

An Innovative Clerkship Module Focused on Patients With Disabilities

Laurie J. Woodard, MD, Susan M. Havercamp, PhD, Kira K. Zwygart, MD, and Elizabeth A. Perkins, PhD, RNMH

Abstract

Lack of medical training results in physicians being unprepared to provide care to people with disabilities, which, in turn, contributes to the substantial health disparities that are evident in this population. Few medical schools or primary care residencies address the care of adults with disabilities. Competencies and guidelines to assist American physicians in caring for patients with physical or intellectual disabilities have yet to be established, thus making educational goals unclear. This article describes one novel training module regarding people with disabilities that

was developed at the University of South Florida Health, Morsani College of Medicine (USF) and inserted into the primary care clerkship during a major curriculum redesign in 2005. Since then, all USF third-year medical students have been required to participate in this disability-related course component. The authors describe the module's development and integration into the primary care clerkship, as well as the specific elements of their curriculum. By using a variety of teaching modalities in the classroom and community, and especially by involving people with

disabilities themselves, the medical students have a very comprehensive learning experience regarding people who have physical, sensory, or intellectual disabilities. The authors have been able to show that USF medical students, on completion of this module, demonstrate improved knowledge, attitudes, and comfort in caring for people with disabilities, which the authors believe will lead to improved health and health care access for this underserved population. Suggestions for program replication, including common challenges, are also discussed.

Culturally competent physicians understand, or are at least cognizant of, their patients' cultures, beliefs, values, and sensitivities. We usually think of these things arising from factors like race, age, sex, and religion. Rarely addressed in medical education, however, is the cultural competence necessary when caring for people with disabilities.¹ These patients, in all their diversity, face common cultural issues, such as

Dr. Woodard is associate professor, Department of Family Medicine, University of South Florida Health, Morsani College of Medicine, Tampa, Florida.

Dr. Havercamp is associate professor of psychiatry and psychology, Nisonger Center/University Center for Excellence in Developmental Disabilities, Ohio State University, Columbus, Ohio.

Dr. Zwygart is associate professor, Department of Family Medicine, University of South Florida Health, Morsani College of Medicine, Tampa, Florida.

Dr. Perkins is research assistant professor, Florida Center for Inclusive Communities/University Center for Excellence in Developmental Disabilities, Department of Child and Family Studies, College of Behavioral and Community Sciences, University of South Florida, Tampa, Florida.

Correspondence should be addressed to Dr. Woodard, Department of Family Medicine, University of South Florida Health, Morsani College of Medicine, 12901 Bruce B. Downs Blvd., MDC 13, Tampa, FL 33612; telephone: (813) 974-2445; fax: (813) 974-4057; e-mail: lwoodard@health.usf.edu.

Acad Med. 2012;87:537-542.
First published online February 22, 2012
doi: 10.1097/ACM.0b013e318248ed0a

stigmatization, isolation, questioned self-determination, inappropriate communication, and even the mistaken belief that disability necessarily equates with poor health.

According to the 2000 U.S. Census,² nearly 20% of Americans have a disability—the prevalence rises with age—and evidence increasingly shows that this population receives inferior health care and insufficient resources to maintain their health and optimize their wellness.³ People with disabilities have long been recognized as underserved, especially those over 21 years of age.^{3,4} Children with congenital physical, intellectual, and developmental disabilities have their health needs largely met by pediatricians,^{1,5} but health care providers for adults have been much less responsive to the rapidly growing population of adults and elders with disabilities.⁴ Their “secondary conditions”—the medical, psychological, social, and financial concerns directly attributable to their disability (obesity, osteoporosis, depression, and social isolation are just a few examples)—are more often determinant of their health status than the disability itself,^{6,7} yet these often go unaddressed. The health care disparity between people with and without disabilities has grown so wide that the United States Healthy People

2010 initiative set forth objectives specifically aimed at promoting the health of people living with disabilities and preventing the secondary conditions they so often suffer.^{8,9}

