

DEPARTMENT OF EDUCATION

National Institute on Disability and Rehabilitation Research; Notice of Final Funding Priorities for Fiscal Years 1997–1998 for Research and Demonstration Projects, Rehabilitation Research and Training Centers, and a Knowledge Dissemination and Utilization Project

AGENCY: Department of Education.

SUMMARY: The Secretary announces final funding priorities for the Research and Demonstration Project (R&D) Program, the Rehabilitation Research and Training Center (RRTC) Program, and the Knowledge Dissemination and Utilization (D&U) Program under the National Institute on Disability and Rehabilitation Research (NIDRR) for fiscal years 1997–1998. The Secretary takes this action to focus research attention on areas of national need to improve rehabilitation services and outcomes for individuals with disabilities, and to assist in the solutions to problems encountered by individuals with disabilities in their daily activities.

EFFECTIVE DATE: These priorities take effect on June 9, 1997.

FOR FURTHER INFORMATION CONTACT: David Esquith. Telephone: (202) 205–8801. Individuals who use a telecommunications device for the deaf (TDD) may call the TDD number at (202) 205–2742. Internet: David___Esquith@ed.gov.

SUPPLEMENTARY INFORMATION: This notice contains final priorities to establish R&D projects for model systems for burn injury and traumatic brain injury, RRTCs for research related to aging with a spinal cord injury and severe problem behaviors, and a D&U project to improve the utilization of existing and emerging rehabilitation technology in the State vocational rehabilitation program.

These final priorities support the National Education Goal that calls for all Americans to possess the knowledge and skills necessary to compete in a global economy and exercise the rights and responsibilities of citizenship.

Note: This notice of final priorities does not solicit applications. A notice inviting applications under these competitions is published in a separate notice in this issue of the **Federal Register**.

Analysis of Comments and Changes

On March 4, 1997, the Secretary published a notice of proposed priorities in the **Federal Register** (62 FR 9886–9892). The Department of Education received ninety-four letters commenting on the notice of proposed

priorities by the deadline date. Seventy-eight additional comments were received after the deadline date and were not considered in this response. Technical and other minor changes—and suggested changes the Secretary is not legally authorized to make under statutory authority—are not addressed.

Research and Demonstration Projects Program**Priority 1: Burn Injury Rehabilitation Model System**

Comment: The Burn Injury Rehabilitation Model System projects should provide care from the point of injury to the completion of care.

Discussion: The projects are intended to provide care from the point of injury to the completion of care. The priority is not as clear as it could be on this point.

Changes: The initial purpose statement of the priority has been revised to require a project to provide care from the point of injury through community integration and long-term follow-up.

Comment: The 1992 Burn Model system's final priority excluded children. The new projects should provide care to children and adults.

Discussion: The 1992 final priority discussion of the exclusion of children from the Burn Model system's program stated, "The burn injury model system will be developed initially to serve and collect data on adults since NIDRR's experience with the model systems for spinal cord injury and traumatic brain injury projects indicates that these systems can be successful with adults. The model systems can be adapted for children later." (57 FR 57284). The commenter is correct, and the Burn Model System program should be able to include children without jeopardizing the database or service delivery progress that has been made to date.

Including children will require the Burn Model System projects to address new and unique issues, such as the effect of the burn injury on physical, cognitive, and social development. It will also demand that the projects coordinate with children's service providers, including special educators. The annual funding of the Burn Model System projects has been increased in order to provide adequate support for the additional tasks that will result from this change.

Changes: The background statement and the priority have been revised to require the projects to include children in the model system and the projects' research and demonstration activities.

The fourth purpose statement has been revised to include special education interventions and education outcomes.

Comment: The model system projects should be required to use electronic communication.

Discussion: The use of electronic communication is so common that it is unnecessary to require it.

Changes: None.

Comment: What guidelines have been established for defining the cost of care data from the data which are more commonly available, i.e., charges of care?

Discussion: There are no guidelines for defining cost of care. Applicants have the discretion to propose how they will define cost, and the peer review process will evaluate the merits of the definition. An applicant could propose to define cost as charges of care.

Changes: None.

Comment: A comment in response to the TBI Model System proposed priority questioned the use of the term "multidisciplinary" to describe the model system. The commenter opined that the manner in which care is rendered in most, if not all, the model systems is in an "interdisciplinary" or "transdisciplinary" fashion. "Interdisciplinary" or "transdisciplinary" should be used instead of "multidisciplinary."

Discussion: This comment, although not addressed to the proposed Burn Injury Rehabilitation Model System priority, applies equally to it. The term "multidisciplinary" was used to convey that the projects should involve all necessary and appropriate disciplines in the delivery of care. Since there are no universally accepted definitions of any of these terms, use of any one term could lead to a misunderstanding.

Changes: The term "multidisciplinary" has been deleted from the Burn Injury Rehabilitation Model System priority, and the priority requires the projects to involve all necessary and appropriate disciplines in the delivery of care.

Priority 2: Traumatic Brain Injury Model Systems

Comment: The priority limits inclusion in the model systems database to patients who are admitted to a participating trauma unit and then transferred to a participating acute rehabilitation hospital for inpatient services. This limitation excludes patients who, after participating in a trauma unit, receive services at alternative post-acute treatment sites such as a skilled nursing facility, a subacute rehabilitation facility, or at home. Increasingly, managed care

organizations and rehabilitation providers are utilizing these excluded treatment sites. These exclusions should be eliminated from the priority in order to allow the projects to study the impact of these alternative treatment pathways.

Discussion: This recommendation raises fundamental questions about the purpose and future directions of the TBI Model Systems program. As indicated in the background statement, "NIDRR's multi-center model systems program is designed to study the course of recovery and outcomes following the delivery of a coordinated system of care including emergency care, acute neuro-trauma management, comprehensive inpatient rehabilitation, and long-term interdisciplinary follow-up services." Including other pathways of post-acute treatment such as skilled nursing facilities, subacute rehabilitation facilities, and home care would significantly change the nature of the model system that has been in place for since 1987. This change would require projects to engage in data collection activities from a wider range of treatment sites, and possibly a wider range of severity of brain injury. The nature and quality of services provided at these alternative treatment sites, as well as the population served, may vary significantly, and this variation would need to be addressed in the compilation of the national database.

Post-acute treatment of TBI is going through a period of transition, and it is necessary for the TBI Model system program to be equally dynamic in order to maintain the program's relevance. In order to facilitate a smooth transition, the priority is being changed to provide applicants with the option of expanding their scope of activities to include alternative post-acute treatment sites while maintaining the requirement that all projects include the current pathway of inpatient rehabilitation treatment. This change is made with the acknowledgment that complications may occur. For example, if some projects expand to include alternative post-acute treatment sites, while others maintain the current treatment pathway, the uniformity of the database will be affected. These complications should be outweighed by the new information that will be generated about the post-acute alternative treatment sites. In addition, if at some future date, the inclusion of alternative post-acute treatment sites becomes a requirement rather than an option, the experience of the next round of projects that include those sites in their systems will serve as a useful source of information about the transition.

Changes: The background statement and the priority have been revised to provide projects with the option of including alternative post-acute treatment sites in their system while maintaining the requirement that all projects include post-acute inpatient rehabilitation sites. In addition, the final priority includes an invitational priority in order to encourage applicants to pursue this option.

Comment: The phrase "specific treatment interventions" should be added to the fourth purpose of the priority.

