologists in health service fields provide mental health care in hospitals, clinics, schools, or private settings. Psychologists employed in applied settings—such as business, industry, government, or nonprofit organizations—provide training, conduct research, design organizational systems, and act as advocates for their patients or clients. Like other social scientists, psychologists formulate hypotheses and collect data to test their validity. Research methods vary with the topic under study. Psychologists sometimes gather information through controlled laboratory experiments or by administering personality, performance, aptitude, or intelligence tests. Other methods include observation, interviews, questionnaires, clinical studies, and surveys. Psychologists apply their knowledge to a wide range of endeavors, including health and human services, management, education, law, and sports. They usually specialize in one of a number of different areas.

Employment		Total Growth Projected	% Growth	Total Replace-ment Needs 2006–2016	Percentage with:			Licensure or Certification Required	Income Level
2006	2016				College Plus	Some College	High School Degree		
166,000	191,000	25,000	15.3	9	99.3	0.0	0.0	Yes	Very high

Projected supply and demand: The demand for psychologists has fluctuated, but the expected future demand through 2016 is moderately strong.

Education and training: A doctoral degree is usually required for independent practice as a psychologist. Psychologists with a Ph.D. or doctor of psychology (Psy.D.) qualify for a wide range of teaching, research, clinical, and counseling positions in universities, health care services, elementary and secondary schools, private industry, and government. Psychologists with a doctoral degree often work in clinical positions or in private practice, but they also sometimes teach, conduct research, or carry out administrative responsibilities.



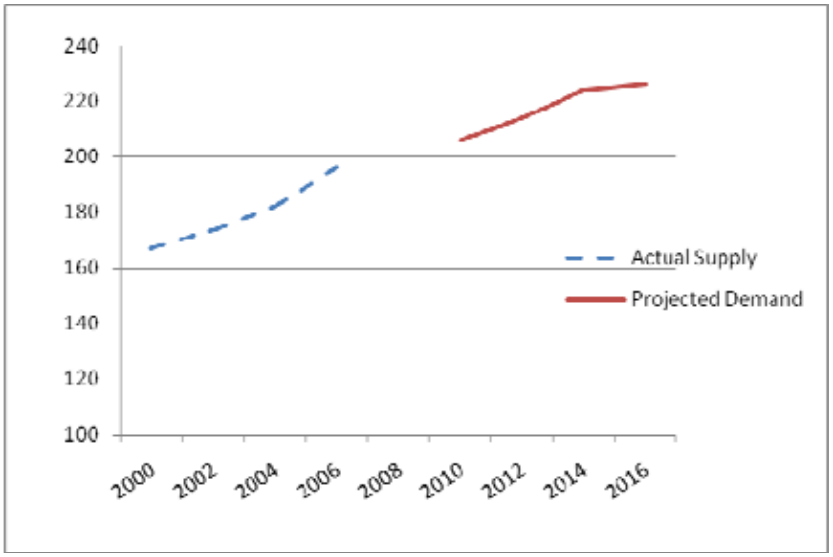
Related fields: Psychologists work with people, developing relationships and comforting them. Other occupations with similar duties include counselors, social workers, clergy, sociologists, special education teachers, funeral directors, market and survey researchers, recreation workers, and human resources, training, and labor relations managers and specialists. Psychologists also sometimes diagnose and treat problems and help patients recover. These duties are similar to those of physicians and surgeons, radiation therapists, audiologists, dentists, optometrists, and speech-language pathologists.

Radiology technicians take X-rays and administer nonradioactive materials into patients' bloodstreams for diagnostic purposes. Radiologic technologists (also referred to as *radiographers*) produce X-ray films (radiographs) for use in diagnosing medical problems. They prepare patients for radiologic examinations by explaining the procedure, removing jewelry and other articles through which X-rays cannot pass, and positioning patients so that the body can be appropriately radiographed. To prevent unnecessary exposure to radiation, these technicians surround the exposed area with

radiation protection devices, such as lead shields, or limit the size of the X-ray beam. Radiographers position equipment at the correct angle and height over the appropriate body area. They may measure the thickness of the section to be radiographed and set controls on the X-ray machine to produce radiographs of the appropriate density, detail, and contrast. They place the X-ray film under the part of the patient's body to be examined and make the exposure; then they remove the film and develop it.

Employment		Total Growth Projected	% Growth	Total Replace-ment Needs 2006–2016	Percentage with:			Licensure or Certification Required	Income Level
2006	2016				College Plus	Some College	High School Degree		
196,000	226,000	30,000	15.1	13	24.9	67.9	7.2	Varies by State	Very high

Projected supply and demand: The demand for radiology technicians will be moderately strong through 2016.



Education and training: Preparation for this profession is offered in hospitals, colleges and universities, and, less frequently, at vocational-technical institutes. Hospitals employ most radiologic technologists. Employers prefer to hire technologists with formal training. Formal training programs in radiography range in length from 1 to 4 years and lead to a certificate, an associate degree, or a bachelor's degree. Two-year associate degree programs are most prevalent. Some 1-year certificate programs are available for experienced radiographers or

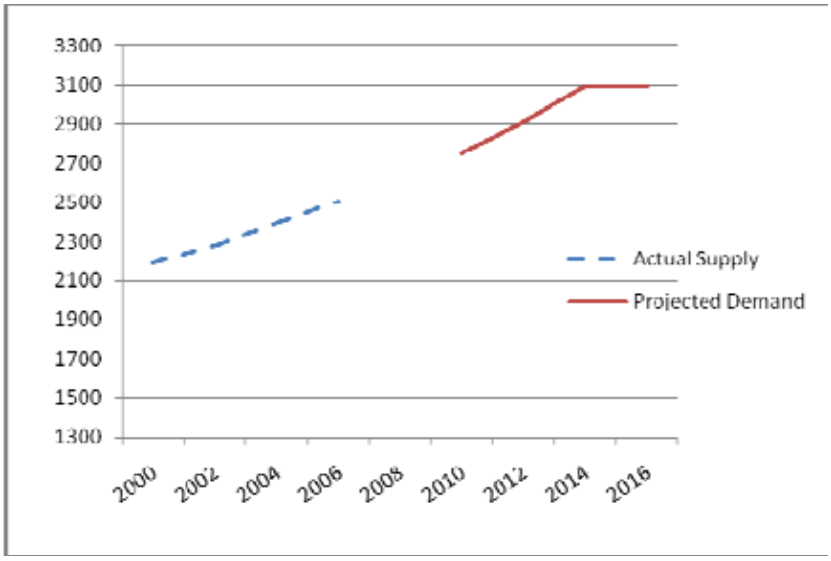
persons from other health occupations, such as medical technologists and registered nurses, who want to change fields. A bachelor's or master's degree in one of the radiologic technologies is desirable for supervisory, administrative, or teaching positions.

Related fields: Radiologic technologists operate sophisticated equipment to help physicians, dentists, and other health practitioners diagnose and treat patients. Workers in related occupations include cardiovascular technologists and technicians, clinical laboratory technologists and technicians, diagnostic medical sonographers, nuclear medicine technologists, radiation therapists, and respiratory therapists.

Registered nurses (RNs), regardless of specialty or work setting, treat patients, educate patients and the public about various medical conditions, and provide advice and emotional support to patients' family members. RNs record patients' medical histories and symptoms, help perform diagnostic tests and analyze results, operate medical machinery, administer treatment and medications, and help with patient followup and rehabilitation. RNs teach patients and their families how to manage their illness or injury, explaining posttreatment home care needs; diet, nutrition, and exercise programs; and self-administration of medication and physical therapy. Some RNs work to promote general health by educating the public on warning signs and symptoms of disease. RNs also might run general health screening or immunization clinics, blood drives, and public seminars on various conditions. When caring for patients, RNs establish a plan of care or contribute to an existing plan. Plans may include numerous activities, such as administering medication, including careful checking of dosages and avoiding interactions; starting, maintaining, and discontinuing intravenous (IV) lines for fluid, medication, blood, or blood products; administering therapies and treatments; observing the patient and recording those observations; and consulting with physicians and other health care clinicians. Some RNs provide direction to licensed practical nurses and nursing aides regarding patient care. RNs with advanced educational preparation and training may perform diagnostic and therapeutic procedures and may have prescriptive authority.

