REPORT OF THE
SECRETARY OF HEALTH AND HUMAN RESOURCES ON

EXPANSION OF PUBLIC FUNDING FOR COGNITIVE REHABILITATION SERVICES

TO THE GOVERNOR AND
THE GENERAL ASSEMBLY OF VIRGINIA

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Office of the Governor

George Allen
Governor

Kay Coles James
Secretary of Health and Human Resources

May 31, 1995

TO: The Honorable George Allen

and

The General Assembly of Virginia

The report contained herein is pursuant to House Joint Resolution 573, agreed to by the 1993 General Assembly.

This report constitutes the response of the Secretary of Health and Human Resources to coordinate a feasibility to determine methods and resources which would expand current public funding for cognitive rehabilitation services.

Respectfully Submitted,

Kay C. James

Kay Coles James
Secretary of Health and Human Resources

REPORT ON
HOUSE JOINT RESOLUTION 573

Expansion of Public Funding for Cognitive Rehabilitation Services

Department of Rehabilitative Services
Department of Mental Health, Mental Retardation, and Substance Abuse Services
Department for the Visually Handicapped
Department of Education
Department of Medical Assistance Services

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Executive Summary

The report on House Joint Resolution 573 presents the results of a feasibility study to determine methods and resources which would expand public funding for cognitive rehabilitation services. The study agencies included the Department of Rehabilitative Services, the Department of Mental Health, Mental Retardation, and Substance Abuse Services, the Department for the Visually Handicapped, the Department of Education, and the Department of Medical Assistance Services. Each agency examined the feasibility of recognizing and/or providing for cognitive rehabilitation services for eligible individuals with brain injury.

The five study agencies accepted the following common definition of cognitive rehabilitation services:

> Cognitive rehabilitation is the systematic application, by a qualified practitioner, of remedial intervention techniques aimed at improving cognitive processing and the ability to perform daily life tasks. A comprehensive approach to cognitive rehabilitation involves systematic retraining of specific impaired cognitive functions (such as attention, memory, conceptualization, problem-solving, and language) and the teaching of compensatory strategies within a therapeutic environment. The goal of cognitive rehabilitation is to increase an individual's awareness of deficits and improve his/her ability to function more effectively on a daily basis despite underlying cognitive deficits.

This definition is used by the DRS in its Client Assistance Services Manual and blends key premises cited in prominent research. In their individual responses to the study directive, the study agencies addressed the following areas:

1. Current status of cognitive rehabilitation services in the respective agencies--including as appropriate, discussions of criteria for providing and terminating services, available service providers and types of services, avenues for and barriers to accessing services, numbers of individuals served in the last fiscal year, and data and funding issues.

2. Future role of each agency in providing and/or paying for cognitive rehabilitation services, including emerging issues and recommendations for providing and improving these services to persons with brain injury.

In addition to the agencies' responses to the study directives, the study team felt it important to provide the reader with background information on cognitive rehabilitation. Information contained in the body of the report includes characteristics of cognitive rehabilitation programs, clinical approaches to delivering this service, and appropriate settings for delivery of cognitive rehabilitation to persons with brain injury. The study appendices provide additional background information including:

1. Profile of individuals with brain injury: characteristics and service needs;

2. Review of the research on cognitive rehabilitation; and

3. Funding options and practices in other states.

Study Findings and Recommendations

The passage of HJR 573 was one of three recommendations made by the Cognitive Rehabilitation Task Force of the Commission on the Coordination of the Delivery of Services to Facilitate the Self Sufficiency and Support of Persons with Physical and Sensory Disabilities (Disability Commission.) The Cognitive Rehabilitation Task Force was appointed by the Disability Commission after public testimony regarding the lack of available coverage for cognitive rehabilitation and neurobehavioral services. While exploring funding alternatives, it was determined by the Task Force that there was insufficient funding for cognitive rehabilitation by state agencies and a reluctance among insurance companies to cover this service or to authorize such services outside of an established benefits package. (Report of the Cognitive Rehabilitation Task Force, November 1992). The Task Force set forth the following four guiding principles for future work in this area:

> "Cognitive rehabilitation is a necessary physical rehabilitation intervention for persons with acquired cognitive impairments.
>
> Current dollars need to be applied more effectively and new dollars need to be found for funding of cognitive rehabilitation.
>
> Fiscal responsibility for cognitive rehabilitation is a collaborative, private/public partnership.

Success of the individual receiving services and of the cognitive rehabilitation program providing services can be accurately measured by pre-determined predictors within a pre-defined time frame."