Discussion: The fourth purpose of the priority requires a project to determine the relationship between cost of care and functional outcomes. In order to make this determination, the project should link the cost of care to a specific intervention. The commenter's recommendation clarifies this point.

Changes: The fourth purpose statement has been revised to require a project to determine the relationship between cost of care, specific treatment interventions, and functional outcomes.

Comment: The projects should examine the issues of aging with TBI.

Discussion: Applicants have the discretion to propose areas of investigation as long as those areas are within the purpose of the priority. However, examining issues of aging with TBI is outside of the scope of activities that an applicant could propose to fulfill the purpose of a project in the TBI Model Systems program. There is insufficient evidence to support establishing an absolute priority on this topic under other NIDRR research programs.

Changes: None.

Comment: The projects should examine the impact of pre-injury psychosocial factors on rehabilitation outcomes.

Discussion: Applicants have the discretion to propose areas of investigation as long as those areas are within the purpose of the priority. Thus, in response to the revised third purpose statement, an applicant could propose to delineate the role of premorbid factors in outcome in TBI. The peer review process will evaluate the merits of the proposal.

Changes: None.

Comment: The priority refers to a "multidisciplinary" model system of care. The manner in which care is rendered in most, if not all, the model systems is in an "interdisciplinary" or "transdisciplinary" fashion. "Interdisciplinary" or "transdisciplinary" should be used instead of "multidisciplinary."

Discussion: The term "multidisciplinary" was used to convey that the projects should involve all necessary and appropriate disciplines in the delivery of care. Since there are no universally accepted definitions of any of these terms, use of any one term could lead to a misunderstanding.

Changes: The term "multidisciplinary" has been deleted, and the priority requires the projects to involve all necessary and appropriate disciplines in the delivery of care.

Comment: In order to provide the priority with a consumer perspective, "subjective well-being" should be added to the third purpose statement.

Discussion: The third purpose statement requires the project to develop key predictors of rehabilitation outcomes at hospital discharge and at long-term follow-up. Including subjective well-being in the priority will promote the inclusion of consumers' perspectives among the rehabilitation outcomes.

Changes: The third purpose statement has been revised to require a project to address subjective well-being when it develops key predictors of rehabilitation outcomes.

Comment: The efficacy of interventions should not be weighed against the cost of interventions alone. Purposes statements four and five should be revised to refer to "costs to society."

Discussion: Determining "costs to society" is an imprecise endeavor. While "cost of interventions" admittedly constitutes a more limited perspective, it is a measure that can be used consistently across projects with a much higher degree of confidence.

Changes: None.

Comment: The projects should investigate potential systematic biases in longitudinal studies of persons with TBI.

Discussion: Applicants have the discretion to propose areas of investigation as long as those areas are within the purpose of the priority. However, investigating potential systematic biases in longitudinal studies of persons with TBI is outside of the scope of activities that an applicant could propose to fulfill the purpose of a project in the TBI Model Systems program. There is insufficient evidence to support establishing an absolute priority on this topic under other NIDRR research programs.

Changes: None.

Comment: The TBI Model Systems program should promote variation in care, along with systematic data collection, so that the impact of variations can be studied. To the extent

that all funded model systems are encouraged to develop similar systems of care, the opportunity to understand the impact of differences in care is lost. Specifically, the study of the impact of differences in the design and organization of rehabilitation interventions can be advanced by changing the enrollment constraints of model system patients, including those who are in a vegetative state, encouraging program innovations, developing innovative financing approaches to TBI rehabilitation, and supporting rigorous research on the treatment of both motor and cognitive impairments, including training regimens, pharmacologic treatments, and the use of orthotic and prosthetic devices.

Discussion: The TBI Model System program is intended to demonstrate the effectiveness of a prescribed system of care implemented in a similar fashion by a number of projects. Some degree of variation occurs across projects, and this variation will increase markedly if grantees exercise the option of including alternative post-acute treatments pathways in their model system of care. The commenter is correct that to the extent all funded model systems are encouraged to develop similar systems of care, the opportunity to understand the impact of differences in care is lost. However, there are substantial benefits in regard to the quality of the knowledge that can be generated by demonstrating and evaluating a prescribed system across projects. In light of the resources available to the program, those benefits outweigh benefits that would result from a model system that would systematically promote variation in care.

Changes: None.

Comment: The projects should study the impact of managed care on healthcare delivery to persons with TBI.

Discussion: Applicants have the discretion to propose areas of investigation so long as those areas are within the purpose of the priority. Thus, in response to the revised fourth purpose statement, an applicant could propose to study the impact of managed care on healthcare delivery to persons with TBI. The peer review process will evaluate the merits of the proposal. It should be noted that NIDRR has recently awarded an RRTC in fiscal year 1997 to study issues in Managed Health Care for individuals with disabilities.

Changes: None.

Comment: The impact of computers and technology should be emphasized in the priority.

Discussion: Emerging technology is having a significant impact on the

rehabilitation outcomes of persons with TBI. In order to keep pace with these developments, all of the TBI Model Systems projects should identify and evaluate the effectiveness of interventions that use emerging technology.

Changes: The second purpose of the priority has been revised to require a project to examine the role of emerging technology in improving vocational outcomes and community integration.

Comment: Rather than determine the relationships between cost of care and functional outcomes, the fourth purpose of the priority should require a project to understand factors that determine costs, i.e., "Quantify factors that affect the cost and benefits of care, such as functional outcomes."

Discussion: In response to the fourth purpose of the priority, an applicant could propose to quantify factors that affect the cost and benefits of care. Determining the relationships between cost of care, specific treatment interventions, and functional outcomes, and understanding factors that determine costs are not necessarily exclusive activities.

Changes: None.

Comment: Control groups or stable baselines are needed to study the outcomes and value of TBI rehabilitation. Databases that allow comparisons of similar patients who may experience different treatment strategies are invaluable in research designed to infer the effectiveness of rehabilitative interventions. All projects should be required to participate in controlled research.

Discussion: Applicants have the discretion to propose the research design that a project will use, and the peer review process will evaluate the merits of the design. Thus, an applicant could propose to use controlled research, and the peer review process will evaluate the merits of the research design. However, requiring all projects to carry out controlled research could exclude equally effective research methodologies.

Changes: None.

Comment: The priority does not attend sufficiently to issues related to acute care of TBI. Attention should be focused on the prevention of secondary conditions through early rehabilitation interventions in the acute care setting. Incorporation of this component permits the investigation of novel pharmacologic strategies and early cognitive interventions to enhance long-term functional and vocational outcomes.

Discussion: In response to the revised second purpose statement, an applicant

could propose to emphasize the prevention of secondary conditions through early rehabilitation interventions in the acute care setting, and the peer review process will evaluate the merits of the emphasis. However, there is insufficient evidence to warrant requiring all applicants to emphasize the prevention of secondary conditions through early rehabilitation interventions in the acute care setting.

Changes: None.

Comment: Projects should study the effectiveness of behavioral management strategies and the role of family dynamics in TBI patients.

Discussion: An applicant could propose to study the effectiveness of behavioral management strategies or the role of family dynamics under the second and third purpose statements, respectively. The peer review process will evaluate the merits of the proposals. However, there is insufficient evidence to warrant requiring all applicants to study the effectiveness of behavioral management strategies or the role of family dynamics.

Changes: None.