Unfortunately, inadequate preparation of doctors is related to inadequate treatment of people with disabilities.¹⁰ A variety of factors prevent the health care needs of this medically vulnerable population from being met,^{11,12} not the least of which is a shortage of physicians. Because of limited formal training in medical school and residency, few physicians have the clinical competence and comfort level required to treat people with disabilities.^{1,5,10,13-15} A survey commissioned by Special Olympics found that only 25% of medical schools include content regarding people with intellectual/developmental disabilities in their curricula.¹⁶ Not only do physicians report feeling ill-prepared to care for people with disabilities, citing lack of knowledge and limited resources,¹⁷ but they also hold negative perceptions about these patients, believing them medically and socially complex, time consuming, difficult to relate to, and poorly insured.^{5,15} The literature suggests, however, that training and increased familiarity with individuals with disabilities lead to favorable outcomes of greater confidence, comfort, and

willingness to provide care.^{1,14,17–21} Accordingly, the U.S. Surgeon General has released two reports that draw attention to the importance of training health professionals to care for people with disabilities.^{3,22} Still, little has been accomplished in the training of medical professionals to care for this increasing population.^{10,23} This article describes an educational innovation that we undertook at the University of South Florida Health, Morsani College of Medicine (USF) to address this widespread curricular deficit. We implemented the module in July 2005; it continues to present day.

The Module

Development

In 2005, USF, led by the dean’s office and with faculty and student participation, made sweeping changes to its third-year curriculum, eliminating traditional, specialty-based clerkships and creating in their place interdisciplinary clerkships that emphasize site of care as the learning structure. The clerkships now concentrate on inpatient care, surgical care, or ambulatory care. Primary Care and Special Populations, the newly created ambulatory rotation, focused on longitudinal care in pediatrics, internal medicine, family medicine, and outpatient obstetrics–gynecology while giving additional emphasis to the elderly, adolescents, and patients with disabilities.

During this curricular change, we (L.J.W. and K.K.Z.), as family physician educators and clinicians, along with pediatric colleagues, advocated for a disability module based on serious clinical and educational deficits we had perceived. Adults and transitioning youth with disabilities in our community, we knew, had difficulty finding health care providers, and our medical students often seemed stymied when faced with a person with a disability in the exam room. Although the literature mirrored our observations and experiences, little was published regarding curricular models. Thus, we empirically and intuitively developed a curriculum driven by the desire to educate students to be more competent and comfortable with people with disabilities. Recently, Minehan et al²⁴ published desired educational outcomes for teaching students about disability that parallel our own.

Overview

Every undergraduate medical student rotates through the 12-week Primary Care and Special Populations clerkship in his or her third year. On two separate half-days, students attend general education and special population classroom sessions. At all other times, students are assigned to various medical school and community-based experiences that cover all of the primary care disciplines. Half of clerkship students participate in the disability module in the first 6 weeks of the 12-week clerkship; the second half participate in the clerkship’s latter 6 weeks.

During the clerkship orientation, the students view the video “Access to Medical Care: Adults With Physical Disabilities,”²⁵ which depicts, from the viewpoint of people with disabilities, barriers to appropriate health care access as well as ways to overcome them. When they reach the disability portion of the rotation, students are assigned to disability-related community-based activities for one or two half-days per week for six weeks, and attend three half-day classroom sessions. By the first classroom session, students have visited some community sites but have yet to complete home visits and service learning sessions. The course Web site, in addition

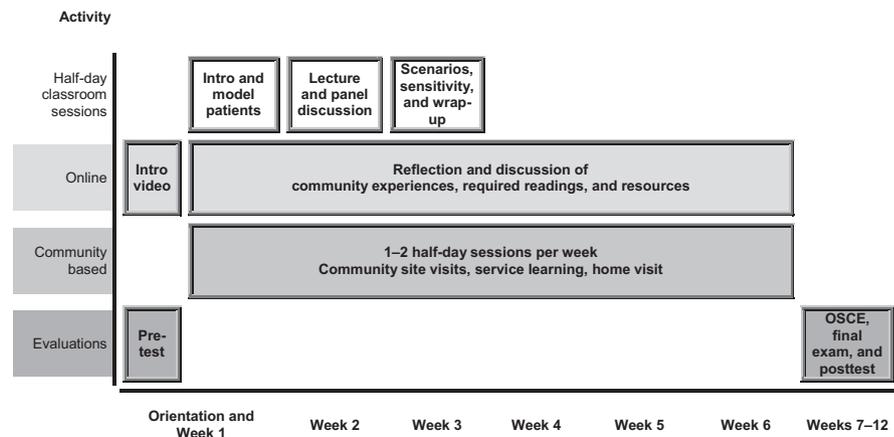
to providing readings and links to other resources, has an online discussion board, limited to classmates and faculty, where students can reflect on the module’s activities. Chart 1 depicts an overview of the module’s components and time line.