In responding to the HJR 573 directives, the study team agencies conducted their respective feasibility studies consistent with these guiding principles. Individual agency findings were as follows:

- The Department of Rehabilitative Services does and will continue to recognize, provide, and financially sponsor cognitive rehabilitation as an acceptable pre-vocational training modality for individuals with brain injury who require such services. The Department will increase the number of individuals with access to this service through (1) continued staff training and education; (2) program modification based on the results of the agency's Cognitive Rehabilitation Pilot Project; (3) establishment of criteria and procedures related to cognitive rehabilitation; and (4) development of a statewide Medicaid waiver proposal for traumatic brain injury.

- The Department of Mental Health, Mental Retardation, and Substance Abuse Services recognizes that there are consumers within the service system who have a dual diagnosis of traumatic brain injury and mental retardation, mental illness, or substance abuse. In keeping with its established mission, DMHMRSAS does not directly provide cognitive rehabilitation services but will work collaboratively with other agencies to refer consumers and their families to appropriate services. This will include (1) identifying a traumatic brain injury at intake; (2) ensuring that case managers understand this disability and initiate appropriate referrals; and (3) better integrating current DMHMRSAS services to ensure holistic treatment. DMHMRSAS is also willing to advise DRS in its efforts to develop a statewide Medicaid waiver proposal for community services for individuals with brain injury similar to the current Mental Retardation Waiver program.

- The Department for the Visually Handicapped recognizes cognitive rehabilitation as an acceptable modality of pre-vocational services for persons with concomitant visual impairment and brain injury and will continue to purchase cognitive rehabilitation therapy for individuals who require these services. In addition, the agency will provide in-service training and education to service providers, assess the development of

specific policies and procedures relating to this service, and explore the option of providing cognitive rehabilitation services within the agency rather than purchasing such services from other agencies and private vendors.

- The Department of Education recognizes that the *Regulations Governing Special Education Programs for Children With Disabilities in Virginia* provide the mechanism which allows for cognitive rehabilitation to be provided to a child determined eligible for special education services under the Individuals with Disabilities Education Act. Cognitive rehabilitation is recognized and provided by local education agencies as a related service since it is developmental, corrective, and supportive and thus assists the child to benefit from special education.

- The Department of Medical Assistance Services recognizes the need to expand cognitive rehabilitation services on an out-patient basis for certain individuals with brain injury who do not meet current criteria. Cognitive rehabilitation services are currently provided as a component of DMAS' intensive rehabilitation programs and are also available through the out-patient rehabilitation program when the program is carried out by a speech language-pathologist, occupational therapist, or qualified psychologist. Coverage and reimbursement of outpatient cognitive rehabilitation services as an independent therapy (outside of speech, language, or psychological services) will require regulatory changes in the *Virginia State Plan for Medical Assistance.*

Interagency Recommendations

The recommendations of the study group seek to (1) expand the availability of cognitive rehabilitation services to all individuals with brain injury who could benefit from these services; (2) enhance inter-agency collaboration with respect to the identification of individuals requiring this service as well as the actual provision/purchase of the service itself; (3) expand available funding for cognitive rehabilitation; and (4) facilitate the development of improved data tracking systems which will enable agencies to monitor costs, service quality, and long-term outcomes for individuals with brain injury. Specific interagency recommendations are as follows:

1. The study agencies shall collaborate to

- explore opportunities for shared funding of cognitive rehabilitation services for mutual clients;

- explore a specific referral system for insuring multi-agency coordination of service delivery to potential consumers and the development of improved client tracking information systems;

- provide cross-agency training on cognitive rehabilitation services;

- develop consistent statewide policy and procedures designed to reduce fiscal and other barriers (described in the study report) for individuals who require cognitive rehabilitation services; and

- assure service quality, monitor client outcomes, and develop methods to assess client and family member satisfaction with service delivery and outcome.

- monitor and remain current with

  - efforts of the Task Force on Head Injury of the American Congress of Rehabilitation Medicine and the Society for Cognitive Rehabilitation to develop and enforce standards for the provision of cognitive rehabilitation services;

  - research in the area of cognitive rehabilitation; and

  - efforts by professional organizations and state/local agencies to develop certification or licensing standards for individuals providing cognitive rehabilitation services.

2. The study agencies should explore in greater detail the impact of having a dedicated funding source for individuals with brain injury such as an Impaired Drivers Trust Fund to expand prevocational cognitive rehabilitation and other services to individuals with brain injury who are unserved or underserved. If appropriate, present recommendation for the development of such a funding source to the Secretary of Health and Human Resources.

Virginia continues to enhance its efforts to become a national leader in recognizing and meeting the needs of persons with brain injury in the Commonwealth. Implementation of the study team's recommendations will support these efforts by

helping to establish a coordinated continuum of state-supported services in the area of brain injury and by ensuring that individuals with this disability have affordable access to an important rehabilitation service that can assist them in meeting employment and independent living goals and improving the quality of their lives.