Rehabilitation Research and Training Centers (RRTCs)

Priority 4: Aging With Spinal Cord Injury

Comment: The background statement acknowledges an array of health maintenance problems including, but not limited to cardiovascular problems, urinary tract infections, pressure sores, hypertension, fractures, blood in the urine or bowel problems, and diabetes. However, the priority does not include a commensurate purpose statement requiring the RRTC to address these problems. The employment problems experienced by persons aging with SCI are usually problems of maintaining employment, and not gaining employment. Their difficulties maintaining employment are most often a function of a health maintenance problem. The priority places too much emphasis on employment-related issues and fails to address critical health issues.

Discussion: This concern was expressed by thirty-seven of the thirty-eight comments that the Department received on this proposed priority by the deadline date. The commenters are persuasive that the priority places too much emphasis on employment-related issues and fails to address critical health issues.

Changes: The priority has been revised to include a new purpose statement addressing health maintenance problems and to de-

emphasize employment-related issues. In addition, in recognition of the additional work that will be required to address health maintenance problems, the number of purpose statements has been reduced and the dissemination and training requirements have been consolidated and modified.

Comment: Forty-four percent of the people who get a SCI are members of a minority group. The RRTC should place special emphasis on people aging with a SCI from minority backgrounds.

Discussion: The commenter is correct. There are an increasing number of persons from minority backgrounds who are experiencing SCI, and their unique and varying needs merit special attention from the RRTC.

Changes: The background statement and priority have been revised to evidence the unique needs of persons aging with SCI from minority backgrounds and require the RRTC to address those needs.

Comment: Proper research designs need to be used to identify the potential causes of late life changes. Complex cross-sequential designs are needed to test these questions. Otherwise the results, even from longitudinal designs (which do not control from the effect of era), are flawed.

Discussion: An applicant could propose to use complex cross-sequential designs, and the peer review process will evaluate the merits of the design. However, requiring all projects to use complex cross-sequential designs could exclude equally effective research designs.

Changes: None.

Comment: The part of the second purpose of the priority that requires the RRTC to evaluate rehabilitation techniques that will assist individuals aging with SCI to cope with changes should be revised to develop better assessment and treatment methods for depression as people attempt to cope.

Discussion: In response to the second purpose statement, an applicants could propose to develop better assessment and treatment methods for depression as people attempt to cope, and the peer review process will evaluate the merits of the proposal. However, there is insufficient evidence to warrant requiring all applicants to develop better assessment and treatment methods for depression as people attempt to cope.

Changes: None.

Comment: The RRTC should address the significant ethnic differences that exist among caregivers as well as the great diversity in who serves as caregiver (spouse, parent, sibling, friend, paid attendant).

Discussion: An applicant could propose to address the significant ethnic differences that exist among caregivers as well as the diversity in who serves as caregiver under the third purpose of the priority. There is insufficient evidence to warrant requiring all applicants to propose to study these two topics.

Changes: None.

Comment: The data from the 1992 SCI Model Systems Annual Report that is included in the background statement is partially contradicted by the 1996 SCI Model Systems Annual Report. The background statement indicates that employment rate peaks at about 40 percent for persons with paraplegia and at 28 percent for persons with quadriplegia, and sharply declines about 18 years after the post-injury. However, the 1996 Report shows employment peaking at 39 percent at fifteen years after injury and at 38.4 percent at 20 years after injury.

Discussion: The 1992 and the 1996 report findings are different, but not contradictory. However, since the 1996 findings are more recent, they should be included in the background statement in place of the 1992 data.

Changes: The background statement uses the information from the 1996 SCI Model Systems Annual Report instead of the 1992 Report data.

Research and Demonstration Projects

Authority for the R&D program of NIDRR is contained in section 204(a) of the Rehabilitation Act of 1973, as amended (29 U.S.C. 760-762). Under this program the Secretary makes awards to public agencies and private agencies and organizations, including institutions of higher education, Indian tribes, and tribal organizations. This program is designed to assist in the development of solutions to the problems encountered by individuals with disabilities in their daily activities, especially problems related to employment (see 34 CFR 351.1). Under the regulations for this program (see 34 CFR 351.32), the Secretary may establish research priorities by reserving funds to support the research activities listed in 34 CFR 351.10.

Priorities

Under 34 CFR 75.105(c)(3), the Secretary gives an absolute preference to applications that meet one of the following priorities. The Secretary will fund under this program only applications that meet one of these absolute priorities:

Priority 1: Burn Injury Rehabilitation Model System

Background

Each year more than 2.0 million persons (about one percent of the population of the United States) receive a burn injury. Of these, 6,500 to 12,000 do not survive; 500,000 require medical care and result in temporary disability with respect to home, school, or work activities; and 70,000 to 100,000 are severe enough to be admitted to a hospital (Rice, D.P. and MacKenzie, E.J., "Cost of Injury in the United States: A Report to Congress," Atlanta, GA: Centers for Disease Control, 1989).

In 1994, NIDRR provided funding to establish Burn Injury Rehabilitation Model Systems of Care. These R&D projects focused primarily on developing and demonstrating a comprehensive, multidisciplinary model system of rehabilitative services for individuals with severe burns, and evaluating the efficacy of that system through the collection and analysis of uniform data on system benefits, costs, and outcomes. NIDRR's multi-center model systems program is designed to study the course of recovery and outcomes following the delivery of a coordinated system of care including emergency care, acute care management, comprehensive inpatient rehabilitation, and long-term interdisciplinary follow-up services.

Burn rehabilitation requires interventions as soon as possible after admission to hospitals and has treatment implications for several years following hospital discharge. Burn trauma often causes injuries and impairments in addition to the burn, and many individuals with burn injuries have secondary complications related to the burn condition. These may include open wounds, contractures, neuropathies, cosmetic abnormalities, deconditioning, bony deformities, hypersensitivity to heat and cold, amputation, psychosocial distress, chronic pain, and scarring. The complicated nature of burn injuries, the difficulty of treatment, and the risk of infection with possible loss of function requires interventions quickly and frequently to attempt to maintain a functional lifestyle and return to living independently. Minimization of physical deterioration and prevention of further impairment and functional limitation is critical and research is needed to find the appropriate procedures for clinical applications. Research is needed to develop and refine methods to determine the effectiveness of interventions to prevent, manage, and reduce medical

complications that contribute to short and long-term disability in burn patients.

Children who are severely burned may present unique challenges to health care providers, educators, and family members due to the physical, cognitive and emotional development stages that they experience. For example, returning to school and neighborhood may pose a serious threat to the development of a child's self-esteem if disfigurement is evident. In order to minimize the impact of a severe burn on a child's development, an efficient, well-coordinated system of care must be in place that involves medical, rehabilitation, and educational service providers, including special educators.

Improved measures are needed of an individual's functional ability as a result of burn rehabilitation interventions. Functional assessment brings objectivity to rehabilitation by establishing appropriate, uniform descriptors of rehabilitation care and changes in individual capacity to perform activities of daily living or other measurable elements of an individual's major life activities (Granger, C. and Brownschidle, C., "Outcome Measurement in Medical Rehabilitation," *International Journal of Technology Assessment in Health Care*, 11:2, 1995). Increasingly, health and rehabilitation services require effectiveness and impact measures to evaluate their services as a part of procedures for cost-reimbursement and billing for services. With greater emphasis on individual choice in services delivery, consumers and advocates are likewise advocates for functional assessment measures as encoders of service effectiveness. Few existing functional assessment measures, however, address the specialized and complex combination of psychosocial and medical challenges encountered by an individual who has experienced severe burn injury (Rucker, K., et al., "Analysis of Functional Assessment Instruments for Disability Rehabilitation Programs," SEW Contract No. 600-95-2194, Virginia Commonwealth University, 1996).