Employment		Total Growth Projected	% Growth	Total Replace-ment Needs 2006–2016	Percentage with:			Licensure or Certification Required	Income Level
2006	2016				College Plus	Some College	High School Degree		
2,505	3,092	587	23.5	233	56.2	42.7	1.0	Yes	Very high

Projected supply and demand: The projected demand for nurses will remain very strong through 2016. Most observers point out that the capacity of current preparation programs is insufficient to meet this demand, including a shortfall of faculty.



Education and training: There are three major educational paths to registered nursing—a bachelor of science degree in nursing (BSN), an associate degree in nursing (ADN), and a diploma. BSN programs, offered by colleges and universities, take about 4 years to complete. In 2006, 709 nursing programs offered degrees at the bachelor's level. ADN programs, offered by community and junior colleges, take 2 to 3 years to complete. About 850 RN programs granted associate degrees. Diploma programs, administered in hospitals, last about 3 years. Only about 70 programs offered diplomas. Generally, licensed graduates of any of the three types of educational programs qualify for entry-level positions.

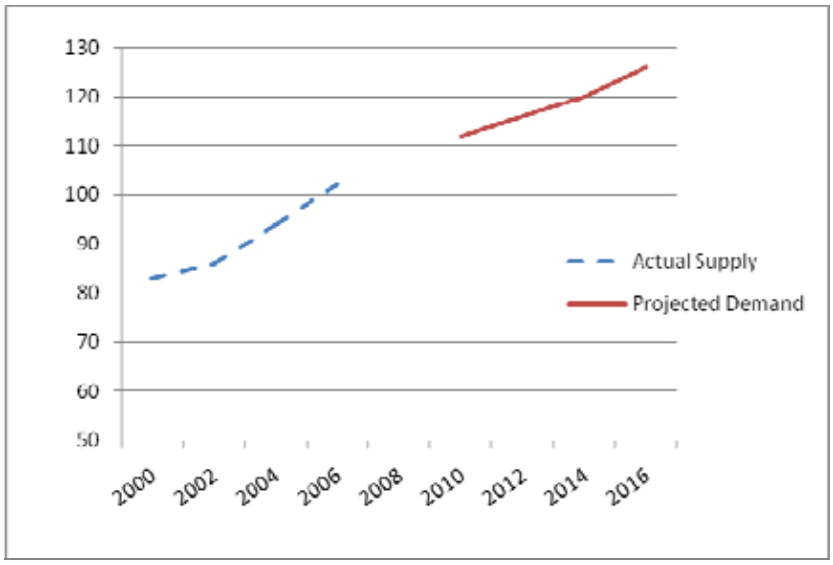
Related fields: Because of the number of specialties for registered nurses and the variety of responsibilities and duties, many other health care occupations are similar in

some aspect of the job. Other occupations that deal directly with patients when providing care include licensed practical and licensed vocational nurses, physicians and surgeons, athletic trainers, respiratory therapists, massage therapists, dietitians and nutritionists, occupational therapists, physical therapists, and EMTs and paramedics. Other occupations that use advanced medical equipment to treat patients include cardiovascular technologists and technicians, diagnostic medical sonographers, radiologic technologists and technicians, radiation therapists, and surgical technologists. Workers who also assist other health care professionals in providing care include nursing, psychiatric, and home health aides; physician assistants; and dental hygienists. Some nurses take on a management role, similar to medical and health services managers.

Respiratory therapists and respiratory therapy technicians—also known as respiratory care practitioners—evaluate, treat, and care for patients with breathing or other cardiopulmonary disorders. Practicing under the direction of a physician, respiratory therapists assume primary responsibility for all respiratory care therapeutic treatments and diagnostic procedures, including the supervision of respiratory therapy technicians. Respiratory therapy technicians follow specific, well-defined respiratory care procedures under the direction of respiratory therapists and physicians.

Employment		Total Growth Projected	% Growth	Total Replace-ment Needs 2006–2016	Percentage with:			Licensure or Certification Required	Income Level
2006	2016				College Plus	Some College	High School Degree		
102,000	126,000	23	22.6	6	27.7	71.2	1.1	Yes	Very high

Projected supply and demand: There will be a steady and strong demand for respiratory therapists through 2016.

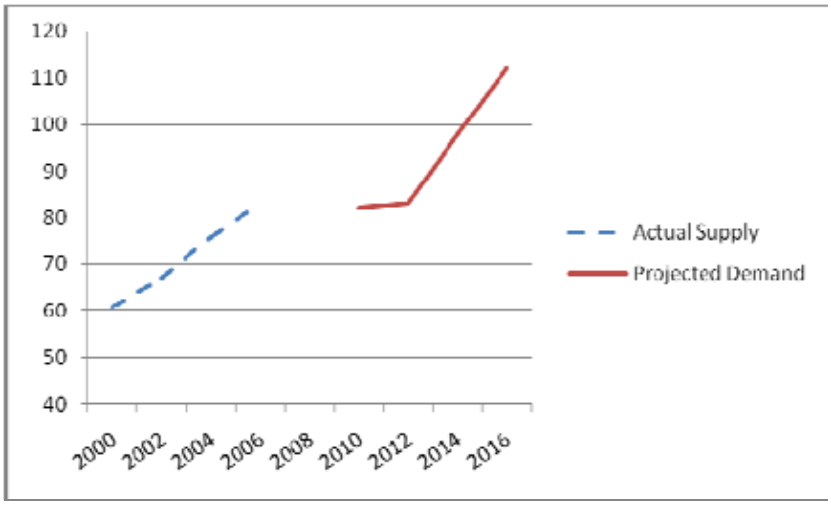


Education and training: An associate degree is required to become a respiratory therapist. Training is offered at the postsecondary level by colleges and universities, medical schools, vocational-technical institutes, and the armed forces. Most programs award an associate or bachelor's degree and prepare graduates for jobs as advanced respiratory therapists. A limited number of associate degree programs lead to jobs as entry-level respiratory therapists. According to the Commission on Accreditation of Allied Health Education Programs, 45 entry-level and 334 advanced respiratory therapy programs were accredited in the United States in 2006.

Related fields: Under the supervision of a physician, respiratory therapists administer respiratory care and life support to patients with heart and lung difficulties. Other workers who care for, treat, or train people to improve their physical condition include registered nurses, occupational therapists, physical therapists, radiation therapists, and athletic trainers. Respiratory care practitioners work with advanced medical technology, as do other health care technicians, including cardiovascular technologists and technicians, nuclear medicine technologists, radiologic technologists and technicians, and diagnostic medical sonographers.

Substance abuse and behavioral disorder counselors help people who have problems with alcohol, drugs, gambling, or eating disorders. They counsel persons who are addicted to drugs, helping them identify behaviors and problems related to their addiction. Counseling can be done on an individual basis but is frequently done in a group setting. These counselors often work with family members who are affected by the addictions of their loved ones. Counselors also conduct programs aimed at preventing addiction.

Employment		Total Growth Projected	% Growth	Total Replace-ment Needs 2006–2016	Percentage with:			Licensure or Certification Required	Income Level
2006	2016				College Plus	Some College	High School Degree		
83,000	112,000	29,000	34.3	45,000	72.8	18.3	809	Varies greatly	High



Projected supply and demand: There will be a very steep demand curve for substance abuse and behavior disorder counselors through 2016.

Education and training: Education requirements vary based on occupational specialty and State licensure and certification requirements. A master's degree is usually required to be licensed as a counselor. Some States require counselors in public employment to have a master's degree; others accept a bachelor's degree with appropriate counseling courses. Substance abuse and behavior disorder counselors are generally governed by a different State agency or board than other counselors. The criteria for their licensure vary greatly; in some cases, these counselors may only need a high school diploma and certification. Those interested in entering the field must research state and specialty requirements to determine what qualifications they must have.