Preface

In 1993, through House Joint Resolution 573, the Virginia General Assembly requested that the Secretary of Health and Human Resources coordinate a feasibility study to determine methods and resources which would expand public funding for cognitive rehabilitation services for individuals with brain injury. HJR 573 directed

- the Department of Rehabilitative Services (DRS) to explore the feasibility of recognizing cognitive rehabilitation as an acceptable pre-vocational training modality for individuals with brain injury.

- the Department of Mental Health, Mental Retardation, and Substance Abuse Services (DMHMRSAS) to explore the feasibility of recognizing cognitive rehabilitation services as an acceptable pre-treatment modality for individuals with the dual diagnosis of brain injury and mental illness, mental retardation, or substance abuse.

- the Department for the Visually Handicapped (DVH) to explore the feasibility of recognizing cognitive rehabilitation as an acceptable pre-vocational training modality for individuals with concomitant brain injury and visual impairment.

- the Department of Education (DOE) to explore the feasibility of recognizing cognitive rehabilitation as an acceptable educationally-related service when included in a student's Individualized Education Plan (IEP)

- the Department of Medical Assistance Services (DMAS) to explore the feasibility of covering cognitive rehabilitation as an independent rehabilitative service in outpatient services.

The above agencies were directed to submit their study results to the Secretary of Health and Human Services by July 1, 1994 so that findings and recommendations could be reported to the Governor and the 1995 General Assembly.

To address the mandates of HJR 573, an interagency study team was convened, with DRS as the lead agency. The team was comprised of the following members:

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Cynthia A. Cave, Ph.D.	Department of Rehabilitative Services
Michael Fehl	Department of Mental Health, Mental Retardation and Substance Abuse Services

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The study team extends its appreciation to Dr. Evalyn Bishop, Clinical Director of the Woodrow Wilson Rehabilitation Center Head Trauma Program, for providing valuable information and assistance to this effort.

I. Introduction

Study Background

The passage of HJR 573 was one of three recommendations made by the Cognitive Rehabilitation Task Force of the Commission on the Coordination of the Delivery of Services to Facilitate the Self Sufficiency and Support of Persons with Physical and Sensory Disabilities (Disability Commission.) The Cognitive Rehabilitation Task Force was appointed by the Disability Commission after public testimony regarding the lack of available coverage for cognitive rehabilitation and neurobehavioral services.

While exploring funding alternatives, the Cognitive Rehabilitation Task Force determined that there was limited funding for cognitive rehabilitation by state agencies and a reluctance among insurance companies to cover this service or to authorize such services outside of an established benefits package. The one exception was Workers' Compensation which has been relatively supportive and has funded both cognitive rehabilitation services and treatment for neurobehavioral sequelae of brain injury. The Task Force indicates its belief that coverage of cognitive and neurobehavioral services made the qualitative difference in the overall care package. (Report of the Cognitive Rehabilitation Task Force, November 1992). Based on its analysis, the Task Force set forth four guiding principles and made three recommendations for improving long-term funding of this service. The guiding principles are as follows:

> "Cognitive rehabilitation is a necessary physical rehabilitation intervention for persons with acquired cognitive impairments.
>
> Current dollars need to be applied more effectively and new dollars need to be found for funding of cognitive rehabilitation.
>
> Fiscal responsibility for cognitive rehabilitation is a collaborative, private/public partnership.
>
> Success of the individual receiving services and of the cognitive rehabilitation program providing services can be accurately measured by pre-determined predictors within a pre-defined time frame."

Task Force recommendations included (1) implement a pilot program for cognitive rehabilitation services; (2) conduct two educational conferences designed to enhance insurance company involvement and fiscal responsibility related to coverage of cognitive rehabilitation services; and (3) conduct a feasibility study to expand public funding for

cognitive rehabilitation services. This study report presents the results of the feasibility study mandated under HJR 573 in which the Secretary of Health and Human Resources requested that appropriate state agencies conduct studies to determine the feasibility of recognizing and/or paying for cognitive rehabilitation services. The five agencies targeted through this resolution were the Department of Rehabilitative Services (DRS), the Department of Mental Health, Mental Retardation, and Substance Abuse Services (DMHMRSAS), the Department for the Visually Handicapped (DVH), the Department of Education (DOE), and the Department of Medical Assistance Services (DMAS).

Study Process

- Internal agency data from the five study agencies was collected and analyzed. Data included information on numbers of individuals served, average cost of services, range of costs, payment sources, providers utilized, criteria for provision of cognitive rehabilitation services, and, where available, outcome data.