Burn injuries can produce emotional problems, such as post-traumatic stress disorders, anxiety, and depression. These problems may result from a variety of causes (e.g., reaction to cosmetic alterations, changes in functional abilities, changes in work status, restrictions on recreational activities) (Cromes, G.F. and Helm, P.A., "Burn Injuries," in *Medical Aspects of Disability*, pgs. 92-104, 1993). The aesthetic disability of disfigurement is frequently more severe than the

physical disability and may result in profound social consequences for those afflicted (Hurren, J.S., "Rehabilitation of the Burned Patient: James Laing Memorial Essay for 1993," *Burns*, Vol. 21, No. 2, 1995). The more severe the burn, the greater the likelihood of long-term psychosocial adjustment issues related to both physical and psychosocial problems, that affect quality of life. Although psychosocial adjustment is a critical factor in the long-term recovery of burn injury patients, there continues to be limited emphasis on research in the area of psychosocial rehabilitation and its relationship to quality of life. Family and friends play an important role and provide major support in the psychological recovery of burn patients. Research in this area needs to address the role of the family and personal advocacy systems in providing support during the burn injury rehabilitation process.

Difficulty with long-term follow-up of all patients after hospital discharge has always been a problem, but it is even more difficult when the individual lives far from the specialized rehabilitation unit. Problems are also encountered with those individuals living in rural areas, where access to burn injury rehabilitation, including mental health services, may be quite limited due to lack of proximity to specialized practitioners, limited access to technological advances, and hospital closures.

Return-to-work and educational pursuits are important measures of rehabilitation success. Work is an important source of satisfaction, self-respect, and dignity, as well as an arena for socialization for individuals who have experienced burn injury (Salisbury, R., "Burn Rehabilitation: Our Unanswered Challenge," 1992 Presidential Address to the American Burn Association, April, 1992). However, the efficacy of vocational rehabilitation interventions for this population has not been documented adequately. The physical, psychosocial, and emotional factors that lead to successful employment have not been clearly identified. Research is needed to examine relationships between vocational interventions and supports, employment, functional capacity, and degree of burn injury, including secondary complications.

Priority 1

The Secretary will establish Burn Injury Rehabilitation Model Systems R&D projects for the purpose of demonstrating a comprehensive, model system of rehabilitative services,

involving all necessary and appropriate disciplines, for children and adults with severe burns from point of injury to community integration and long-term follow-up. An R&D project must:

- (1) Identify and evaluate techniques to prevent secondary complications;
- (2) Develop and evaluate outreach programs to improve follow-up services for rural populations;
- (3) Develop and evaluate measures of functional outcome for burn rehabilitation; and
- (4) Identify and evaluate interventions, including vocational rehabilitation and special education interventions, to improve psychosocial adjustment, quality of life, community integration, and education and employment-related outcomes.

In carrying out these purposes, the R&D project must:

- Participate in clinical and systems analysis studies of the burn injury rehabilitation model system by collecting and contributing data on patient characteristics, diagnoses, causes of injury, interventions, outcomes, and costs to a uniform, standardized national data base as prescribed by the Secretary; and
- Consider collaborative projects with other model systems.

Priority 2: Traumatic Brain Injury Model Systems

Background

An estimated 1.9 million Americans experience traumatic brain injury (TBI) each year (Collins, J.F., "Types of Injuries by Selected Characteristics: US 1985-87," National Center for Health Statistics, *Vital Health Stat* 10 (175), 1990). Incidence is highest among youth and younger adults. Young males have the highest incidence rates of any group ("Disability Statistics Abstract," No. 14, Disability Statistics Rehabilitation Research & Training Center, University of California, San Francisco, November, 1995). Each year approximately 70,000 to 90,000 TBI survivors enter a life of continuing, debilitating loss of function; an estimated 5,000 survivors experience seizure disorders; and 2,000 enter into a persistent vegetative state. The number of people surviving head injuries has increased significantly over the last 25 years as a result of faster and better emergency treatment, more rapid and safer transport to specialized treatment facilities, and advances in medical treatment (National Foundation for Brain Research, Washington, DC, 1994).

In 1987, NIDRR provided funding to establish TBI Model Systems of Care. These R&D projects focused primarily

on developing and demonstrating a comprehensive, multidisciplinary model system of rehabilitative services for individuals with TBI, and evaluating the efficacy of that system through the collection and analysis of uniform data on system benefits, costs, and outcomes. NIDRR's multi-center model systems program is designed to study the course of recovery and outcomes following the delivery of a coordinated system of care including emergency care, acute neuro-trauma management, comprehensive inpatient rehabilitation, and long-term interdisciplinary follow-up services. Projects are being given an option at this time of including, in addition to comprehensive inpatient rehabilitation, alternative pathways of post-acute treatment such as skilled nursing facilities, subacute rehabilitation facilities, and home care.

The TBI Model Systems serve a substantial number of patients, allowing the projects to conduct clinical research and program evaluation, which maximize the potential for project replication. In addition, the TBI Model Systems have the advantage of a complex data collection and retrieval program with the capability to analyze the different system components and provide information on project cost effectiveness and benefits. Information is collected throughout the rehabilitation process, permitting long-term follow-up on the course of injury, outcomes, and changes in employment status, community integration, substance abuse and family needs. The TBI Model Systems projects serve as regional and national models for program development and as information centers for consumers, families, and professionals.

The TBI Model Systems National Database reports that the average length of stay in acute care has decreased approximately 50 percent, from 30 days in 1989 to 15 days in 1996; and the average length of stay in inpatient rehabilitation has decreased 38 percent, from 52 days in 1989 to 32 days in 1996. With the changing patterns of service delivery, there continues to be a need to establish and evaluate new rehabilitation interventions and strategies. Specialized measurement tools have been developed by the TBI Model Systems to assess progress and describe clinical and functional outcomes. Refinement of these measurement tools is necessary to demonstrate the effectiveness of rehabilitation interventions in inpatient and outpatient settings. After the individual is discharged from an inpatient setting, there is an ongoing need for outpatient and community

reintegration services in order to continue therapeutic interventions and the educational and referral process. As the average length of stay in inpatient settings decreases, there is a greater need to evaluate outpatient and community reintegration programs.

Findings from a multi-center investigation of employment and community integration following TBI highlight the need for post-acute rehabilitation programs with particular emphasis on vocational rehabilitation (Sander, A., et al., *Journal of Head Trauma Rehabilitation*, Vol. 11, No. 5, pgs. 70-84, 1996). Kreutzer states that employment and productivity, relating to others in the community, and independently caring for oneself at home are important quality-of-life components ("TBI: Models and Systems of Care," Conference Syllabus, Medical College of Virginia, April, 1996). As functional recovery progresses during the first year or more after the injury, the focus of rehabilitation shifts from medical intervention and physical restoration to psychosocial and vocational adaptation. The ultimate goal of psychosocial and vocational rehabilitation is community reintegration and employment. It is important to emphasize that services aimed at community reintegration must consider not only attributes and limitations of the injured individuals, but also the social, educational, and vocational systems in which the individual will function. In addition, rates of competitive employment decrease substantially from pre-injury levels. Head injury frequently results in unemployment, and there are significant relationships between risk factors (e.g., substance abuse) and this changed employment status. However, there is no reliable information regarding the magnitude of risk associated with different factors, or with different levels of these factors (Dikmen, S., et al., "Employment following Traumatic Head Injuries," *Archives of Neurology*, Vol. 51, February, 1994).