Related fields: These include college student affairs, elementary or secondary school counseling, education, gerontological counseling, marriage and family therapy, substance abuse counseling, rehabilitation counseling, agency or community counseling, clinical mental health counseling, and career counseling. Counselors work in a wide variety of

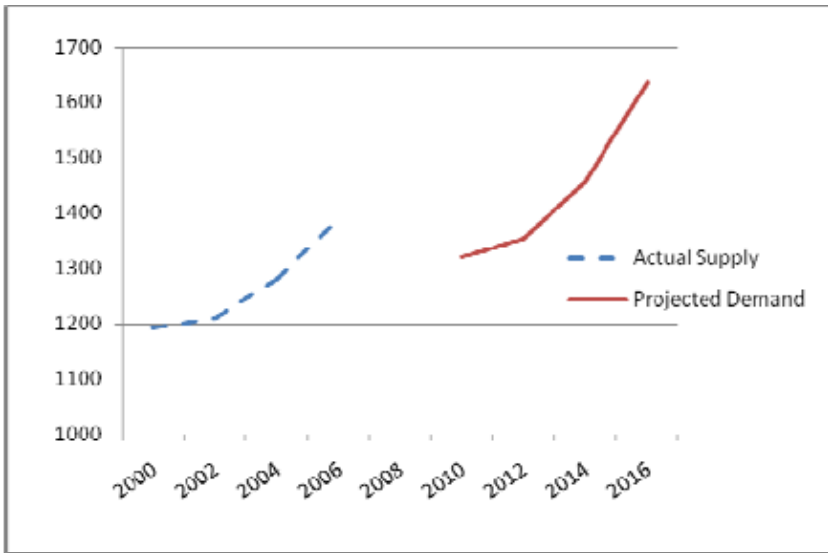
public and private establishments, including health care facilities; job training, career development, and vocational rehabilitation centers; social agencies; correctional institutions; and residential care facilities, such as halfway houses for criminal offenders and group homes for children, the elderly, and persons with disabilities. Counselors also work in organizations engaged in community improvement and social change, drug and alcohol rehabilitation programs, and State and local government agencies.

Occupations: Quality of Life

Child care workers nurture and care for children who have not yet entered formal schooling. They also supervise older children before and after school. These workers play an important role in children's development by caring for them when parents are at work or away for other reasons. In addition to attending to children's basic needs, child care workers organize activities and implement curricula that stimulate children's physical, emotional, intellectual, and social growth. They help children explore individual interests, develop talents and independence, build self-esteem, and learn how to get along with others. Child care workers generally are classified into three different groups on the basis of where they work: private household workers, who care for children at the children's home; family child care providers, who care for children in the provider's own home; and child care workers who work at child care centers.

Employment		Total Growth Projected	% Growth	Total Replacement Needs 2006–2016	Percentage with:			Licensure or Certification Required	Income Level
2006	2016				College Plus	Some College	High School Degree		
1,388	1,636	248	17.8	473	14.5	37.8	47.7	Varies by State	Very low

Projected supply and demand: Although supply is increasing, the demand curve through 2016 is also going up steeply. The demand for child care workers will continue to be strong.



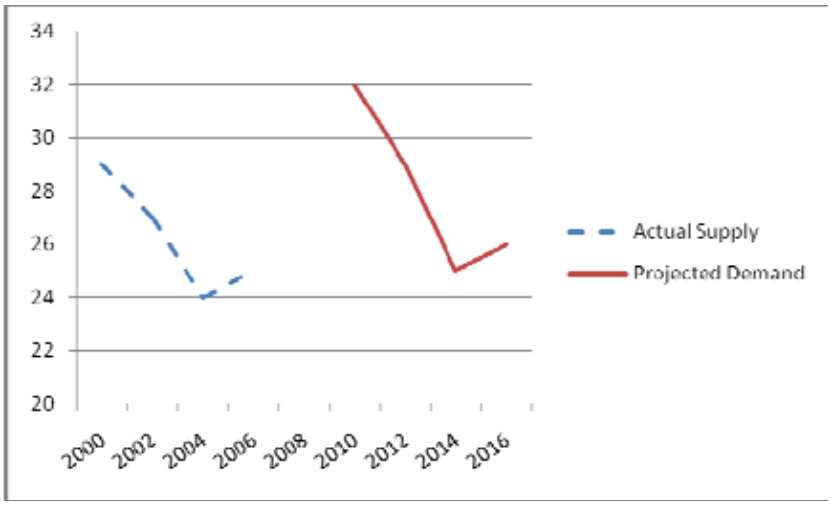
Education and training: The training and qualifications required of child care workers vary widely. Each State has its own licensing requirements that regulate caregiver training. These requirements range from a high school diploma to a national child development associate (CDA) credential to community college courses or a college degree in child development or early childhood education. State requirements are generally higher for workers at child care centers than for family child care providers. Child care workers in private settings who care for only a few children often are not regulated by States at all. Child care workers generally can obtain some form of employment with a high school diploma and little or no experience, but certain private firms and publicly funded programs have more demanding training and education requirements. Some employers may prefer workers who have taken secondary or postsecondary courses in child development and early childhood education or who have work experience in a child care setting. Other employers require their own specialized training. An increasing number of employers require an associate degree in early childhood education.

Related fields: Child care work requires patience; creativity; an ability to nurture, motivate, teach, and influence children; and leadership, organizational, and administrative skills. Others who work with children and need these qualities and skills include teacher assistants and teachers—preschool, kindergarten, elementary, middle, secondary and special education.

Recreation therapists, also referred to as ***therapeutic recreation specialists***, provide treatment services and recreation activities for persons with disabilities or illnesses. Using a variety of techniques—including arts and crafts, animals, sports, games, dance and movement, drama, music, and community outings—therapists improve and maintain the physical, mental, and emotional well-being of their clients. Therapists help people reduce depression, stress, and anxiety; recover basic motor functioning and reasoning abilities; build confidence; and socialize effectively so they can enjoy greater independence and reduce or eliminate the effects of their illness or disability. In addition, therapists help people with disabilities integrate into the community by teaching them how to use community resources and recreational activities. Recreational therapists are different from recreation workers, who organize recreational activities primarily for enjoyment.

Employment		Total Growth Projected	% Growth	Total Replace-ment Needs 2006–2016	Percentage with:			Licensure or Certification Required	Income Level
2006	2016				College Plus	Some College	High School Degree		
25,000	26,000	1,000	3.7	2,000	76.5	13.6	0.0	Varies by State	High

Projected supply and demand: Although a balance currently exists, we will need another 2,000 recreation therapists to meet the demand through 2016.



Education and training: Most entry-level recreational

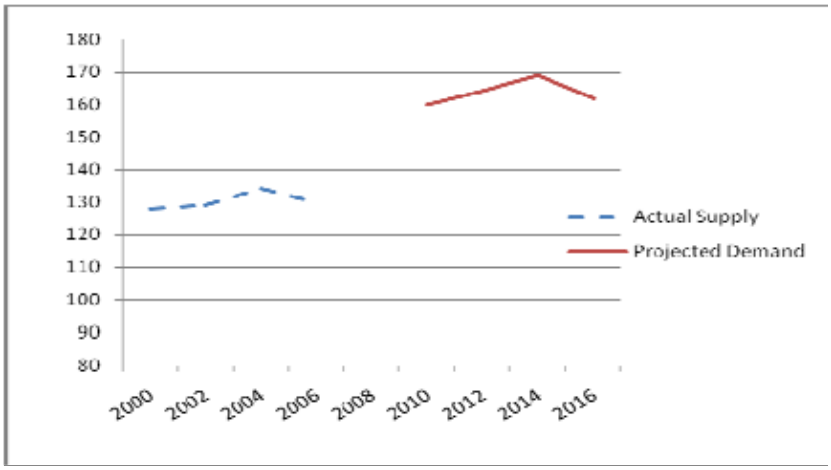
therapists need a bachelor's degree in therapeutic recreation, or a degree in recreation with a concentration in therapeutic recreation. People may qualify for paraprofessional positions with an associate degree in therapeutic recreation or another subject related to health care. An associate degree in recreational therapy; training in art, drama, or music therapy; or qualifying work experience may be sufficient for activity director positions in nursing homes.

