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Author manuscript

*Fam Med.* Author manuscript; available in PMC 2015 November 19.

Published in final edited form as:

*Fam Med.* 2009 September ; 41(8): 542–544.

## Teaching Medical Students About Disability in Family Medicine

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### Abstract

We investigated whether a unique didactic focusing on delivering health care to patients with disabilities (PWDs) impacts medical students' knowledge of specific disabilities and related concerns, attitudes about barriers to this populations' health care, and behavior during typical primary care visits with PWDs. A 90-minute session for students during their third-year family medicine clerkship addressed clinical considerations for patients with mobility and cognitive impairments. Questionnaires were administered to students at the beginning and completion of the clerkship. Analyses of 71 matched questionnaires reveal that knowledge and attitudes were positively impacted.

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Family medicine is particularly suited to teach medical students how to deliver care to a variety of patients effectively. One challenge for family medicine educators is to help medical students learn to recognize when a disability is the primary reason for a primary care visit and when a disability is merely a demographic characteristic.<sup>1</sup> Often, medical students' education regarding disabilities is focused on diagnosing and "fixing" problems associated with the disability and, as a result, focus on these concerns as opposed to the patient's other primary care needs.<sup>2,3</sup> As patients with disabilities (PWDs) are approaching average life expectancies, students must be taught that PWDs will present with both disability-related issues and issues seen in the average population.

We set out to test the hypothesis that increasing knowledge through didactic instruction would result in more positive attitudes and behaviors related to PWDs. This report describes our results from 2 years of evaluation of our disability curriculum.

### Curriculum Description

#### Didactics

We designed an intervention consisting of a 90-minute session presented to all third-year medical students during the 6-week family medicine clerkship, which included scenarios that focused on disability as a demographic characteristic, medical condition, and secondary

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consideration in typical primary care visits. We concentrated on PWDs with mobility impairments (ie, spinal cord injury (SCI)) and those with cognitive impairment (CI). Examples of content in the SCI section were physical complications due to lack of consistent weight bearing and/or damage to the spinal cord; physical access issues associated with the use of a mobility device, such as a wheelchair; and clinical considerations including pressure ulcers, osteoporosis, autonomic dysreflexia, bladder and bowel issues, joint pain, weight management, sexuality issues, and blood clots. Examples of content in the CI section were typical characteristics of a person with CI including concrete thinking, short attention spans, and limited ability to generalize and the risk of prevalent medical conditions such as dementia and seizures. Faculty discussed strategies for providing accommodations for each of the issues. The class instructors, a rehabilitation engineer with an SCI and a family medicine professor with a daughter that has a cognitive impairment, have extensive professional and personal experience with disabilities and the health care field.

### The Questionnaire

The questionnaire was an adaptation of an instrument used by the Government of Canada: Canadian Attitudes Toward Disability Issues.<sup>4</sup> change in those Questions were selected related to direct experience with disabilities as well as physical and attitudinal barriers to health care for PWDs. We added questions concerning knowledge of the Americans With Disability Act, transfer assistance, common related medical concerns, characteristics of adults with CI, and disability-related terminology. The questionnaire consisted of a 5-point Likert scale, multiple choice, and true/false questions. We administered the questionnaire at the beginning and end of the 6-week family medicine clerkship in the third year of medical school. The Cronbach's alpha for the questionnaire was 0.75. This indicates the questionnaire was a reliable measure of the underlying construct of disability, which we were measuring.

We received exempt approval from the University of South Carolina Institutional Review Board since we were evaluating an educational intervention.

### Results

We obtained 92 pre- and 86 post-clerkship responses from our students. We had a subset of 71 students who had matched pre- and post-clerkship surveys. Table 1 shows the change in responses to several questions.

There was a statistically significant improvement in the proportion of students reporting feeling "less awkward" ( $P = .0002$ ) and "sorry for" ( $P = .003$ ) PWDs after the didactic instruction. There was no difference in the proportion who felt "afraid of" PWDs ( $P = .447$ ), and there was no change in the reported comfort level with patients with disabilities as well as other mental and physical health conditions.