A major disability like TBI has a profoundly disorganizing impact on the lives of individuals with TBI and their families. Questions involving community, family, and vocational restoration, as well as generic concerns about future happiness and fulfillment, are common (Banja, J., & Johnston, M., "Ethical Perspectives and Social Policy," *Archives of Physical Medicine Rehabilitation*, Vol. 75, SC-19, December, 1994). Even individuals who have integrated well into society experience adverse psychosocial effects. Employment instability, isolation from friends, and increased need for support

are a few of the problems encountered by individuals with TBI. Families often function as the primary support system for individuals with TBI after they are discharged. There is a clear need for research to develop family treatment strategies and explore their effect on outcomes for individuals with TBI.

The health care costs associated with TBI are staggering. The direct medical costs of TBI treatment have been estimated at more than \$4 billion annually (Max, W., et al., "Head Injuries: Costs and Consequences," *Journal of Head Trauma Rehabilitation*, Vol. 6, pgs. 76-91, 1991). In view of current scrutiny of all health care spending, which may result in pressures to constrict or deny rehabilitation care to individuals with traumatic brain injury, it is important to gather information on the efficacy and cost-effectiveness of various treatment interventions and service delivery models. Credible outcome monitoring systems are needed to establish guidelines by which fair compromises can be reached (Johnston, M. & Hall, K., "Outcomes Evaluation in TBI Rehabilitation, Part I: Overview and System Principles," *Archives of Physical Medicine and Rehabilitation*, Vol. 75, December, 1994). A greater emphasis on outcomes measurements and management will foster the gathering of information on efficacy and cost-effectiveness.

Violence-induced TBI is increasingly common, and has significant implications for rehabilitation and community reintegration. According to the 1991 National Health Interview Survey data, violence was responsible for nine percent of all non-fatal TBIs. In addition, violence was a cause of injury in 30 percent of the 684 external injury cases in the TBI Model Systems database (a higher frequency due, in part, to the urban setting of one of the TBI Model Systems). The frequency of violence as a cause of TBI, in part, can be attributed to the fact that the individuals most likely to sustain TBI (i.e., males under age 18) are also those most likely to be involved in crimes and violence. The increase in violence as a cause of brain injury may have consequences with regard to rehabilitation costs, treatment interventions and long-term outcomes. For example, individuals with violence-related injuries show more difficulties with community integration skills one year following injury, which evidences itself in areas of social integration and productivity. Further research is needed to examine whether individuals who sustain a TBI as a result of violence

require specialized rehabilitation interventions.

Priority 2

The Secretary will establish Model Systems TBI R&D projects for the purpose of demonstrating a comprehensive, model system of care for individuals with TBI, involving all necessary and appropriate disciplines. An R&D project must:

(1) Investigate the efficacy of alternative methods of service delivery interventions after inpatient rehabilitation discharge and after other post-acute treatment pathways when applicable;

(2) Identify and evaluate interventions, including those utilizing emerging technology, that can improve vocational outcomes and community integration;

(3) Develop key predictors of rehabilitation outcome, including subjective well-being, at hospital discharge and at long-term follow-up;

(4) Determine the relationship between cost of care, specific treatment interventions, and functional outcomes; and

(5) Examine the implications of violence as a cause of TBI on treatment interventions, rehabilitation costs, and long-term outcomes.

In carrying out these purposes, the R&D Systems project must:

- Participate in clinical and systems analysis studies of the traumatic brain injury model system by collecting and contributing data on patient characteristics, diagnoses, causes of injury, interventions, outcomes, and costs to a uniform, standardized national data base as prescribed by the Secretary;

- Consider collaborative projects with other model systems; and
- Coordinate research efforts with other NIDRR grantees that address TBI-related issues.

Invitational Priority: The Secretary is particularly interested in applications that address the following invitational priority within this absolute priority. However, under 34 CFR 75.105(c)(1) an application that meets an invitational priority does not receive competitive or absolute preference over other applications. The invitational priority is for projects that include, in addition to comprehensive inpatient rehabilitation, alternative pathways of post-acute treatment such as skilled nursing facilities, subacute rehabilitation facilities, and home care.

Rehabilitation Research and Training Centers (RRTCs)

Authority for the RRTC program of NIDRR is contained in section 204(b)(2) of the Rehabilitation Act of 1973, as amended (29 U.S.C. 760–762). Under this program the Secretary makes awards to public and private organizations, including institutions of higher education and Indian tribes or tribal organizations for coordinated research and training activities. These entities must be of sufficient size, scope, and quality to effectively carry out the activities of the Center in an efficient manner consistent with appropriate State and Federal laws. They must demonstrate the ability to carry out the training activities either directly or through another entity that can provide such training.

The Secretary may make awards for up to 60 months through grants or cooperative agreements. The purpose of the awards is for planning and conducting research, training, demonstrations, and related activities leading to the development of methods, procedures, and devices that will benefit individuals with disabilities, especially those with the most severe disabilities.

Under the regulations for this program (see 34 CFR 352.32) the Secretary may establish research priorities by reserving funds to support particular research activities.

Description of the Rehabilitation Research and Training Center Program

RRTCs are operated in collaboration with institutions of higher education or providers of rehabilitation services or other appropriate services. RRTCs serve as centers of national excellence and national or regional resources for providers and individuals with disabilities and the parents, family members, guardians, advocates or authorized representatives of the individuals.

RRTCs conduct coordinated and advanced programs of research in rehabilitation targeted toward the production of new knowledge to improve rehabilitation methodology and service delivery systems, to alleviate or stabilize disabling conditions, and to promote maximum social and economic independence of individuals with disabilities.

RRTCs provide training, including graduate, pre-service, and in-service training, to assist individuals to more effectively provide rehabilitation services. They also provide training including graduate, pre-service, and in-service training, for rehabilitation

research personnel and other rehabilitation personnel.

RRTCs serve as informational and technical assistance resources to providers, individuals with disabilities, and the parents, family members, guardians, advocates, or authorized representatives of these individuals through conferences, workshops, public education programs, in-service training programs and similar activities.

NIDRR encourages all Centers to involve individuals with disabilities and minorities as recipients in research training, as well as clinical training.

Applicants have considerable latitude in proposing the specific research and related projects they will undertake to achieve the designated outcomes; however, the regulatory selection criteria for the program (34 CFR 352.31) state that the Secretary reviews the extent to which applicants justify their choice of research projects in terms of the relevance to the priority and to the needs of individuals with disabilities. The Secretary also reviews the extent to which applicants present a scientific methodology that includes reasonable hypotheses, methods of data collection and analysis, and a means to evaluate the extent to which project objectives have been achieved.

The Department is particularly interested in ensuring that the expenditure of public funds is justified by the execution of intended activities and the advancement of knowledge and, thus, has built this accountability into the selection criteria. Not later than three years after the establishment of any RRTC, NIDRR will conduct one or more reviews of the activities and achievements of the Center. In accordance with the provisions of 34 CFR 75.253(a), continued funding depends at all times on satisfactory performance and accomplishment.