Related fields: Other workers who have similar jobs are occupational therapists, physical therapists, recreation workers, rehabilitation counselors, and special education teachers.

Social and community service managers plan, organize, and coordinate the activities of a social service or community outreach program. Mangers oversee the program or organization budget and policies regarding participant involvement, program requirements, and benefits. Work may involve directing social workers, counselors, or probation officers.

Employment		Total Growth Projected	% Growth	Total Replace-ment Needs 2006–2016	Percentage with:			Licensure or Certification Required	Income Level
2006	2016				College Plus	Some College	High School Degree		
130,000	162,000	32,000	24.7	57,000	71.5	19.6	8.9	Typically not	Very high

Projected supply and demand: There will be a strong demand for these managers through 2016.



Education and training: A master's degree in one of a number of fields is the standard credential for most

generalist positions as a medical or health care manager. A bachelor's degree is sometimes adequate for entry-level positions in smaller facilities and departments.

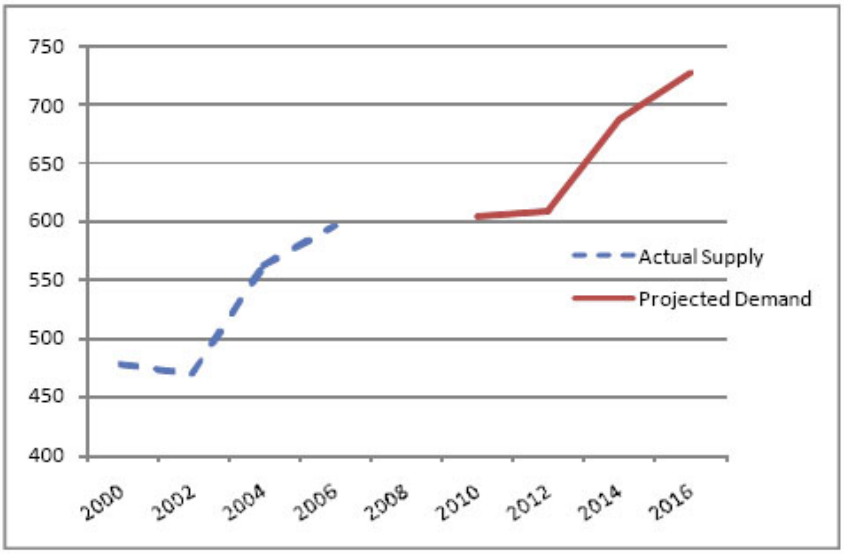
Related fields: General management positions

Social workers assist people by helping them cope with issues in their everyday lives, deal with their relationships, and solve personal and family problems. Some social workers help clients who face a disability or a life-threatening disease, or a social problem, such as inadequate housing, unemployment, or substance abuse. Social workers also assist families that have serious domestic conflicts, sometimes involving child or spousal abuse. Some social workers conduct research, advocate for improved services, engage in systems design, or are involved in planning or policy development. Many social workers specialize in serving a particular population or working in a specific setting. *Child, family, and school social workers* provide social services and assistance to improve the social and psychological functioning of children and their families, and to maximize the well-being of families and the academic functioning of children. They may assist single parents, arrange adoptions, or help find foster homes for neglected, abandoned, or abused children. Some specialize in services for senior citizens. These social workers may run support groups for the children of aging parents; advise elderly people or family members about housing, transportation, long-term care, and other services; and coordinate and monitor these services. In schools, social workers often serve as the link between students' families and the school, working with parents, guardians, teachers, and other school officials to ensure that students reach their academic and personal potential. In addition, they address problems such as misbehavior, truancy, and teenage pregnancy, and advise teachers on how to cope with difficult students.

Medical and public health social workers provide psychosocial support to people, families, or vulnerable populations so they can cope with chronic, acute, or terminal illnesses such as Alzheimer's disease, cancer, or AIDS. They also advise family caregivers, counsel patients, and help plan for patients' needs after discharge from hospitals. They may arrange for at-home services such as meals-on-wheels or home care. *Mental health and substance abuse social workers* assess and treat persons with mental illness or substance

abuse problems, including abuse of alcohol, tobacco, or other drugs. Such services include individual and group therapy, outreach, crisis intervention, social rehabilitation, and teaching the skills needed for everyday living. They also may help plan for supportive services to ease clients' return to the community.

Employment		Total Growth Projected	% Growth	Total Replace-ment Needs 2006–2016	Percentage with:			Licensure or Certification Required	Income Level
2006	2016				College Plus	Some College	High School Degree		
595,000	727,000	132,000	22.2	258,000	77.2	15.7	7.1	Yes	High



Projected supply and demand: There will need to be a steep increase in the number of social workers by 2016.

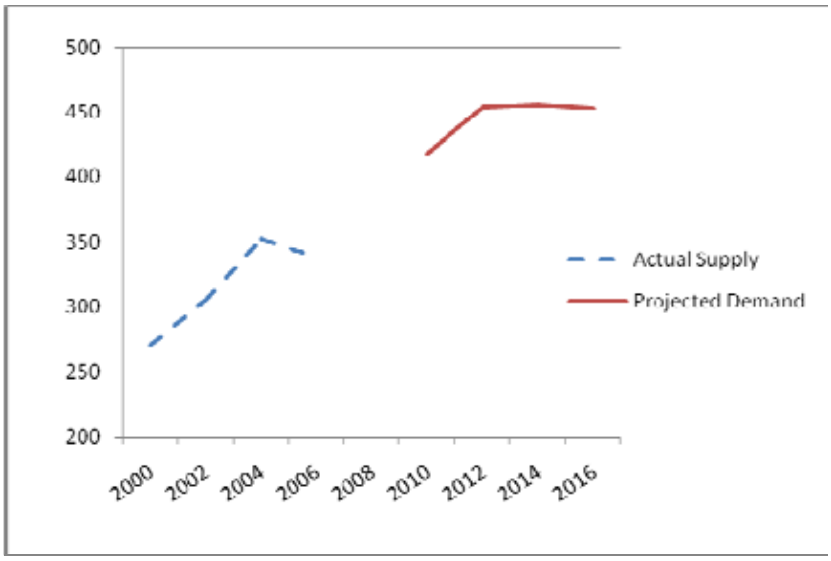
Education and training: A bachelor's degree in social work is the most common minimum requirement for a job as a social worker; however, majors in psychology, sociology, and related fields may qualify for some entry-level jobs, especially in small community agencies. An advanced degree has become the standard for many positions. A master's degree in social work is typically required for positions in health settings and is required for clinical work as well. Some jobs in public and private agencies also may require an advanced degree, such as a master's degree in social services policy or administration.

Related fields: Workers in occupations with similar duties include the clergy, counselors, probation officers and correctional treatment specialists, psychologists, and social and human services assistants.

Social and human services assistants help social workers, health care workers, and other professionals provide services to people. Social and human services assistant is a generic term for workers with a wide array of job titles, including human services worker, case management aide, social work assistant, community support worker, mental health aide, community outreach worker, life skills counselor, or gerontology aide. They work in a variety of fields, such as nursing, psychiatry, psychology, rehabilitative or physical therapy, and social work. Some have little direct supervision—they may run a group home, for example. Others work under close direction. Social and human services assistants help clients improve their quality of life. They assess clients' needs; investigate their eligibility for benefits and services such as food stamps, Medicaid, or welfare; and help clients obtain them. They also arrange for transportation and escorts, if necessary, and provide emotional support. Social and human services assistants monitor and keep case records on clients, and report progress to supervisors and case managers.