- The Department of Rehabilitative Services sent a request for information on cognitive rehabilitation services to all of the state vocational rehabilitation agencies and agencies for the visually handicapped. Twelve states sent copies of policies and procedures and/or study reports relating to services for individuals with brain injury which were reviewed by the study team. Follow-up information was requested from seven states which indicated having a separate funding source designed to serve individuals with brain injury. This information enabled the agency to determine whether other states had unique programs or practices that the Commonwealth might wish to replicate.

- DRS gathered information about seven states which currently have Traumatic Brain Injury (TBI) Medicaid waivers to review the status of such waiver programs, determine whether they included cognitive rehabilitation as a specific service, and to assess their applicability to current waiver efforts taking place in Virginia.

- A survey was sent to 35 known cognitive rehabilitation service providers, most of which are Medicaid approved. Follow-up efforts were conducted to help improve the response rate which was 32.5 percent. Survey data were compiled and analyzed to determine the types of services provided, number of individuals receiving cognitive rehabilitation services, cost data, criteria for provision and termination of services, billing practices, and payment sources.

Section II. What is Cognitive Rehabilitation?

The following section of this report (Section III) provides each study agency's criteria for providing, purchasing, and/or paying for cognitive rehabilitation services, including current status of these services within each agency. The brief discussion below which defines cognitive rehabilitation and discusses principal characteristics of this type of therapy, provides a framework for the individual agency responses to the study directive and is designed to very briefly familiarize the reader with the field of cognitive rehabilitation.

Definition

Cognitive rehabilitation is a relatively new discipline and there is no one commonly accepted definition. However, the research and literature which seek to define cognitive rehabilitation include common themes which vary in language but not in intent. The study group has chosen to use the definition of cognitive rehabilitation included in the Department of Rehabilitative Services Client Assistance Services Manual. This definition blends key premises cited in prominent research.

> Cognitive rehabilitation is the systematic application, by a qualified practitioner, of remedial intervention techniques aimed at improving cognitive processing and the ability to perform daily life tasks. A comprehensive approach to cognitive rehabilitation involves systematic retraining of specific impaired cognitive functions (such as attention, memory, conceptualization, problem-solving, and language) and the teaching of compensatory strategies within a therapeutic environment. The goal of cognitive rehabilitation is to increase an individual's awareness of deficits and improve his/her ability to function more effectively on a daily basis despite underlying cognitive deficits.

While the definition of cognitive rehabilitation as a service is fairly broad, the application of this service by the study team agencies becomes more focused. When the service is funded, how it is funded, for whom, and under what circumstances will vary by the mission of the individual agency, the laws and regulations governing the agency, the client population it serves, and a host of other factors. Section III of the study report provides the individual agency responses to the HJR 573 directives. This section also provides information on the role of each agency in providing cognitive rehabilitation services to individuals with brain injury, the status of current services in this area, and recommendations for expansion/improvement of services.

Characteristics of Cognitive Rehabilitation Programs

Section III discusses appropriate candidates for cognitive rehabilitation services; thus that information will not be repeated here. As a general rule, however, note that formal cognitive rehabilitation programs do not appear to be indicated for individuals who are in the early stages of neurologic recovery, such as those who are in a state of post-traumatic amnesia exhibiting diminished alertness and arousal, short-term memory impairment, and disorientation. Gordon and Hibbard (1991, (Chapter 2)) list a number of essential characteristics for cognitive rehabilitation programs which are consistent with the literature. They include the following:

- Treatment must address all elements of the cognitive disorder rather than focusing on a particular deficit.
- The cognitive rehabilitation program must be integrated with skills training.
- Providers must allow sufficient time to effect behavioral change and the program must be structured in such a way as to ensure effective learning for the individual.
- Consistent daily intervention is important.
- Approach should be varied based on the individual's response.
- The individual must be aware of his or her cognitive deficits.
- The program should include supportive counseling or psychotherapy and, as appropriate, psychotropic medications.
- Computer training should be used judiciously.

Clinical Approaches to Delivering Cognitive Rehabilitation Services

The trend in cognitive rehabilitation is on improving functional skills versus select areas of cognitive impairment such as visual memory, spatial perception, or attention/concentration. Services, which may include speech therapy, occupational therapy, and neuropsychological services, should be interdisciplinary and emphasize compensatory strategies, coping skills, and the development of functional skills in a "real work" setting.

This integrated therapy approach involves a number of strategies and techniques designed to improve an individual's

- attention and concentration
- memory and retention
- abstract and concept learning
- problem solving skills
- decision-making skills
- organization
- self expression (listening, speech, grammar)
- thinking skills (including goal setting)
- social competence(social signals, voice inflections)

Approaches to cognitive rehabilitation suggested by Parente and DiCesare (1991, (Chapter 12)) include, but are not limited to, stimulation training, attention/concentration training, memory training, sensory memory training, cognitive skills training, academic training, drug/nutrient therapy, and use of prosthetic and assistive devices. Examples of useful prosthetic memory devices for individuals with brain injury include such items as checklists, appointment diaries, cue cards, signs, telememo watches, phone dialers, calculators, car finders, answering machines, data storage devices, and host of other electronic and non-electronic devices.