Classroom sessions

We designed the three classroom sessions to redirect students from the typical, disease-oriented medical approach to people with disabilities health care to a more wellness-oriented, functional approach. Although we give standard lectures, we found early on, in an observation shared by Long-Bellil et al,²⁶ that people with disabilities as teachers have the greatest educational impact, especially in dispelling the pernicious stereotype of their leading pathetic and sad lives.^{17,26} Furthermore, as Long-Bellil et al²⁶ note, these experiences reinforce the concept that these patients have credible expertise about their own disabilities that will be valuable in future clinical encounters as well as in the classroom.

Session 1. Model patients: Hands-on skills and comfort building. The “model patient” experience, which is preceded by an introductory lecture and online readings about disability etiquette and

Chart 1
Timeline and Overview of a Disability Module Required During a Third-Year Ambulatory Care Clerkship, University of South Florida, Morsani College of Medicine*



* Half of the clerkship students participate in the disability module in the first 6 of the 12-week clerkship; the second half participate in the clerkship’s latter 6 weeks. The orientation for all students, which consists of the pretest and introductory video, takes place on the Monday of the first week; half the students start their community/online experiences that week, and the second half begin week seven. The half-day classroom sessions occur on the first three Fridays of each 6-week program. Evaluations and posttests for all students occur in the final weeks of the clerkship.

clinical concepts, allows small groups (two to four students) to interview and examine patients with significant physical and sometimes intellectual disabilities in a safe learning environment. Volunteers with disabilities (typically mobility, communication, or intellectual disabilities) serve as model patients. Model patients have been largely drawn from USF's family medicine clinical practice. They, in turn, have recruited other people with disabilities. These model patients are instructed to tell their stories and guide students in appropriate communication and examination techniques. Although they are not trained to the level of a standardized patient, they are thoroughly briefed by an educational coordinator about the program's objectives so that the encounters are moderately consistent. Each participant is assigned to a simulated exam room, and each student group is given 20 minutes to obtain a history and perform a brief exam before rotating to a new patient. Each student group sees four patients. A faculty member monitors the interaction through a real-time audio/video connection. At the end of the session, the model patients, caregivers, students, and faculty gather in a "learning circle" to comment and reflect on the afternoon's issues and experiences.

Session 2. Lecture and panel discussion: Gaining a biopsychosocial perspective.

An introductory lecture from faculty of the Florida Center for Inclusive Communities, a University Center of Excellence on Developmental Disabilities (UCEDD), provides an overview of how people with disabilities have historically encountered stigmatization and isolation. Current philosophies, including self-determination, person-centered planning, and communication etiquette, as well as disparities in health and health care, are also covered. Subsequently, a panel of advocates with various disabilities (and sometimes caregivers), representing disability-related community agencies and organizations, share their frank personal insights and interactively discuss policy and resource information. The session is moderated by the county's Americans with Disabilities Act liaison officer (who has a physical disability).

Session 3. Sensitivity session and case scenarios: Personalizing disability and peer teaching; common diagnoses and

secondary conditions. A recreational therapist from the county Parks and Recreation Department discusses the role of sports and recreation in attaining and maintaining health in individuals with disabilities. Students then participate in several activities and simulations using a variety of devices, such as wheelchairs and blindfolds, to sensitize them to reality of living with atypical functionality. Concurrently, students not immediately engaged in the sensitivity session discuss assigned readings and films. In the second half of the afternoon, student teams teach their peers, presenting oral and written reports on previously assigned case scenarios. These scenarios stress secondary conditions (medical, psychological, social, and financial) typically seen in people with the more common etiologies of disabilities (e.g., cerebral palsy, Down syndrome, spinal cord injury).