General

The following requirements apply to these RRTCs pursuant to the priorities unless noted otherwise:

Each RRTC must conduct an integrated program of research to develop solutions to problems confronted by individuals with disabilities.

Each RRTC must conduct a coordinated and advanced program of training in rehabilitation research, including training in research methodology and applied research experience, that will contribute to the number of qualified researchers working in the area of rehabilitation research.

Each RRTC must disseminate and encourage the use of new rehabilitation knowledge. They must publish all

materials for dissemination or training in alternate formats to make them accessible to individuals with a range of disabling conditions.

Each RRTC must involve individuals with disabilities and, if appropriate, their family members, as well as rehabilitation service providers, in planning and implementing the research and training programs, in interpreting and disseminating the research findings, and in evaluating the Center.

Priorities

Under 34 CFR 75.105(c)(3), the Secretary gives an absolute preference to applications that meet one of the following priorities. The Secretary will fund under these competitions only applications that meet one of these absolute priorities:

Priority 3: Effective Interventions for Children and Youth With Disabilities Who Exhibit Severe Problem Behaviors Background

In recent years researchers have focused on the application of non-aversive approaches to reduce and eliminate severe problem behaviors (SPBs) exhibited by children and youth with disabilities. This has been the case because of ethical concerns about aversive interventions expressed by disability professionals, parents, and advocates, as well as research findings which indicate that aversive interventions are largely ineffective in eliminating or reducing SPBs over an extended period of time. Because of their disruptive nature, SPBs such as physical aggression, self-injury, violence, and property destruction are among the primary obstacles to full inclusion of children and youth with disabilities in age-appropriate community-based activities and regular education settings. School and community-based program personnel need effective methods to reduce and eliminate SPBs in order to provide these children and youth with disabilities with opportunities to learn, play, and work with their non-disabled peers.

Previous research in this area has improved our understanding of the early indicators of SPBs. For example, children with disabilities who display minor self-injurious behavior during the preschool years are strong candidates to exhibit more SPBs within two years (Hall, S., "Early Intervention of Self-injurious Behavior in Young Children with Intellectual Disabilities: Naturalistic Observation," Presented at the Annual Meeting of the American Association of Mental Retardation, San Francisco, June, 1995). Further research

is needed on how severe problem behavior patterns develop and whether early intervention efforts can reduce, and perhaps prevent, SPBs.

Preliminary research has also indicated that problem behaviors can be reduced by understanding the antecedents to and function of the behavior. Accordingly, children and youth with disabilities who exhibit SPBs may be able to learn to self-manage their problem behaviors.

While there are encouraging indications that non-aversive approaches can be effective in reducing and eliminating SPBs, there is a need to develop effective interventions that can be maintained over extended periods of time. Treatments of self-injurious behaviors are particularly problematic in regard to long-term effectiveness. Research has shown that children who exhibit self-injurious behaviors, even after intensive non-aversive treatment programs, may revert to self-injury at high rates within a few months of intervention (Durand, V.M., et al., "The Course of Self-injurious Behavior Among People with Autism," Paper presented at the Annual Meeting of the Berkshire Association for Behavior Analysis and Therapy, Amherst, MA, 1995).

Information from functional assessments can be used to develop educational plans and address inappropriate behavior. Functional assessment is the general label assigned to describe a set of processes (e.g., interviews, rating, rating scales, direct observations, and systematic experimental analyses of specific situations) for defining the events in an environment that reliably predict and maintain behaviors. More research needs to be done in order to expand the application of functional assessments with children and youth with disabilities who exhibit severe problem behaviors.

Under normal circumstances, children and youth with disabilities who exhibit SPBs in school and the community are also exhibiting these behaviors at home. In order for non-aversive approaches to be implemented consistently across environments, parents and other caregivers must not only consent to the approach, but also be capable of implementing the approach effectively in the home environment. The non-aversive strategies that are developed must be compatible with the home environment, and take into account providing parents and guardians with the skills they need to implement the program effectively.

Priority 3

The Secretary will establish an RRTC for the purpose of providing school and community-based program personnel with effective methods to reduce and eliminate SPBs in children and youth with disabilities. The RRTC shall:

(1) Develop and evaluate non-aversive interventions that reduce and eliminate severe behavior problems exhibited by children and youth with disabilities;

(2) Investigate the etiology of SPBs for the purpose of developing prevention and early intervention strategies;

(3) Investigate the durability and maintenance of effective non-aversive interventions;

(4) Investigate the effectiveness of self-management strategies;

(5) Develop and evaluate functional assessments to address SPBs in educational and community-based settings;

(6) Develop materials and provide training to educators, community-based program personnel, parents, and caregivers who address SPBs; and

(7) Develop and disseminate informational materials and provide technical assistance to local and State educational agencies to address SPBs.

In carrying out the purposes of the priority, the RRTC shall disseminate materials and coordinate training activities with related projects supported by the Office of Special Education Programs, including the Regional Resource Centers and Parent Information Centers.

Priority 4: Aging With Spinal Cord Injury

Background

While the mortality rate of persons who experience a spinal cord injury (SCI) and related conditions has improved markedly, life expectancy estimates are still well below normal (DeVivo, M. and Stover, S., "Long-term Survival and Causes of Death," in *Spinal Cord Injury: Clinical Outcomes from the Model Systems*, Aspen Publications, Gaithersburg, Maryland, 1995). Estimates of spinal cord injury prevalence in America range from 180,000 to 250,000 with between 7,000 and 10,000 new spinal cord injuries each year (National Spinal Cord Injury Statistical Center, The University of Alabama at Birmingham, 1995). One of four individuals who previously sustained a spinal cord injury is now at least 20 years post-onset. The average age of a SCI survivor is now about 48 years and about 20 percent of SCI survivors are over age 60.

Many SCI survivors develop new medical, functional, and psychological

problems that threaten their independence. In addition, many experience job loss, barriers to accessing proper health maintenance and caregiver/personal assistance services, loss of financial assistance, and economic hardship. Persons aging with SCI are susceptible to multiple health maintenance problems including, but not limited to, cardiovascular problems, urinary tract infections, pressure sores, hypertension, fractures, blood in the urine or bowel problems, and diabetes (Whiteneck, G.(Ed.), *Aging with a Spinal Cord Injury*, 1992). The leading medical cause of death and further disability that affects people with SCI is now premature cardiovascular disease of the atherosclerotic kind. Whiteneck, using data from England, found that cardiovascular disease is now tied with genito-urinary problems as the leading cause of death in people aging with SCI.

Individuals aging with a SCI also experience complications as a result of osteoporosis and lower extremity fractures (Garland, D.E., "Bone Mineral Density about the Knee in SCI Patients with Pathological Fractures," *Contemporary Orthopaedics*, 1992 and Garland, D.E., "Osteoporosis Following SCI," *Journal of Orthopaedic Research*, 1992). Garland discovered a high prevalence of carpal tunnel syndrome, which increased with the length of time after injury. In addition, Sie found an increased prevalence of general upper extremity pain and shoulder pain with time since injury in both paraplegic and tetraplegia individuals (Sie, I., "Upper Extremity Pain in the Post-Rehabilitation SCI Injured Patient," *Archives of Physical Medicine and Rehabilitation*, 1992). Shoulder pain occurs in about 50 percent of people with paraplegia secondary to prolonged wheelchair use. Pain, fatigue and weakness are also commonly reported but accommodations for them are poorly understood.