Appropriate Settings for the Delivery of Cognitive Rehabilitation Services

Cognitive rehabilitation during the acute and subacute phase of recovery from brain injury is appropriately provided in a hospital or rehabilitation setting. However, during the post-acute period of recovery, cognitive rehabilitation may be provided in a community-based setting, depending upon an individual's needs. Kreutzer (1989) notes that ideally cognitive rehabilitation programs should be delivered in natural settings such as the person's home or work site. Kneipp (1991, (Chapter 18)) discusses promising outcomes of cognitive rehabilitation efforts carried out in home and work settings. She notes that there is little evidence to support the notion that success in a rehabilitation setting will generalize to

success in the real world environment. Cognitive rehabilitation, states the author, "should take place in the setting in which the skills are to be applied. . . and in a setting with significance to the individual" (p. 242). Community reentry, according to Kneipp, should be facilitated at the earliest point possible to prevent additional psychosocial problems and to allow the individual to quickly achieve success in meaningful, functional activities.

The need for cognitive rehabilitation services is increasing as greater numbers of individuals survive brain injuries each year. DRS estimates that a minimum of 15 percent of the 10,500 who sustain a brain injury each year could benefit from cognitive rehabilitation services (WWRC Brain Injury Services Expansion Study, 1993). The field of cognitive rehabilitation has grown in recent years at a pace proportional to the growing number of survivors of brain injury. Mazmanian, Martin, and Kreutzer (1991, (Chapter 4)) found in a national survey that out of 252 responses from health care facilities providing rehabilitative services to adults or children with brain injury, 94 percent provided cognitive rehabilitation therapy. For the most part, this industry has evolved to serve individuals who have insurance coverage or sufficient personal funds. Because of the complexity of brain injury rehabilitation and uncertainty regarding outcomes, most funding entities have relied on the clinical expertise of cognitive rehabilitation providers to establish individual goals and estimate service time frames.

The following section describes the methods by which the various study agencies provide and/or pay for cognitive rehabilitation services, including, but not limited to, eligibility criteria, conditions under which cognitive rehabilitation services are provided, current status of such services, and funding issues.

Agency Response to HJR 573

Virginia Department of Rehabilitative Services

The Department of Rehabilitative Services (DRS) recognizes cognitive rehabilitation as an acceptable pre-vocational training modality for individuals with brain injury. In response to the HJR 573 study directive, this report is designed to inform the reader about cognitive rehabilitative services available through the agency and the current status of these services, including numbers of individuals served, funding sources, barriers to effective service delivery, and recommendations for expansion of cognitive rehabilitation for eligible individuals.

To achieve its mission of enhancing employment opportunities, independent living, and quality of life for individuals with disabilities, DRS provides vocational rehabilitation, prevocational, and related services, to eligible individuals. The principal funding source for vocational services is Title I of the Rehabilitation Act of 1973, as amended in 1992. A 22 percent state match is required in order for the Commonwealth to receive Title I funds. Title VI-C and Title VII of the Act provide funding for supported employment and independent living services, respectively. Cognitive rehabilitation, considered a physical/mental restoration service, can be sponsored through two main avenues: the DRS VR field services program and the Woodrow Wilson Rehabilitation Center (which also provides cognitive rehabilitation and other services to persons who are not agency clients, i.e., hospital patients and individuals participating in the Head Trauma Program who are not yet ready for vocational training.)

The VR field services program, funded through Title I, Title VI-C, and state monies, provides services to eligible individuals through 47 community-based offices. Applicants for services are assigned a vocational rehabilitation counselor who coordinates each individual's services from application to case closure. Once determined eligible for services, the client with his or her counselor, family member(s) and other appropriate individuals/agencies develops an Individualized Written Rehabilitation Plan (IWRP). The individual's IWRP specifies a mutually agreed upon vocational goal/employment outcome and the services, both short and long-term that the individual will require in order to achieve that goal. Vocational rehabilitation counselors may provide and/or purchase a variety of services for agency clients (allowable services are stipulated in the Rehabilitation Act) depending upon an individual's established vocational goal. These services may be provided in the community, at the Woodrow Wilson Rehabilitation Center (WWRC), or at another facility (in- or out-of-state) depending on the individual's unique rehabilitation needs and preferences.