Community-based activities

Each student spends one to two half-days each week for six weeks involved in disability-related activities in community site visits, service learning, and home visits. These activities are scheduled as part of the general clerkship by the course coordinator. A required reflection is then posted to the online discussion board.

Community site visits. Students visit such community sites as a Shriners' Hospital, a Veterans Administration Hospital spinal cord unit, an Easter Seals preschool program, group homes for individuals with intellectual disabilities, day and vocational habilitation programs, school and after-school programs, and developmental screening sites. When possible, students actively participate at these sites by assisting with screenings or interacting with youth in after-school programs, but in other situations they are primarily informed observers.

Service learning. Subgroups are assigned to present a health topic (e.g., basic first aid) to a community group with mild-to-moderate intellectual disabilities, such as at a community day program or high school special education class. Students learn how to best engage their target population by using simpler language, pictorial representations, and interactive activities. Twice a year, the students perform preparticipation physicals for participants in a therapeutic horseback riding program.

Home visits. Pairs of students are assigned to visit a person with disabilities in his or her own home to help dispel commonly held negative assumptions about their quality of life. Each student pair is encouraged to discuss their visit with each other before posting their individual reflections to the online discussion board.

Interprofessionalism

Acknowledging the advisability of a team-based approach to health care, especially for people with disabilities, our program has sought to provide interprofessional experiences. Students from the USF School of Physical Therapy have, depending on their schedules, participated in home visits, model patient sessions, and advocacy panels. Since the School of Physical Therapy made changes to its curriculum, its students are able to participate regularly in our model patient sessions. Physical therapy faculty help prepare students for the model patient sessions and facilitate ensuing discussions, which include reflecting on team roles and differing clinical perspectives.

Evaluations

Evaluation of students. We encourage community sites to give us feedback, and we directly solicit it from home visit patients and families. Students complete a course log attesting to their attendance, required at all assigned sessions, and recording their reflections. In addition, they must read and comment on peers' reflections at least twice and a peer's home visit at least once. In this way, the students, who have different experiences depending on their community and home visit assignments, can share their experiences and insights with their peers in an online discussion format. Faculty also view and comment on these experiences. The final written exam includes questions related to disability issues, such as etiquette and basic information gleaned through readings and classroom discussions. Students are also assessed during an observed structured clinical examination with a standardized patient who portrays a manual wheelchair user presenting with shoulder pain. (We now train wheelchair users as our standardized patients.) Faculty and patients assess, in a formative evaluation at the conclusion of the encounter, how well students take the

patient’s disability into account in terms of their communication, examination, diagnostic, and management skills during the session.

Evaluation of the curriculum. Students rate the module as part of their primary care rotation evaluation. Since 2007, we have also measured students’ knowledge, attitudes, and comfort, both before and after they complete the module, using our own knowledge inventory and validated instruments.^{27,28} Students are informed verbally and in writing that these surveys, administered by the clerkship coordinator during the orientation and during the final exam, have no impact on their grade. Our UCEDD colleague (S.M.H.) collects and interprets these measures. To date, participation in the module has positively impacted all three spheres. Table 1 depicts the actual outcome metrics for these evaluations.

Together with our local UCEDD, and using a standard Association of University Centers on Disabilities evaluation form,²⁹ we are starting to engage in long-term (post medical school) tracking of students to gauge their ongoing professional involvement with people with disabilities.