Employment		Total Growth Projected	% Growth	Total Replacement Needs 2006–2016	Percentage with:			Licensure or Certification Required	Income Level
2006	2016				College Plus	Some College	High School Degree		
339,000	453,000	114,000	33.6	153,000	58.1	26.3	15.6	No	Low

Projected supply and demand: A large increase in social and human services assistants will be needed.



Education and training: Many employers prefer to hire people with some education beyond high school. Certificates or associate degrees in subjects such as human services, gerontology, or one of the social or behavioral sciences meet many employers' requirements. Some jobs may require a bachelor's or master's degree in human services or a related field, such as counseling, rehabilitation, or social work.

Related fields: Workers in other occupations that require skills similar to those of social and human services assistants include social workers, clergy, counselors, child care workers; occupational therapist assistants and aides, physical therapist assistants and aides, and nursing, psychiatric, and home health aides.

Occupations: Education

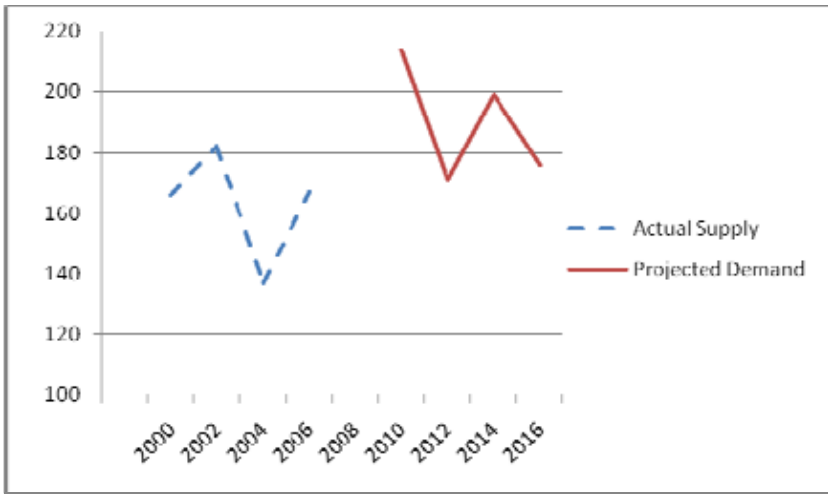
Clinical, counseling, and school psychologists diagnose and treat mental disorders; learning disabilities; and cognitive, behavioral, and emotional problems using individual, child, family, and group therapies. May design and implement behavior modification programs. Psychologists in health services fields provide mental health care in hospitals, clinics, schools, or private settings. *School psychologists* work with students in early childhood and elementary and secondary schools. They collaborate with teachers, parents, and school personnel to create safe, healthy, and supportive learning environments for all students. School psychologists address students' learning and behavioral problems, suggest improvements to classroom management strategies or parenting techniques, and

evaluate students with disabilities and gifted and talented students to help determine the best way to educate them. They improve teaching, learning, and socialization strategies based on their understanding of the psychology of learning environments. They also may evaluate the effectiveness of academic programs, prevention programs, behavior management procedures, and other services provided in the school setting. *Counseling psychologists* use various techniques, including interviewing and testing, to advise people on how to deal with problems of everyday living, including career or work problems and problems faced in different stages of life. They work in settings such as university counseling centers, hospitals, and individual or group practices. *Clinical psychologists*—who constitute the largest specialty—work most often in counseling centers, independent or group practices, hospitals, or clinics. They help mentally and emotionally distressed clients adjust to life and may help medical and surgical patients deal with illnesses or injuries. Some clinical psychologists work in physical rehabilitation settings, treating patients with spinal cord injuries, chronic pain or illness, stroke, arthritis, or neurological conditions. Others help people deal with personal crises, such as divorce or the death of a loved one.

Employment		Total Growth Projected	% Growth	Total Replace-ment Needs 2006–2016	Percentage with:			Licensure or Certification Required	Income Level
2006	2016				College Plus	Some College	High School Degree		
152,000	176,000	24,000	15.8	47,000	99.3	0	0	Yes	Very high

Projected supply and demand: Estimates of actual and projected numbers of jobs has varied over the past 10 years. It appears that demand will be moderate by 2016.

Education and training: A doctoral degree is usually required for independent practice as a psychologist. Psychologists with a Ph.D. or doctor of psychology (Psy.D.) qualify for a wide range of teaching, research, clinical, and counseling positions in universities, health care services, elementary and secondary schools, private industry, and government.



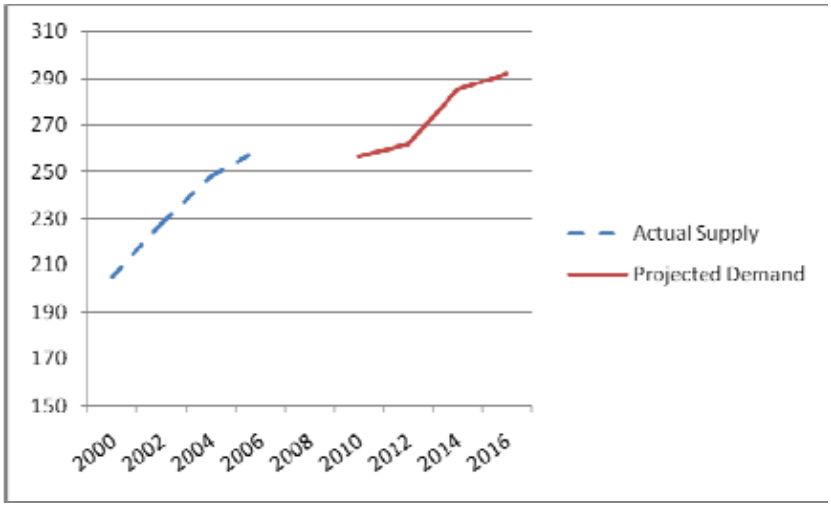
Psychologists with a doctoral degree often work in clinical positions or in private practices, but they also sometimes teach, conduct research, or carry out administrative responsibilities. A specialist degree or its equivalent is required in most States for a person to work as a school psychologist, although a few States still credential school psychologists with master's degrees. A specialist (Ed.S.) degree in school psychology requires a minimum of 3 years of full-time graduate study (at least 60 graduate semester hours) and a 1-year full-time internship. Because their professional practice addresses educational and mental health components of students' development, school psychologists' training includes coursework in both education and psychology.

Related fields: Psychologists work with people, developing relationships and comforting them. Other occupations with similar duties include counselors, social workers, clergy, sociologists, special education teachers, funeral directors, market and survey researchers, recreation workers, and human resources, training, and labor relations managers and specialists.

Educational, vocational, and school counselors provide individuals and groups with career and educational counseling. School counselors assist students of all levels, from elementary school to postsecondary education. They advocate for students and work with other persons and organizations to promote the academic, career, personal, and social development of children and youth. School counselors help students evaluate their abilities, interests, talents, and personalities to develop realistic academic and career goals. Counselors use interviews, counseling sessions, interest and aptitude assessment tests, and other methods to evaluate and advise students. They also operate career information

centers and career education programs. Often, counselors work with students who have academic and social development problems or other special needs.

Employment		Total Growth Projected	% Growth	Total Replacement Needs 2006–2016	Percentage with:			Licensure or Certification Required	Income Level
2006	2016				College Plus	Some College	High School Degree		
260,000	292,000	33,000	12.6	84,000	72.8	18.3	8.9	Yes	Very high



Projected supply and demand: Although the demand through 2016 is growing, supply is not too far behind.

Education and training: A master's degree is usually required to be licensed as a counselor. Some States require counselors in public employment to have a master's degree; others accept a bachelor's degree with appropriate counseling courses. Many States require school counselors to hold a State school counseling certification and to have completed at least some graduate course work; most require the completion of a master's degree. Some States require school counselors to be licensed, which generally requires continuing education credits. Some States require public school counselors to have both counseling and teaching certificates, and to have had some teaching experience.