Eligibility Criteria

To be eligible for Title I vocational rehabilitation services or Title VI-C supported employment services, an applicant must

(1) have a disability which constitutes or results in a substantial impediment to employment; and

(2) require vocational rehabilitation services to enter, obtain, or maintain employment; and

(3) be able to benefit from such services in terms of an employment outcome.

It is presumed that an individual can benefit in terms of an employment outcome unless the agency can demonstrate with clear and convincing evidence that the individual is unable to benefit. A vocational rehabilitation counselor must accept an application for vocational rehabilitation services from any individual who wishes to apply; however the most appropriate time to accept an application from a person with a brain injury is when the individual is medically stable and has completed the hospitalization stage.

When it is unclear whether an individual with a brain injury is eligible for vocational rehabilitation services, vocational rehabilitation counselors in the field services program may undertake an extended evaluation which may include, but is not limited to, the following: an assessment by the WWRC Head Trauma Program (discussed in further detail below), a neuropsychological assessment or update; a physical, occupational, or speech therapy evaluation or update; or a situational assessment in a work-oriented program geared specifically for persons with traumatic or other types of brain injury.

Criteria for Providing/Purchasing Cognitive Rehabilitation Services

An individual may be considered for cognitive rehabilitation services when he or she carries a diagnosis and associated deficits (e.g., impaired attention, memory, problem-solving, etc.) that could benefit from such intervention. For vocational rehabilitation clients served through the field services program, counselors may provide/purchase cognitive rehabilitation services to agency clients within the following guidelines (Client Assistance Services Manual, March 1992):

- The results of a thorough diagnostic study indicate that the individual is ready to pursue employment as a primary activity with no more than residual needs for medical treatment services;

- The individual has demonstrated the ability to cope with his/her overall rehabilitation program as evidenced by compliance with the basic requirements of the treatment plan, i.e., the individual regularly attends and participates meaningfully in treatment activities; and

- The individual has an Individualized Written Rehabilitation Plan which includes a vocational goal; the individual requires cognitive rehabilitation services to achieve this goal and cognitive rehabilitation services are provided on an out-patient basis (through WWRC or a community-based provider) or through the WWRC Head Trauma Program described in further detail below.

In determining whether an individual is an appropriate candidate for cognitive rehabilitation services, DRS vocational rehabilitation counselors are expected to consult liberally with staff assigned to the WWRC Head Trauma Program, the Head Injury Project in Northern Virginia, and the Special Client Services Division in the DRS Central Office (where the Statewide Coordinator of Brain Injury Services is located). Factors considered when evaluating an individual's appropriateness for service include:

- time since injury onset (an individual who is many years post-injury and have experienced repeated cognitive rehabilitation failures may not be an appropriate candidate for further service);

- severity of cognitive deficit (research has shown that individuals with very severe cognitive deficits may not benefit from cognitive rehabilitation services (see Appendix B, Review of Research on Cognitive Rehabilitation Programs);

- pre-injury level of functioning (where the individual functioned cognitively before the injury; i.e., if the individual had mental retardation prior to the injury, cognitive rehabilitation could be less effective);

- psychological factors (among other factors, is the individual aware of his or her deficits; does he or she have concurrent mental illness/emotional disorder or other psychological treatment needs that would hinder cognitive rehabilitation efforts at a particular point in time);

- individual's motivation/receptivity to service; and

- individual's prognosis for application of cognitive skills in "real-life" environments (does the client appear to be able to generalize learned skills to new environments)

The Client Assistance Services Manual does not differentiate between the provision of cognitive rehabilitation as a vocational vs. a prevocational service. Individuals who are not yet ready to pursue vocational training, but have an identified vocational goal can receive cognitive rehabilitation as one step in the continuum towards achieving an established employment goal. Individuals who have been accepted for services but who do not yet have an established vocational goal may receive cognitive rehabilitation services if there is a reasonable basis to presume that such services will assist the counselor and client to establish a goal and achieve an employment outcome. Individuals who are undergoing extended evaluation prior to a determination of eligibility for the vocational rehabilitation program may receive cognitive rehabilitation services if such services are deemed necessary to making a determination as to whether an individual's disability is too severe for him or her to benefit from vocational rehabilitation services in terms of an employment outcome.

Avenues for Accessing and Strategies for Providing Cognitive Rehabilitative Services

As noted earlier, agency clients served through the field services program described above and other individuals with brain injury who are not VR clients can receive cognitive rehabilitation services at WWRC or through community-based providers, both residential and outpatient. In Fiscal Year 1993, DRS clients received cognitive rehabilitation services from a total of 10 providers located throughout the state, including WWRC.