The Impact

Despite widespread recognition of the disparities between the health of the general population and that of people with disabilities, which exist in part because of a lack of physician training, few medical schools or residencies formally address disability in their curricula.^{10,30} The accreditation and licensing processes do not require that clinicians or institutions have even basic expertise about disability.³⁰ No established competencies for U.S.

medical training have been published, although proposals are evolving.¹⁰

An aspect unique to the care of people with disabilities, which is often alien to trainees, is the understanding that the disability itself does not equate to poor health. Although some people with disabilities have a “thinner margin of health,”²⁴ students must learn that the objective in most cases is not to “fix” the disability but, rather, to appreciate the patient’s functional status and address the associated secondary conditions, which may be medical, psychological, cognitive, social, or financial in nature.³¹ For instance, physicians, when making clinical evaluations and therapeutic decisions regarding their patients with disabilities, must understand how fragmented, inadequate financial support often undermines the patients’ health. Good evidence on which to base health care recommendations for many secondary conditions, unfortunately, is often lacking, as research in this area is in its infancy.³⁰ A variety of efforts to identify competencies specific to disability education are under way, and reports are beginning to appear of specific curricular interventions, although these efforts, which differ in content, curriculum placement, and duration,³⁰ may be entirely elective, occur intermittently, or only focus on patients with specific disabilities. Examples include the University at Buffalo, which, as described by Symons et al,³² after conducting a very thorough needs assessment, introduced a longitudinal program that incorporates disability activities into the existing educational structure throughout the four-year curriculum. Brown et al³³ recently reported how medical students at the University of South Carolina performed worse in an observed structured clinical

examination when the standardized patient had a particular disability (intellectual disability or spinal cord injury). As the authors point out, an important but challenging skill in caring for this population requires that students learn to be sensitive to the needs created by the disability while not losing sight of the patient’s chief complaint at the time of visit.

Our program at USF shares many attributes with other reported programs that emphasize communication techniques, people with disabilities acting as teachers, community site visits, etc.^{26,31–33} However, the USF program is novel in its comprehensiveness. It covers a broad spectrum of people with disabilities, uses many teaching modalities over a relatively long time, includes interprofessionalism, and is mandatory. Inserting the USF module into the curriculum was possible because it fit neatly into the “special populations” subsection of a major curricular reform that favored new and innovative programs. The module has also benefited from faculty champions, a community eager to participate, and a supportive UCEDD. Having a faculty member (E.A.P.) with a physical disability teach some course content and evaluate students in their OSCEs has been a particular strength of this program. Also, over time, a cadre has developed of people with disabilities from the community who enthusiastically serve as teachers through the model patient and home visit activities. They, in turn, have recruited peers to replenish the natural attrition of participants. These people with disabilities often report a sense of empowerment they do not otherwise experience in the medical arena; some have even begun to report positive encounters with resident physicians who, as medical students, went through our program.

Creating and maintaining this kind of program has challenges, including gaining curricular approval, finding financial support, solving logistical puzzles, and recruiting adult medicine faculty. As we mentioned, we were fortunate to find an open door during a major reform, and positive feedback from students has helped the program maintain its presence in the curriculum. Financially, we have depended largely on volunteers, although the UCEDD, the

Table 1
Evaluation of a Disability Module’s Impact on 245 Third-Year Medical Students’ Knowledge, Attitudes, and Comfort, University of South Florida Health, Morsani College of Medicine, 2008–2010

Measure*	Difference (post – pre)	Cohen d	SD	t Value (df)	Significance (two tailed)
Knowledge	2.36	1.97	2.40	14.76 (224)	<.001
Attitude ²⁷	4.20	0.49	17.27	3.62 (221)	<.001
Comfort ²⁸	15.00	0.80	37.45	5.95 (220)	<.001

* The superscripted numbers in this column refer to citations in the reference list of this report.

Department of Family Medicine, the Office of Education, and the USF Area Health Education Center have all provided modest support. Costs include stipends for model patients to defray transportation costs, fees for sign language interpreters, and the additional staff required to recruit, train, and schedule model patients. Logistical challenges include coordinating many calendars, especially to enable interprofessional experiences, and keeping abreast of changing community resources and personnel, to maintain quality experiences. Faculty champions who have personal or family experience with disability, and regional and national networking with other faculty, physicians, and disability authorities, have been essential to the success of our program.

The USF module on disabilities is significant in that it provides an example of how a comprehensive approach to the care of patients with disabilities can be developed, implemented, evaluated, and sustained. Portions of this program could be incorporated into any standard medical school curriculum when teaching topics like cultural competence, communication, physical examination, chronic disease management, medical humanities, interprofessionalism, or health policy. The USF experience of actually implementing an educational intervention, however, will be critical to informing any future national consensus on curricular design regarding patients with disabilities.