Statistically significantly fewer students responded incorrectly about medical conditions associated with CI ( $P = .0001$ ), terminology about wheelchair users ( $P = .0001$ ), and characteristics of people with CI ( $P = .002$ ). While there was not a responding correctly to the

“What is the ADA law?” there was a high percentage who answered this correctly from the beginning. Finally, there was no change in the proportion who knew to ask the patient how to assist in transferring from the wheelchair to the exam table.

## Discussion

We hypothesized that through didactic instruction focusing on providing care to PWDs in the biopsychosocial context, we could increase medical students’ knowledge of important clinical considerations for PWDS and change attitudes and behaviors of providing care to PWDs in a primary care setting. Overall, our students reported feeling more comfortable communicating with, examining, and caring for PWDs after the didactic intervention.

Our Family Medicine Center is particularly suited to train students in providing care for PWDs since we see a large number of patients in this population and serve as a “home base” for preventive medical care for a large community. Students were able to implement their training from the didactic session in our clinical venue, and verbal feedback about their experiences at the end of the rotation was almost universally positive.

We recognize there may be some survey bias by students who felt they needed to be “politically correct;” however, we feel that this was minimized by allowing the students to anonymously answer the questionnaires using a 4-digit linker code.

Our unique teaching session was successful in changing students’ perspectives about PWDs. We are interested in assessing whether this translates into improved behavior in the examination room and have designed objective structured clinical exams (OSCEs) with PWDs. We will continue to use the results of the survey to modify our teaching strategies. For example, since there was no change in the proportion of students who knew to ask how to assist with a transfer from a wheelchair to the exam table, we have incorporated transfer simulations into our instruction. We teach three different transfers and stress the opening question, “How can I assist you?” Ultimately, we plan to evaluate the effect of didactic training, clinical training, and OSCE evaluation in residency training and into practice.

## Acknowledgments

Funding for this research was provided to the University of South Carolina through Cooperative Agreement Number 1U59DD000268-01 from the Centers for Disease Control and Prevention. Its contents are solely the responsibility of the authors and do not necessarily represent the official view of the Centers for Disease Control and Prevention.

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**Table 1**

Change in Questionnaire Responses From Pre- to Post-Family Medicine Clerkship, 71 Pairs

Question	Mean (Post-, Pre-clerkship)	Test Statistic	P Value*	
When you encounter someone you don't know well with an obvious disability, do you feel:				
Awkward	0.3644	3.4935	<b>.0002</b>	
Afraid	0.0364	0.1324	.4473	
Sorry for them	0.3730	2.7150	<b>.0033</b>	
Are you comfortable around a person who:				
Uses a wheelchair	-0.0840	0.9449	.8276	
Is deaf	0.0366	-0.7407	.2294	
Is blind	0.0507	-0.8687	.1925	
Has a developmental disability	0.0934	0.7990	.2121	
<i>Question (correct answer in bold)</i>	<i>Pre-clerkship # (%) Wrong**</i>	<i>Post-clerkship # (%) Wrong**</i>	<i>Test Statistic</i>	<i>P Value*</i>
What is the primary intent of the Americans With Disabilities Act (ADA)?				
Law on employment of PWDs				
Education bill for children with disabilities				
Federal civil rights legislation for PWDs	5 (7.4)	7 (10.5)	0.3991	.8246
Public building access regulations				
What conditions are people with mental retardation (MR) at higher risk for?				
a. seizures				
b. obesity				
c. dementia				
d. a and c	54 (78.3)	24 (34.8)	26.5385	<b>&lt;.0001</b>
e. all of the above				
When assisting a person with a SCI onto the exam table, one person should grab under the arms and the other should grab under the knees.				
True or False	22 (32.4)	23 (33.3)	0.0149	.6193
What descriptive term is appropriate?				
a. the patient is confined to a wheelchair				
b. the patient is a wheelchair user	30 (43.5)	0 (0.0)	38.8113	<b>&lt;.0001</b>
c. the patient is wheelchair bound				
d. the crippled patient in the wheelchair				
What's NOT a characteristic of adults with MR?				
a. Concrete thinkers				
b. Short attention span				
c. Able to learn normally at a slower rate	37 (56.1)	21 (30.4)	9.0399	<b>&lt;.0022</b>
d. Limited ability to generalize				

PWDs—persons with disabilities

SCI—spinal cord injury

\* one sided non-parametric test

\*\* denominators vary slightly due to some students skipping questions

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