Services available at DRS' Woodrow Wilson Rehabilitation Center

WWRC provides cognitive rehabilitation to DRS vocational rehabilitation clients as well as to individuals with brain injury who are not DRS clients. The Center serves individuals who are hospitalized, those coming from the community who do not need or are not ready for vocational rehabilitation services, and applicants for DRS services undergoing extended evaluation to assess their eligibility for services. Cognitive rehabilitation services are coordinated by the Head Trauma Program and may be delivered directly by Head Trauma Program staff or by speech or occupational therapists located in the WWRC Communication Services and Occupational Therapy divisions, respectively.

For example, individuals undergoing acute rehabilitation services in the WWRC hospital division receive cognitive rehabilitation services from the Communication Services and Occupational Therapy divisions. A neuropsychological evaluation usually precedes

initiation of service. Cognitive rehabilitation needs in early stages of recovery primarily involve improving an individual's orientation, basic problem-solving, safety and self awareness, basic memory processes, and activities of daily living. Head Trauma Program staff and neuropsychology staff participate as consultants in this process. These individuals are generally not vocational rehabilitation clients since they would not be considered medically stable.

Outpatients or residents in WWRC medical therapy or vocational programs also access cognitive rehabilitation services through the Communication Services and Occupational Therapy divisions. The specific focus of cognitive rehabilitation activities is determined by the individual's unique needs which are related to the time since injury/illness onset and assessed vocational rehabilitation needs.

Individuals enrolled in the WWRC Head Trauma Program (which consists primarily of post-acute services) receive cognitive rehabilitation services from the cognitive retrainer who is a speech pathologist. The Head Trauma Program has implemented an interdisciplinary brain injury team which develops transdisciplinary cognitive rehabilitation goals; each team member participates in reinforcing the cognitive rehabilitation strategy for the client. Community re-entry staff assess and facilitate generalization of the skills to community settings. The employment counselor does the same in vocational training settings. Co-treatment is provided to develop and implement strategies when the client's needs indicate. Current Head Trauma Program staffing unfortunately does not enable the provision of cognitive rehabilitation services to all individuals in need of such services, including all individuals with a diagnosis of brain injury.

Service Plans and Providers

Services provided through WWRC and other community-based providers are designed to assist individuals to compensate for disability-related deficits such as impairments in attention and concentration, memory, problem-solving, planning, organization, and academic skills. Treatment plans are individualized and based upon an interdisciplinary evaluation of the client's neuropsychological abilities, cognitive-linguistic skills, daily activity functional abilities as well as an assessment of the client's understanding and acceptance of their current limitations and the implications for vocational/independent living reintegration.

Treatment is provided individually by licensed speech pathologists, occupational therapists, and neuropsychologists. Depending upon the problem, treatment may be "process specific" (i.e. focused on attention, memory, problem solving, etc.), focus on the training of functional activities, (e.g., making a meal), or the application of the behavior in a real-life

setting (e.g. paying for a meal in a restaurant). Most treatment plans include all approaches. When appropriate, the generalization of skills to vocational evaluation and training settings is assessed prior to the client entering the vocational phase of rehabilitation. Group and individual therapy are provided to facilitate clients' awareness of cognitive deficits and their potential impact on independent living and vocational reintegration.

Treatment Process and Barriers

Due to the nature of cognitive deficits following brain injury, there are inherent challenges to providing effective cognitive rehabilitation services. Most persons with brain injury are initially unaware of their deficits except superficially; thus, they have limited motivation to engage in treatment and even greater difficulty understanding the relevance of this treatment to the attainment of their vocational and community re-entry goals. This lack of awareness, or anosagnosia, is a significant barrier to treatment and must be targeted for intervention in order for cognitive rehabilitation to be successful. Helping the individual to develop a positive but realistic view of him or herself after the injury is part of this process. Concurrent neuropsychological counseling and interdisciplinary team intervention can assist the individual to perceive his or her problems and help mitigate depression that might ensue with increased awareness of deficits.

Individual therapy typically focuses on a particular cognitive process such as attention and concentration or memory. Exercises and strategies are provided and taught to assist the individual improve the targeted area of cognitive functioning. Concurrently, other team members reinforce the strategies being taught to assess and maximize generalization of skills to real situations. Because abstract thinking and learning are frequently impaired, the ability to generalize what is learned in a therapy session is often limited and must be continuously monitored by the treatment team.

When treatment does not generalize it must be modified or terminated. If traditional methods are terminated (i.e., process specific individual therapy), training the client to function at his or her greatest level of independence in a specific environment/situation is the remaining alternative. For this approach to work, an environment/situation relevant to the client must be available and preferably include community-based supported employment, life skill coaching, and significant family/attendant support. A lack of environmental supports and services in the home community to assist in generalization and maintenance of gains continues to be a significant barrier to successful long-term outcome for persons who receive cognitive rehabilitation services.