Acknowledgments: The authors would like to acknowledge the contribution of Myrna Veguilla, Barbara Brooks, the faculty and staff, and especially people with disabilities and their family members, who have contributed to the success of this program.

Funding/Support: For Dr. Havercamp, this project was supported by the Centers for Disease Control and Prevention through the Florida Office on Disability and Health, CFDA# 93.184 State Implementation Projects for Preventing Secondary Conditions and Promoting the Health of People with Disabilities. For Dr. Perkins, this project was supported by grants awarded to the Florida Center for Inclusive Communities, A University Center for Excellence in Developmental Disabilities Education, Research, and Services (#90-DD-0592 and #90-DD-0668) by the Administration on Developmental Disabilities, Administration for Children and Families, Department of Health and Human Services.

Other disclosures: None.

Ethical approval: Exempt status was granted from the University of South Florida institutional review board (#106191) because the authors were evaluating an educational intervention.

Previous presentations: Portions of this article were previously presented as a research poster at the Primary Care Research for People With Intellectual and Developmental Disabilities—Family Medicine and Education Consortium Conference, Hershey, Pennsylvania, October 2010, and as a peer presentation at the 37th Annual Society of Teachers of Family Medicine Conference on Medical Student Education, Houston, Texas, January 20–23, 2011.

References

- 1 Eddey GE, Robey KL. Considering the culture of disability in cultural competence education. *Acad Med.* 2005;80:706–712.
- 2 Waldrop J, Stern SM. Disability Status 2000: Census 2000 Brief. www.census.gov/prod/2003pubs/c2kbr-17.pdf. Accessed December 10, 2011.
- 3 U.S. Department of Health and Human Services. The Surgeon General's Call to Action to Improve the Health and Wellness of Persons With Disabilities. Washington, DC: U.S. Department of Health and Human Services, Office of the Surgeon General; 2005.
- 4 Perkins EA, Moran JA. Aging adults with intellectual disabilities. *JAMA.* 2010;304:91–92.
- 5 Voelker R. Improved care for neglected population must be 'rule rather than exception'. *JAMA.* 2002;288:299–301.
- 6 American Association on Health and Disability. Disability and secondary conditions: Some surprising news. *Health and Disability Newsletter.* Summer 2004. <http://www.aahd.us/page.php?pname=publications/newsletters/2004/summer/stateGrantee>. Accessed December 10, 2011.
- 7 Kinne S, Patrick DL, Lochner D. Prevalence of secondary conditions among people with disabilities. *Am J Public Health.* 2004;94:443–445.
- 8 U.S. Department of Health and Human Services. Tracking Healthy People 2010. Washington, DC: U.S. Government Printing Office; November 2000.
- 9 National Center on Birth Defects and Developmental Disabilities. Healthy People 2010 Disability and Secondary Conditions Focus Area 6 Report and Proceedings. Atlanta, Ga: Centers for Diseases Control and Prevention; June 2003.
- 10 Kirschner KL, Curry RH. Educating health care professionals to care for patients with disabilities. *JAMA.* 2009;302:1334–1335.
- 11 Veltman A, Stewart DE, Tardif GS, Branigan M. Perceptions of primary healthcare services among people with physical disabilities—Part 1: Access issues. *MedGenMed.* April 6, 2001; 3:18.
- 12 Branigan M, Stewart DE, Tardif GS, Veltman A. Perceptions of primary healthcare services among persons with physical disabilities—Part 2: Quality issues. *MedGenMed.* April 6, 2001;3:19.
- 13 Martin HL, Rowell MM, Reid SM, Marks MK, Reddihough DS. Cerebral palsy: What do medical students know and believe? *J Paediatr Child Health.* 2005;41:43–47.
- 14 Saketoo L, Anderson D, Rice J, Rogan A, Lazarus CJ. Effects of a disability awareness and skills training workshop on senior medical students as assessed with self ratings and performance on a standardized patient case. *Teach Learn Med.* 2004;16:345–354.