The 1996 SCI Model Systems Annual report shows employment peaking at 39 percent at fifteen years after injury and at 38.4 percent at 20 years after injury. Interventions are needed to maintain the employment status of people aging with SCI and prevent job loss due to premature aging effects. In addition, further research is needed to determine the changes in functional ability to perform activities of daily living (ADL) and work.

As people age and their functioning changes, the need for assistance from others (i.e., family, friends, and paid caregivers) increases. Strategies to best assist the caregiver, in turn, to help the person who is aging with SCI need to be developed. Moreover, there is no

"typical" caregiver; some are spouses, some are parents, and some are children. Fifty percent of people with SCI receive help exclusively from their families, and an additional 19 percent receive substantial help from their families. Living with family is the most frequently reported living situation, occurring in over 90 percent of cases (Nosek, M.A., "Personal Assistance: Key to Maintaining Ability of Persons with Physical Disabilities," *Applied Rehabilitation Counselor*, Vol. 21, 1990).

Declining or unstable support systems for people aging with SCI are also a major concern. Since parents of aging SCI individuals are often elderly, they are also at risk of poor health or death. Spousal support providers may experience "burn-out" and stress, or develop health problems. There are few alternatives to the informal support system. As individuals with SCI age, access to proper health care, especially with the growing trend toward managed care, is becoming a bigger problem. There is need for research on maintaining independence in the community for people aging with SCI through both the informal and formal systems of care.

Psychological well-being for individuals aging with SCI is also of major concern. Depression is a very important issue requiring additional study because of its bearing on quality of life, its importance for overall health, and its relationship to suicide (Schulz, R., "Long Term Adjustment to Physical Disability: The Role of Social Support Service of Control and Self Blame," *Journal of Personality and Social Psychology*, 5, pgs. 1162-1172, 1985). The research indicates that over 40 percent of people who have sustained functional changes as a consequence of aging with SCI show high levels of distress and depression. Pilot data on treatment are available from the NIDRR-funded centers, but a full treatment procedure for stress and depression needs to be developed.

A significant trend over time has been observed in the racial distribution of persons in the SCI Model Systems database. Among persons injured between 1973 and 1978, 77.5 percent of persons in the database were Caucasian, 13.6 percent were African-American, and 6 percent were Hispanic. Among those injured since 1990, 55.2 percent were Caucasian, 29 percent were African-American, and 12.8 percent were Hispanic ("Spinal Cord Injury, Facts and Figures at a Glance," National Spinal Cord Injury Statistical Center, University of Alabama at Birmingham, July, 1996). This increase in incidence

of SCI among persons from minority backgrounds is accompanied by research at the current RRTC on Aging with SCI indicating that people from minority backgrounds experience different long-term consequences from SCI.

Priority 4

The Secretary will establish an RRTC for the purpose of conducting research on rehabilitation techniques that assist individuals aging with SCI to maintain employment and independence in the community. The RRTC shall:

- (1) Identify, develop, and evaluate interventions to address health maintenance issues, and prevent and treat secondary conditions for individuals aging with SCI;
- (2) Identify, develop, and evaluate rehabilitation techniques that will assist individuals aging with SCI to maintain employment and to cope with changes in functional abilities and ADL;
- (3) Investigate how formal and informal systems of care could be improved to address the impact of problems associated with long-term care givers and personal service assistants;
- (4) Develop a better understanding of the natural course of SCI as persons age and develop regimens to minimize or take account of the impacts of aging with SCI; and
- (5) Develop materials and a program of information dissemination and training for individuals aging with SCI, their families, service providers and educators that will assist them to understand the natural course of SCI as persons age.

In carrying out the purposes of the priority, the RRTC shall:

- Emphasize the needs of persons from minority backgrounds; and
- Coordinate with all other relevant SCI research and demonstration activities, including those sponsored by the National Center on Medical Rehabilitation Research, the Rehabilitation Services Administration, Paralyzed Veterans of America, National Spinal Cord Injury Association and NIDRR-funded SCI projects.

Knowledge Dissemination and Utilization Projects

Authority for the D&U program of NIDRR is contained in sections 202 and 204(a) of the Rehabilitation Act of 1973, as amended (29 U.S.C. 760-762). Under this program the Secretary makes awards to public and private organizations, including institutions of higher education and Indian tribes or tribal organizations. Under the regulations for this program (see 34 CFR 355.32), the Secretary may establish

research priorities by reserving funds to support particular research activities.

Priority

Under 34 CFR 75.105(c)(3), the Secretary gives an absolute preference to applications that meet the following priority. The Secretary will fund under this competition only applications that meet this absolute priority:

Priority 5: Improving the Utilization of Existing and Emerging Rehabilitation Technology in the State Vocational Rehabilitation Program

Background

One of the more persistent issues in the rehabilitation of individuals with disabilities has been maximizing the use of existing and emerging rehabilitation technology in the service settings of the State Vocational Rehabilitation (VR) programs. As defined in Section 7(13) of the Rehabilitation Act, as amended (Act), rehabilitation technology means "the systematic application of technologies, engineering methodologies, or scientific principles to meet the needs of and address the barriers confronted by individuals with disabilities in areas which include education, rehabilitation, employment, transportation, independent living and recreation" and includes "rehabilitation engineering, assistive technology devices, and assistive technology services." Under Section 101(a)(5)(C) of the Act, designated VR agencies must describe in their State plan how the State will provide a broad range of rehabilitation technology services at each stage of the rehabilitation process. As appropriate, rehabilitation technology services are provided to individuals with disabilities served by State VR programs under an Individualized Written Rehabilitation Program.

Rehabilitation technology, and information about rehabilitation technology, is generated by a variety of sources including, but not limited to, NIDRR-funded Rehabilitation Engineering and Research Centers, the Assistive Technology program funded under the Technology-Related Assistance for Individuals with Disabilities Act of 1988, ABLEDATA, the Department of Veteran's Affairs Research and Development projects, and manufacturers in the private sector. While many of these sources may undertake dissemination activities, too often rehabilitation counselors and related vocational rehabilitation service providers are unaware of existing or emerging rehabilitation technologies, resulting in a number of problems for

clients of the State vocational rehabilitation system.

The provision of inappropriate rehabilitation technology can result in nonuse. The nonuse of a device may lead to decreases in functional abilities, freedom, and independence. On a service delivery level, device abandonment represents ineffective use of limited funds by Federal, State, and local government agencies, insurers, and other provider organizations (Phillips, B. and Hongxin, Z., "Predictors of Assistive Technology Abandonment," *Assistive Technology*, Vol. 5, No. 1, pg. 36, 1993).

If vocational rehabilitation personnel are unfamiliar with an emerging technology, their clients are disadvantaged by not having access to recent developments in the field. These developments may be more effective and economical than existing rehabilitation technology. Because of the costs that can be involved, the decision to utilize a particular rehabilitation technology, even if the technology is outdated, can be difficult to reverse or modify.