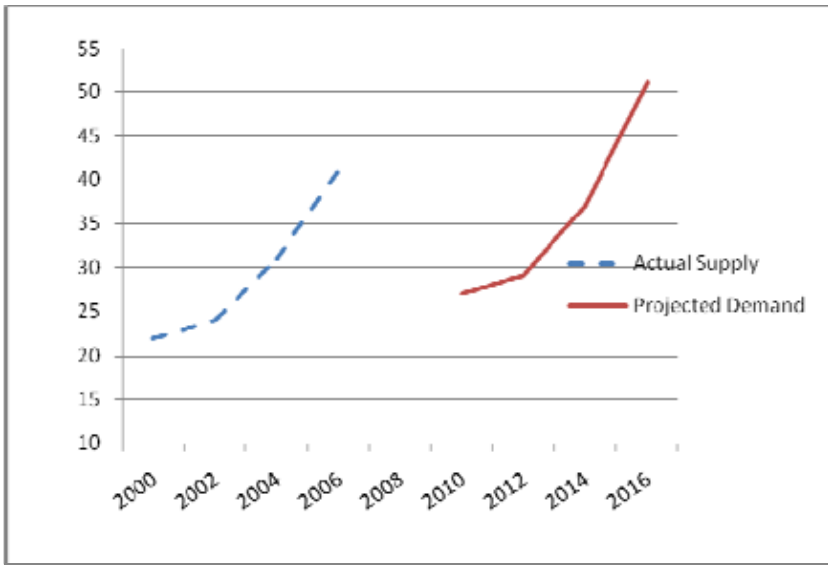
Related fields: Counselors help people evaluate their interests, abilities, and disabilities, and deal with personal, social, academic, and career problems. Others who help people

in similar ways include teachers, social and human services assistants, social workers, psychologists, physicians and surgeons, registered nurses, occupational therapists, and human resources, training, and labor relations managers and specialists.

Sign language interpreters facilitate communication between people who are deaf or hard-of-hearing and people who can hear. Sign language interpreters must be fluent in English and in American Sign Language (ASL), which combines signing, finger spelling, and specific body language. ASL has its own grammatical rules, sentence structure, idioms, historical contexts, and cultural nuances. Sign language interpreting, like foreign language interpreting, involves more than simply replacing a word of spoken English with a sign representing that word. Most sign language interpreters either *interpret*, aiding communication between English and ASL, or *transliterate*, facilitating communication between English and contact signing—a form of signing that uses a more English language-based word order. Some interpreters specialize in oral interpreting for deaf or hard-of-hearing people who lip-read instead of sign. Other specialties include tactile signing, which is interpreting for people who are blind as well as deaf by making manual signs into a person's hands; cued speech; and signing exact English. Self-employed and freelance interpreters and translators need general business skills to successfully manage their finances and careers. They must set prices for their work, bill customers, keep financial records, and market their services to attract new business and build their client base.

Employment		Total Growth Projected	% Growth	Total Replace-ment Needs 2006–2016	Percentage with:			Licensure or Certification Required	Income Level
2006	2016				College Plus	Some College	High School Degree		
41,000	51,000	10,000	23.6	7	47.8	36.3	15.9	Varies	High

Projected supply and demand: The demand for interpreters through 2016 will be strong and growing.



Education and training: The educational backgrounds of interpreters and translators vary. Knowing at least two languages is essential. Although it is not necessary to have been raised bilingual to succeed, many interpreters and translators grew up speaking two languages. In high school, students can prepare for these careers by taking a broad range of courses that include English writing and comprehension, foreign languages, and basic computer proficiency. Other helpful pursuits include spending time abroad, engaging in direct contact with foreign cultures, and reading extensively on a variety of subjects in English and at least one other language. Beyond high school, there are many educational options. Although a bachelor's degree is often required, interpreters and translators note that it is acceptable to major in something other than a language. An educational background in a particular field of study provides a natural area of subject matter expertise. However, specialized training in how to do the work is generally required. Formal programs in interpreting and translation are available at colleges nationwide and through nonuniversity training programs, conferences, and courses. Many people who work as conference interpreters or in more technical areas—such as localization, engineering, or finance—have master's degrees, while those working in the community as court or medical interpreters or translators are more likely to complete job-specific training programs.

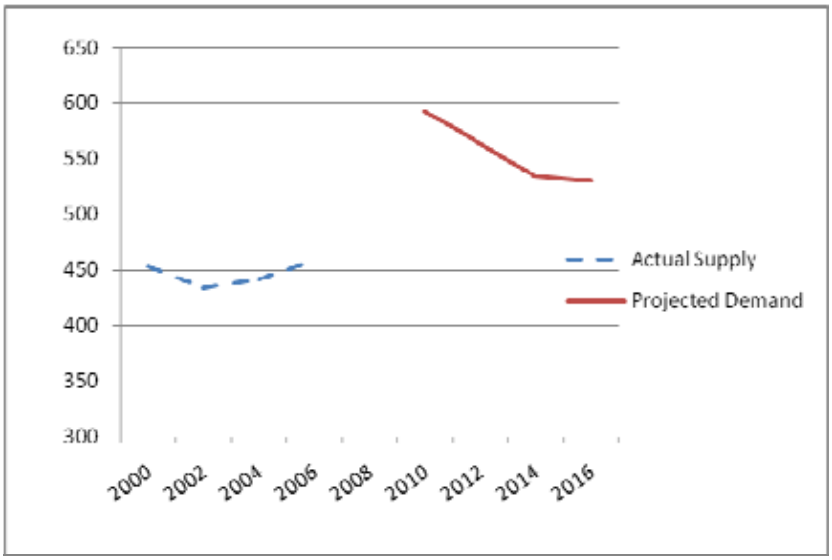
Related fields: Interpreters and translators use their multilingual skills, as do teachers of languages. These include preschool, kindergarten, elementary, middle, and secondary school teachers; postsecondary school teachers; special education teachers; adult

literacy and remedial education teachers; and self-enrichment education teachers. The work of interpreters, particularly guide or escort interpreters, is similar to that of tour guides and escorts, in that they accompany individuals or groups on tours or to places of interest.

Special education teachers work with children and youths who have a variety of disabilities. A small number of special education teachers work with students with severe cases of mental retardation or autism, primarily teaching them life skills and basic literacy. However, the majority of special education teachers work with children with mild to moderate disabilities, using or modifying the general education curriculum to meet the child's individual needs. Most special education teachers instruct students at the elementary, middle, and secondary school level, although some work with infants and toddlers. They diagnose and treat mental disorders; learning disabilities; and cognitive, behavioral, and emotional problems using individual, child, family, and group therapies, and may design and implement behavior modification programs. Special education teachers use various techniques to promote learning. Depending on the disability, teaching methods can include individualized instruction, problem solving assignments, and small-group work. When students need special accommodations to take a test, special education teachers see that they are provided, such as having the questions read orally or lengthening the time allowed to take the test. Special education teachers help develop an Individualized Education Program (IEP) for each student. The IEP sets personalized goals for the student and is tailored to that student's needs and abilities. If appropriate, the program includes a transition plan outlining specific steps to prepare students with disabilities for middle school or high school or, in the case of older students, for a job or postsecondary study. Teachers review the IEP with the student's parents, school administrators, and the student's general education teachers. Teachers work closely with parents to inform them of their child's progress and suggest techniques to promote learning at home. Special education teachers design and teach appropriate curricula, assign work geared toward each student's needs and abilities, and grade papers and homework assignments. They are involved in the students' behavioral, social, and academic development, helping them develop emotionally, feel

comfortable in social situations, and be aware of socially acceptable behavior. Preparing special education students for daily life after graduation also is an important aspect of the job. Teachers provide students with career counseling or help them learn routine skills, such as balancing a checkbook.