- 15 Special Olympics. The Health and Health Care of People With Intellectual Disabilities. http://northamerica.specialolympics.org/research/documents/CACW_Health.pdf. Accessed December 10, 2011.
- 16 Special Olympics. Special Olympics Finds Poor Medical School Training Contributes to Health Care Disparities for People with Intellectual Disabilities. <http://northamerica.specialolympics.org/research/documents/Health-Research-Release.doc>. Accessed December 10, 2011.
- 17 Morrison EH, George V, Mosqueda L. Primary care for adults with physical disabilities: Perceptions from consumer and provider focus groups. *Fam Med.* 2008;40:645–651.
- 18 Byron M, Cockshott Z, Brownnett H, Ramkalawan T. What does 'disability' mean for medical students? An exploration of the words medical students associate with the term 'disability'. *Med Educ.* 2005;39:176–183.
- 19 Amosin SL, Volmink L, Rosin R. Perceived images of disability: The reflections of two undergraduate medical students in a university in South Africa on life in a wheelchair. *Disabil Rehabil.* 2005;27:961–966.
- 20 Tervo RC, Azuma S, Palmer G, Redinius P. Medical students' attitudes toward persons with disability: A comparative study. *Arch Phys Med Rehabil.* 2002;83:1537–1542.
- 21 Graham CG, Brown RS, Zhen H, McDermott S. Teaching medical students about disability in family medicine. *Fam Med.* 2009;41:542–544.
- 22 U.S. Public Health Service. Closing the Gap: A National Blueprint for Improving the Health of Individuals With Mental Retardation. Report of the Surgeon General's Conference on Health Disparities and Mental Retardation. Washington, DC: U.S. Public Health Service; 2002.
- 23 Iezzoni LI, O'Day BL. More Than Ramps: A Guide to Improving Health Care Quality and Access for People With Disabilities. New York, NY: Oxford University Press; 2006.
- 24 Minehan PM, Robey KL, Long-Bellil LM, et al. Desired educational outcomes of disability-related training for the generalist physician: Knowledge, attitudes, and skills. *Acad Med.* 2011;86:1171–1178.
- 25 World Institute on Disability & Center for Health Care Strategies, Kaiser Foundation Multi-Media, California HealthCare Foundation. Access to Medical Care: Adults With Physical Disabilities [video]. <http://www.wid.org/programs/health-access-and-long-term-services/access-to-medical-care-adults-with-physical-disabilities>. Accessed December 10, 2011.
- 26 Long-Bellil LM, Robey KL, Graham CL, et al. Teaching medical students about disability: The use of standardized patients. *Acad Med.* 2011;86:1163–1170.
- 27 Findler L, Vilchinsky N, Werner S. The Multidimensional Attitudes Scale Toward Persons with Disabilities (MAS):

- Construction and validation. *Rehabil Couns Bull.* 2007;50:166–176.
- 28 Robey KL, Gwiazda J, Morse J. Nursing students' self-attributions of skill, comfort, and approach when imagining themselves caring for persons with physical impairments due to developmental disability. *J Dev Phys Disabil.* 2001;13:361–371.
- 29 Association of University Centers on Disabilities. Trainee Survey. http://www.aucd.org/docs/nirs/NIRS_training_fy2011/2011_lend_ucedd_survey.doc. Accessed December 10, 2011.
- 30 National Council on Disability. The Current State of Health Care for People With Disabilities. <http://www.ncd.gov/publications/2009/Sept302009>. Accessed December 10, 2011.
- 31 Iezzone LI. Going beyond disease to address disability. *N Engl J Med.* 2006;355:976–978.
- 32 Symons AB, McGuigan D, Akl EA. A curriculum to teach medical students to care for people with disabilities: Development and initial implementation. *BMC Med Educ.* 2009;9:78–85.
- 33 Brown RS, Graham CL, Richeson N, Wu J, McDermott S. Evaluation of medical student performance on objective structured clinical exams with standardized patients with and without disabilities. *Acad Med.* 2010;85:1766–1771.