

**UNDERSTANDING BARRIERS TO HEALTHCARE
CAUSED BY INACCESSIBLE MEDICAL INSTRUMENTATION**

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ABSTRACT

The RERC on Accessible Medical Instrumentation evaluates and develops methods and technologies to increase accessibility and usability of diagnostic, therapeutic, and procedural healthcare equipment, and associated assistive technologies, for people with disabilities. This paper outlines the cornerstone research project for this RERC, which is a needs analysis, and details the methods and results of one of its projects, Healthcare Consumer Needs Assessment. In this project the RERC staff is conducting a Delphi study, a national survey, and a series of focus groups to identify the nature of obstacles related to medical instrumentation (and related policies) that prevent people with disabilities from receiving healthcare services.

BACKGROUND

The Rehabilitation Engineering Research Center (RERC) on Accessible Medical Instrumentation is a five-year project that began on November 1, 2002. It is based at Marquette University, with major subcontracts to the Center for Disability Studies and the Health Professions at Western University of Health Sciences, and to the Ergonomics Lab at the University of California at Berkeley and San Francisco. It also has subcontracts to Human Spectrum Design, L.L.C., the University of Wisconsin at Milwaukee, and the University of Connecticut. Major collaborators on the project are Kaiser Permanente and the U.S. Food and Drug Administration. The project's web site can be found at www.erc-ami.org.

The RERC on Accessible Medical Instrumentation evaluates methods and technologies to increase the accessibility and usability of diagnostic, therapeutic, and procedural healthcare equipment, and associated assistive technologies, for people with disabilities. It works closely with consumers, healthcare practitioners, medical facility administrators, and medical device manufacturers.

The RERC is guided by the vision that all persons should have access to healthcare instrumentation and services and to employment in the healthcare professions regardless of disability. The goals of the RERC are to (1) increase knowledge of, access to, and utilization of healthcare instrumentation and services by individuals with disabilities; (2) increase awareness of and access to employment in the healthcare professions by individuals with disabilities; and (3) serve as a national center of excellence for this priority area.

Critical to achieving these goals are the four research and four development programs of the RERC. Research Program R1, which targets needs assessment, is the cornerstone of the RERC on Accessible Medical Instrumentation. Many of the RERC's other research and development projects will use the results of R1 to prioritize and refine their planned projects.

RESEARCH QUESTION

The key question asked in Research Program R1 is:

What are the obstacles to accessible medical instrumentation?

METHOD

Research Program R1 will analyze the medical instrumentation needs of three major constituencies: consumers with disabilities, healthcare service providers, and medical instrumentation manufacturers through three distinct research projects, each targeted at one of these groups.

Project R.1.1 / Healthcare Consumer Needs Assessment will conduct activities to identify the nature of obstacles related to medical instrumentation (and related policies) that prevent people with disabilities from receiving healthcare services.

Project R1.2 / Healthcare Service Provider Needs Assessment will conduct activities to identify the nature of obstacles related to medical instrumentation (and related policies) that prevent healthcare service providers, either with disabilities or with significant experience serving patients with disabilities, from providing healthcare services to individuals with disabilities.

Project R1.3 / Manufacturer Needs Assessment will conduct activities to understand the nature of obstacles preventing device manufacturers from producing instrumentation that is accessible to individuals with disabilities.

This paper focuses only on Research Project R1.1, which will have four stages as outlined below.

Stage 1. Delphi Study. A Delphi approach (1) (2) will be utilized to construct an instrument to be distributed in the national survey. A list of nationally respected key informants/experts in the field of disabilities, who have a working knowledge of medical instrumentation, will be assembled to participate in the Delphi study. They will respond to a draft questionnaire that was carefully constructed to extract information regarding healthcare consumer needs; Table 1 provides a sample of the initial structure of and responses to the questionnaire. Through a structured, iterative process, the experts will provide input that will improve this instrument.

Type of Medical Equipment	Experience with this Type of Medical Equipment	Your Difficulty with this Type of Medical Equipment	Please provide details about how and where this equipment made it difficult for you to carry out the procedure/activity/task	What changes might be made to improve the ease of using this equipment?
Examination Tables	<input type="checkbox"/> None <input type="checkbox"/> Little <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Frequent <input type="checkbox"/> Extensive	<input type="checkbox"/> Never <input type="checkbox"/> Sometimes <input checked="" type="checkbox"/> Often <input type="checkbox"/> Always	<ul style="list-style-type: none"> ▪ OB/GYN – Some exam tables are too high to get on without staff assistance. Have to wait for a room or use alternative dept. ▪ Urology Dept. No tables low enough to get on without help. ▪ Orthopedic tables are low enough, but not wide enough and no rails for safety. 	<ul style="list-style-type: none"> ▪ Make tables height adjustable. ▪ Make tables height adjustable ▪ Make tables wider with adjustable side rails for safety.

Table 1. Sample Delphi Instrument for National Survey.

Stage 2. National Survey. The questionnaire (instrument) will be mailed to a diverse, national sample of 300 individuals who agree to take part in this study, to identify obstacles related to medical instrumentation that prevents people with disabilities from receiving healthcare services. The sample for this study will be composed of individuals with disabilities who are diverse in age, abilities, ethnicity, geographic location, and socio-economic status.

Stage 3. Focus Groups. The results of the Delphi study and the national survey will yield information about common types of problems experienced by certain sub-groups of individuals with disabilities, using certain types of medical instrumentation. In Stage 3, at least sixteen focus groups will be held with selected sub-groups of individuals with disabilities to investigate those problems in greater depth.

RESULTS

No results have been generated as of this writing but preliminary results of Stages 1 and 2 of Project R1.1, the Delphi study and the national survey, will be available for presentation at the RESNA conference in June 2003.

DISCUSSION

While the scope of the problem of access to and utilization of healthcare services is vast, one of the major barriers can be identified as the accessibility and usability of medical instrumentation that is used for diagnostic, procedural, and therapeutic purposes. Unfortunately, the extent of the problems caused by inaccessible equipment has not been documented. Little is known about the extent to which device manufacturers consider the needs of either patients or healthcare providers with disabilities. To date, there have been few studies focusing on access, utilization, and frequency of use and usability of the medical instrumentation used by and for persons with disabilities.

Carefully structured national needs assessment studies are needed in order (a) to improve both access to healthcare services and utilization of these services by individuals with disabilities, and (b) to improve access to healthcare equipment by healthcare providers with disabilities. The activities of project R1, as described above, will begin to provide this needed information.

REFERENCES

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