Employment		Total Growth Projected	% Growth	Total Replace-ment Needs 2006–2016	Percentage with:			Licensure or Certification Required	Income Level
2006	2016				College Plus	Some College	High School Degree		
459,000	530,000	71,000	15.4	173,000	87.2	8.3	4.5	Yes	Very high



Projected supply and demand: There will be a moderate demand for special education teachers by 2016.

Education and training: Many colleges and universities across the United States offer programs in special education at the undergraduate, master's, and doctoral degree levels. Special education teachers usually undergo longer periods of training than do general education teachers. Most bachelor's degree programs last 4 years and include general and specialized courses in special education. However, an increasing number of institutions require a 5th year or other graduate-level preparation. Among the courses offered are educational psychology, legal issues of special education, child growth and development, and strategies for teaching students with disabilities. Some programs require specialization,

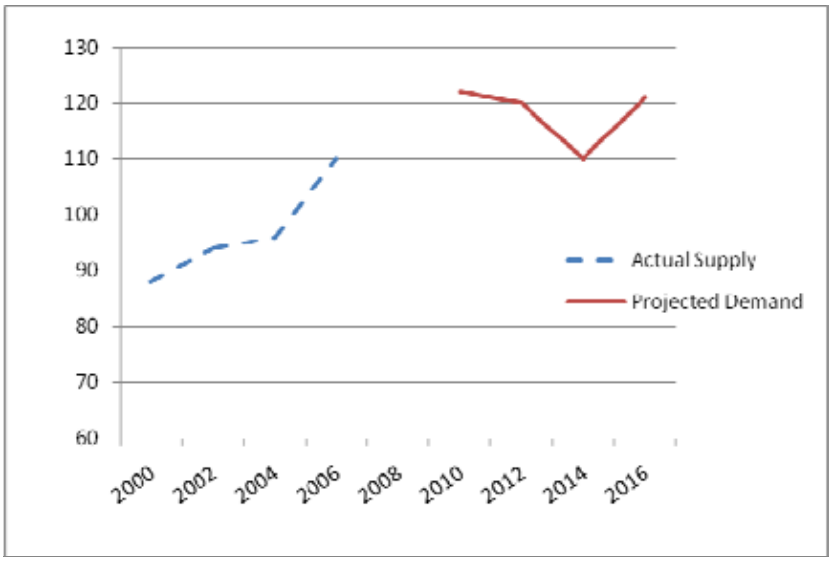
while others offer generalized special education degrees or a course of study in several specialized areas. The last year of the program usually is spent student teaching in a classroom supervised by a certified teacher.

Related fields: Other occupations involved with the identification, evaluation, and development of students with disabilities include psychologists, social workers, speech-language pathologists, audiologists, counselors, teacher assistants, occupational therapists, recreational therapists, and teachers—preschool, kindergarten, elementary, middle, and secondary.

Speech-language pathologists, sometimes called *speech therapists*, assess, diagnose, treat, and help prevent disorders related to speech, language, cognitive-communication, voice, swallowing, and fluency. Speech-language pathologists work with people who cannot produce speech sounds or cannot produce them clearly; those with speech rhythm and fluency problems, such as stuttering; people with voice disorders, such as inappropriate pitch or harsh voice; those with problems understanding and producing language; those who wish to improve their communication skills by modifying an accent; and those with cognitive communication impairments, such as attention, memory, and problem solving disorders. They also work with people who have swallowing difficulties.

Employment		Total Growth Projected	% Growth	Total Replace-ment Needs 2006–2016	Percentage with:			Licensure or Certification Required	Income Level
2006	2016				College Plus	Some College	High School Degree		
110,000	121,000	12,000	10.6	11	97.9	0	0	Yes	Very high

Projected supply and demand: Demand will be moderate through 2016.



Education and training: Most speech-language pathologist jobs require a master's degree. In 2007, more than 230 colleges and universities offered graduate programs in speech-language pathology accredited by the Council on Academic Accreditation in Audiology and Speech-Language Pathology. While graduation from an accredited program is not always required to become a speech-language pathologist, it may be helpful to obtain a license or may be required to obtain a license in some States.

Related fields: Workers in related occupations include audiologists, occupational therapists, optometrists, physical therapists, psychologists, and recreational therapists. Speech-language pathologists in school systems often work closely with special education teachers to assist students with disabilities.

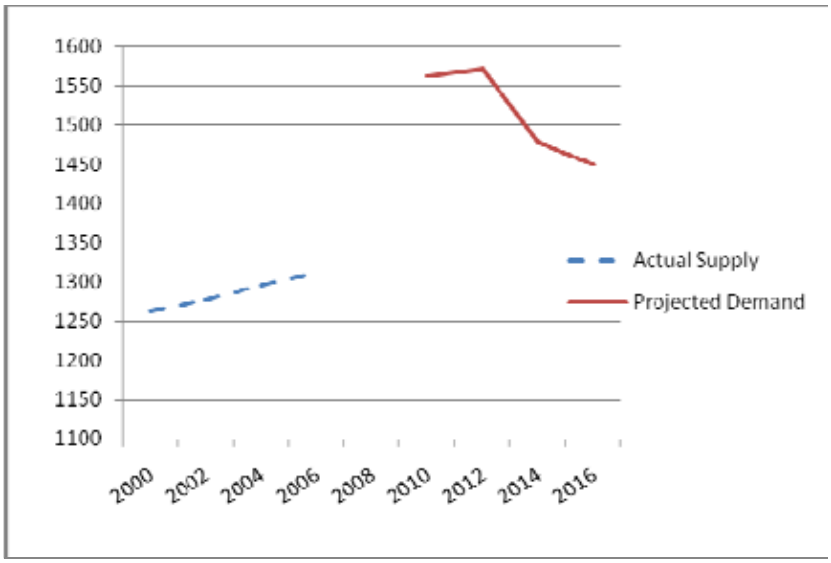
Teacher assistants—also called ***teacher aides*** or ***instructional aides***— provide instructional and clerical support for classroom teachers, allowing teachers more time for lesson planning and teaching. They support and assist children in learning class material using the teacher's lesson plans, providing students with individualized attention. Teacher assistants also supervise students in the cafeteria, schoolyard, and hallways, or on field trips; they record grades, set up equipment, and help prepare materials for instruction. Some assistants refer to themselves as paraeducators or paraprofessionals.

Some teacher assistants perform exclusively noninstructional or clerical tasks, such as monitoring nonacademic settings. Playground and lunchroom attendants are examples

of such assistants. Most teacher assistants, however, perform a combination of instructional and clerical duties. They generally provide instructional reinforcement to children, under the direction and guidance of teachers. They work with students individually or in small groups—listening while students read, reviewing or reinforcing class lessons, or helping them find information for reports. At the secondary school level, teacher assistants often specialize in a certain subject, such as math or science. Teacher assistants often take charge of special projects and prepare equipment or exhibits, such as for a science demonstration. Some assistants work in computer laboratories, helping students use computers and educational software programs.

Employment		Total Growth Projected	% Growth	Total Replace-ment Needs 2006–2016	Percentage with:			Licensure or Certification Required	Income Level
2006	2016				College Plus	Some College	High School Degree		
1,312	1,449	137,000	10.4	350	17.9	44.7	37.4	No	Very Low

Projected supply and demand: Future demand is less than previous projections, but there will still be a need for a sizable number of new teacher assistants by 2016.



Education and training: Many teacher assistants need only a high school diploma and on-the-job training. A college degree or related coursework in child development improves job opportunities, however. In fact, teacher assistants who work

in Title 1 schools—those with a large proportion of students from low-income households—must have college training or proven academic skills. As of 2006, federal regulations specified that assistants must hold a 2-year or higher degree, have a minimum of 2 years of college, or pass a rigorous State or local assessment. A number of colleges offer associate degrees or certificate programs that either prepare graduates to work as teacher assistants or provide additional training for current teacher assistants. All teacher assistants receive some on-the-job training. Teacher assistants need to become familiar with the school system and with the operation and rules of the school. Those who tutor and review lessons with students must learn and understand the class materials and instructional methods used by the teacher. Teacher assistants also must know how to operate audiovisual equipment, keep records, and prepare instructional materials, as well as have adequate computer skills.