Information barriers related to rehabilitation technology also apply to secondary students with disabilities who increasingly complete their education with the help of assistive devices (Everson, J., "Using Person-centered Planning Concepts to Enhance School-to-Adult Life Transition Planning," *Journal of Vocational Rehabilitation*, Vol. 6, 1996). In order to ensure their continued access to technical accommodation as part of their transition to employment and independent living, special education and vocational rehabilitation personnel involved in their transition must have proper training and access to current information.

Assigning inappropriate or outdated rehabilitation technology to consumers can be avoided if vocational rehabilitation personnel are provided with comprehensive and current information on existing and emerging rehabilitation technology. Rehabilitation counselors and related vocational rehabilitation service providers gain access to information about rehabilitation technology from various sources including, but not limited to, their pre-service and in-service training, memberships in professional organizations, conferences, and more recently through the information superhighway. Because the field of rehabilitation technology is developing rapidly, and because it is a technically diverse and complex field, it has been a challenge for rehabilitation personnel development programs to keep pace

with rehabilitation technology. There is a growing need for dissemination of information about rehabilitation technology, including the development of pre-service and in-service resources, in order to promote improved rehabilitation professional training on rehabilitation technology.

Priority 5

The Secretary will establish a knowledge dissemination and utilization project for the purpose of improving the ability of rehabilitation professionals to more effectively use rehabilitation technology in providing services to individuals through the State VR Services program. The D&U project must:

- (1) Evaluate the pre-service and in-service rehabilitation professional training materials that address rehabilitation technology and identify strengths and deficiencies in those materials;
- (2) Based on this evaluation, develop training materials that will improve the ability of rehabilitation counselors and related professionals to utilize existing and emerging rehabilitation technology;
- (3) Disseminate these materials to pre-service and in-service rehabilitation professional training programs;
- (4) As needed, provide technical assistance to these pre-service and in-service training programs to maximize the use of the materials; and
- (5) Using a variety of strategies, disseminate information about existing and emerging rehabilitation technology to rehabilitation counselors, special educators involved with the transition of secondary students, and related rehabilitation professionals.

In carrying out the purposes of the priority, the D&U project must:

- Coordinate with the Assistive Technology projects to avoid duplication of effort;
- Develop information about existing and emerging rehabilitation technology from a wide variety of sources; and
- On a regular basis, update the information and materials that are developed.

APPLICABLE PROGRAM REGULATIONS: 34 CFR Parts 350, 351, and 352. Program Authority: 29 U.S.C. 760-762.

(Catalog of Federal Domestic Assistance Numbers: 84.133A, Research and Demonstration Projects, 84.133B, Rehabilitation Research and Training Center Program, 84.133D, Knowledge Dissemination and Utilization Program)

Dated: May 6, 1997.

Judith E. Heumann,

Assistant Secretary for Special Education and Rehabilitative Services.

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DEPARTMENT OF EDUCATION

[CFDA Nos.: 84.133A, 84.133B, and 84.133D]

Office of Special Education and Rehabilitative Services, National Institute on Disability and Rehabilitation Research; Notice Inviting Applications for New Awards Under Certain Programs for Fiscal Year 1997

NOTE TO APPLICANTS: This notice is a complete application package. Together with the statute authorizing the programs and applicable regulations governing the programs, including the Education Department General Administrative Regulations (EDGAR), this notice contains information, application forms, and instructions needed to apply for a grant under these competitions.

These programs support the National Education Goal that calls for all Americans to possess the knowledge and skills necessary to compete in a global economy and exercise the rights and responsibilities of citizenship.

The estimated funding levels in this notice do not bind the Department of Education to make awards in any of

these categories, or to any specific number of awards or funding levels, unless otherwise specified in statute.

Applicable Regulations:

The Education Department General Administrative Regulations (EDGAR), 34 CFR Parts 74, 75, 77, 80, 81, 82, 85, and 86; and the following program regulations:

(a) *Research and Demonstration Projects (R&D)*—34 CFR Parts 350 and 351;

(b) *Knowledge Dissemination and Utilization Program (D&U)*—34 CFR Parts 350 and 355; and

(c) *Rehabilitation Research and Training Centers (RRTCs)*—34 CFR Parts 350 and 352.

Program Title: Research and Demonstration Projects

CFDA Number: 84.133A

Purpose of Program: The Research and Demonstration Projects program is designed to support discrete research, demonstration, training, and related projects to develop methods, procedures, and technology that maximize the full inclusion and integration into society, independent living, employment, family support, and economic and social self-sufficiency of individuals with disabilities, especially those with the most severe disabilities. In addition, the R&D program supports discrete research, demonstration, and training projects that specifically address the implementation of Titles I, III, VI, VII, and VIII of the Rehabilitation

Act, with emphasis on projects to improve the effectiveness of these programs and to meet the needs described in State Plans submitted to the Rehabilitation Services Administration by State vocational rehabilitation agencies.

Eligible Applicants

Parties eligible to apply for grants under this program are public and private nonprofit and for-profit agencies and organizations, including institutions of higher education and Indian tribes and tribal organizations.

Program Authority: 29 U.S.C. 761a and 762.

Program Title: Knowledge Dissemination and Utilization Program
CFDA Number: 84.133D

Purpose of Program: The Knowledge Dissemination and Utilization is designed to support activities that will ensure that rehabilitation knowledge generated from projects and centers funded by NIDRR and from other sources is fully utilized to improve the lives of individuals with disabilities and their families.

Eligible Applicants: Parties eligible to apply for grants under this program are public and private nonprofit and for-profit agencies and organizations, including institutions of higher education and Indian tribes and tribal organizations.

Program Authority: 29 U.S.C. 761a and 762.

APPLICATION NOTICE FOR FISCAL YEAR 1997—RESEARCH AND DEMONSTRATION PROJECTS, CFDA No. 84.133A, KNOWLEDGE DISSEMINATION AND UTILIZATION PROGRAM, CFDA No. 84.133D

Funding priority	Deadline for transmittal of applications	Estimated number of awards	Maximum award amount (per year in dollars)*	Project period (months)
Burn Injury Rehabilitation Model System 84.133A	6/23/97	4	295,000	60
Traumatic Brain Injury Model Systems 84.133A	6/23/97	5	345,000	Up to 60 **
Improving the Utilization of Rehabilitation Technology in Rehabilitation 84.133D	6/23/97	1	500,000	60

Applications Available: May 9, 1997.

* Note 1: The Secretary will reject without consideration or evaluation any application that proposes a project funding level that exceeds the stated maximum award amount (See 34 CFR 75.104(b)).

** Note 2: Applicants should submit proposals covering a 60 month project period. The Secretary will assess, during the third year of the project period, whether the model as described in the TBI Model Systems Priority is the most appropriate approach and whether revisions are needed in the model. Based on this determination the Secretary will determine whether there is a continuing need to provide funding beyond 36 months.

Research and Demonstration Projects and Knowledge Dissemination and Utilization Program Selection Criteria

The Secretary uses the following selection criteria to evaluate applications under the R&D and D&U programs.

(a) *Potential Impact of Outcomes: Importance of Program* (Weight 3.0).

The Secretary reviews each application to determine to what degree—

(1) The proposed activity relates to the announced priority;

(2) The research is likely to produce new and useful information (research activities only);

(3) The need and target population are adequately defined;

(4) The outcomes are likely to benefit the defined target population;

(5) The training needs are clearly defined (training activities only);

(6) The training methods and developed subject matter are likely to meet the defined need (training activities only); and

(7) The need for information exists (utilization activities only).