Related fields: The support activities of teacher assistants and their educational backgrounds are similar to those of child care workers, library technicians, and library assistants. Teacher assistants who work with children with disabilities perform many of the same functions as occupational therapist assistants and aides.

APPENDIX C. Mission of the National Council on Disability

Overview and Purpose

The National Council on Disability (NCD) is an independent federal agency, composed of 15 members appointed by the President, by and with the consent of the U.S. Senate.

The purpose of NCD is to promote policies, programs, practices, and procedures that guarantee equal opportunity for all individuals with disabilities, and that empower individuals with disabilities to achieve economic self-sufficiency, independent living, and inclusion and integration into all aspects of society.

To carry out this mandate, we gather public and stakeholder input, including that received at our public meetings held around the country; review and evaluate federal programs and legislation; and provide the President, Congress, and federal agencies with advice and recommendations.

Specific Duties

The current statutory mandate of NCD includes the following:

- Reviewing and evaluating, on a continuing basis, policies, programs, practices, and procedures concerning people with disabilities conducted or assisted by federal departments and agencies, including programs established or assisted under the Rehabilitation Act of 1973, as amended, or under the Developmental Disabilities Assistance and Bill of Rights Act, as well as all statutes and regulations pertaining to federal programs that assist such people with disabilities, to assess the effectiveness of such policies, programs, practices, procedures, statutes, and regulations in meeting the needs of people with disabilities.

- Reviewing and evaluating, on a continuing basis, new and emerging disability policy issues affecting people with disabilities in the Federal Government, at the State and local government levels, and in the private sector, including the need for and coordination of adult services, access to personal assistance services, school reform efforts and the impact of such efforts on people with disabilities, access to health care, and policies that act as disincentives for people to seek and retain employment.
- Making recommendations to the President, Congress, the Secretary of Education, the director of the National Institute on Disability and Rehabilitation Research, and other officials of federal agencies about ways to better promote equal opportunity, economic self-sufficiency, independent living, and inclusion and integration into all aspects of society for Americans with disabilities.
- Providing Congress, on a continuing basis, with advice, recommendations, legislative proposals, and any additional information that NCD or Congress deems appropriate.
- Gathering information about the implementation, effectiveness, and impact of the Americans with Disabilities Act of 1990 (ADA) (42 U.S.C. § 12101 et seq.).
- Advising the President, Congress, the commissioner of the Rehabilitation Services Administration, the assistant secretary for Special Education and Rehabilitative Services in the Department of Education, and the director of the National Institute on Disability and Rehabilitation Research on the development of the programs to be carried out under the Rehabilitation Act of 1973, as amended.
- Providing advice to the commissioner of the Rehabilitation Services Administration with respect to the policies and conduct of the administration.
- Making recommendations to the director of the National Institute on Disability and Rehabilitation Research on ways to improve research, service, administration, and the collection, dissemination, and implementation of research findings affecting people with disabilities.

- Providing advice regarding priorities for the activities of the Interagency Disability Coordinating Council and reviewing the recommendations of this council for legislative and administrative changes to ensure that such recommendations are consistent with NCD's purpose of promoting the full integration, independence, and productivity of people with disabilities.
- Preparing and submitting to the President and Congress an annual report titled *National Disability Policy: A Progress Report*.

Statutory History

NCD was established in 1978 as an advisory board within the Department of Education (P.L. 95-602). The Rehabilitation Act Amendments of 1984 (P.L. 98-221) transformed NCD into an independent agency.

Endnotes

[1] Manpower, *Talent Shortage Survey: 2008 Global Results* (Milwaukee, WI: Manpower, Inc., 2008).

[2] Manpower, *Confronting the Talent Crunch: 2008* (Milwaukee, WI: Manpower, Inc., 2008).

[3] Frank Bowe, *Making Inclusion Work* (Upper Saddle River, NJ: Prentiss Hall, 2005).

[4] Ibid.

[5] Ibid.

[6] Ibid.

[7] U.S. Census Bureau, Population Estimates, Table 1: Monthly Population Estimates for the United States: April 1, 2000, to March 1, 2009. Accessed April 24, 2009, at www.census.gov/popest/national/tables/NA-EST2008-01.xls.

[8] U.S. Census Bureau, 2005 Interim State Population Projections, Table 6. Internet release date: April 21, 2005. Accessed April 24, 2009, at www.census.gov/population/projections/presstab6.xls.

[9] American Community Survey, 2006. Accessed December 23, 2009, at http://www.census.gov/hhes/www/disability/2006acs.html.

[10] A. Dohm and L. Shniper, "Occupational Employment Projections to 2016," *Monthly Labor Review*, 2007, 85–105.

[11] D. Hecker, "Occupational Employment Projections to 2014," *Monthly Labor Review*, 2006, 70–101.

[12] D. Hecker, "Occupational Employment Projections to 2012," *Monthly Labor Review*, 2004, 80–105.

[13] D. Hecker, "Occupational Employment Projections to 2010," *Monthly Labor Review*, 2001, 57–84.

[14] J. C. Franklin, "An Overview of BLS Projections to 2016," *Monthly Labor Review*, 2007, 3–12.

[15] Center for Personal Assistance Services, *State Chart Book on Wages for Personal and Home Care Aides, 1999–2006* (San Francisco: University of California San Francisco, 2008).

[16] R. I. Stone and J. M. Weiner, *Who Will Care for Us? Addressing the Long-Term Care Workforce Crisis* (Washington, DC: Urban Institute, 2001).

[17] Department of Health and Human Services, Office of Evaluation and Planning, *The Supply of Direct Support Professionals Serving Individuals with Intellectual Disabilities and Other Developmental Disabilities: Report to Congress,* 2006.

[18] T. E. Williams and C. E. Ellison, "Population Analysis Predicts a Future Shortage of General Surgeons," *Surgery* (2008), 548–555.

[19] P. I. Buerhaus, D. O. Staiger, and D. I. Auerbach, *The Future of the Nursing Workforce in the United States* (Boston: Jones and Bartlett Publishers, 2008).

[20] T. Chan and K. Ruedel, *A National Report: The Demand for and the Supply of Qualified State Rehabilitation Counselors* [preliminary report] (Washington, DC: American Institutes for Research, 2005).

[21] Manpower 2007.

[22] Capella 2003.

[23] Bolton, Bellini & Brookings, 2000; Chapin & Kewman; Crewe, 2000.

[24] Government Accountability Office (GAO), 2007 http://www.gao.gov/new.items/d07332.pdf

[25] NCD 2008 http://www.ncd.gov/newsroom/publications/2008/doc/RehabilitationTransitions.doc

[26] GAO 2005.

[27] GAO 2009.

[28] GAO, *Workforce Investment Act One-Stop Centers Implemented Strategies to Strengthen Services and Partnerships, But More Research and Information Sharing Is Needed* (GAO-03-725) (Washington DC: GAO, 2003).

[29] Metzel & Giordano, 2007

[30] GAO, *Workforce Investment Act: One-Stop System Infrastructure Continues to Evolve, But Labor Should Take Action to Require That All Employment Service Offices Are Part of the System* (GAO-07-1096) (Washington, DC: GAO, 2007).

[31] P. Holcomb and B. S Barnow, *Serving People with Disabilities Through the Workforce Investment Act's One-Stop Career Centers* (Washington, DC: Urban Institute, 2004).

[32] A. Veltman, D. E. Stewart, G. S. Tardif, and M. Branigan, "Perceptions of Primary Healthcare Services Among People with Disabilities, Part 1: Access Issues," *Medscape General Medicine*, 3 (2001); DeJong, Palsbo, Beatty, et.al. 2002; A. I. Batavia and M. Batavia, "Disability, Chronic Conditions, and Iatrogenic Illness," *Archives of Physical Medicine and* Rehabilitation, 85 (2004), 168–171.

[33] Newman, Wagner, Cameto, and Knokey, 2009.