There are a number of other obstacles which also present a challenge to the effective delivery of cognitive rehabilitation services leading to successful independent living and

employment outcomes. Among the major obstacles described by Sbordone (1991, (Chapter 9)) are the following:

- Clinicians' poor understanding of brain/behavior relationships (For example, individuals with traumatic brain injury who have frontal lobe disorder may be perceived as depressed or poorly motivated. Thus they may be referred to mental health professionals who not recognizing the frontal lobe disorder may inappropriately treat them with psychotherapy or psychotropic medication, p. 105);

- Ongoing myth that most if not all recovery occurs within the first year post-injury. Sbordone reported on a number of studies that demonstrated continued recovery of and improvement in cognitive, motor, emotional, behavioral and social functioning up to 9 years post-injury. Continued spontaneous recovery can have a major impact on the types of services offered and their effectiveness and rehabilitation professionals must be able to recognize signs of such recovery and plan services accordingly.

- Secondary affective and psychiatric problems that are not addressed. Rehabilitation professionals must be prepared to address secondary disorders that can have a dramatic effect on the individual's ability to gain independence and achieve an employment outcome. Secondary affective disorders can include but are not limited to, substance abuse, depression, fatigue, poor self image, the affects of psychotropic medications, suicidal tendencies, and unrealistic expectations.

- Reliance on traditional intervention methods and over-reliance on neuropsychological test data in planning for cognitive rehabilitation services. Sbordone notes that while neuropsychological tests have traditionally been used to evaluate cognitive functioning, conditions of formal testing may compensate for and/or mask many of the client's functional impairments. For example, the use of clear repetitive instructions may mask an individual's difficulty in task orientation, problem solving, flexibility, and motivation (p. 109). Test scores may not be the best indicator of true cognitive functioning and they also fail to measure the client's ability to generalize newly acquired skills.

- Failure to recognize stages of recovery and provide appropriate intervention in each stage. Recognition of recovery stages is critical to planning effective

treatment since, as Sbodorne notes, each stage of recovery places different demands on the clinician, the individual, and the family (p. 111).

DRS has and will continue to address all of these barriers in a number of ways. An agency-wide restructuring resulted in the establishment of a position in 1992 dedicated to the coordination of brain injury services on a statewide basis. This position, combined with the knowledge and expertise of Head Trauma Program staff at Woodrow Wilson Rehabilitation Center, provides the agency with greater access to current research, specialized information, state-of-the-art technology, and educational and training opportunities for staff in the area of cognitive rehabilitation. In addition, the results of a DRS-administered cognitive rehabilitation pilot project currently underway will facilitate program improvements by demonstrating effective cognitive rehabilitation approaches. Finally, the department will work towards implementing the recommendations emanating from the HJR 573 study in order to further strengthen the delivery of cognitive rehabilitation services to agency clients. This will include strengthening interagency coordination to better serve mutual clients and clients with dual diagnoses, e.g., brain injury and substance abuse or brain injury and visual impairment.

Outcome Evaluation

For vocational rehabilitation clients, DRS defines a successful outcome for individuals receiving cognitive rehabilitation services as the following:

1. The individual has obtained and maintained employment for a minimum of 60 days, including supported employment if this was the agreed upon vocational goal (Note that cognitive rehabilitation would more than likely be provided in conjunction with a number of other services; thus it would be the combination of appropriate services that would be expected to lead to a successful outcome); or

2. The individual who received cognitive rehabilitation as a pre-vocational service or as a component of an extended evaluation program is deemed ready to enter an agreed upon vocational training program; and

3. The individual has demonstrated a measurable improvement in independent living and social skills.

For individuals who are not vocational rehabilitation clients but are receiving cognitive rehabilitation services through WWRC, a successful outcome is attained if the individual's and family's goal has been met. The treatment team is responsible for helping the individual develop realistic goals. If goals are not realistic, the team must assist the

individual to develop goals that are more appropriate. Thus, a successful outcome for one person may be the ability to cue him or herself, with written prompts, to dress each day or perform any other specified activity of daily living. A successful outcome for another person might be higher level retraining that would allow him or her to return to previous employment independently or with minimal job coaching.

Criteria for Terminating Services

Cognitive rehabilitation services are generally terminated when:

1. the individual has met the goals established in his or her IWRP or, for someone who is not a vocational rehabilitation clients, his or her individual treatment plan (e.g., he/she has mastered certain compensatory strategies deemed necessary to achieving employment and/or independent living outcomes); or

2. after a specified period of time, it is clear that the individual is unable to meet intermediate and/or long-term objectives set forth in the IWRP. This includes circumstances in which the individual is unable to generalize treatment to other settings and natural supports in those settings are unavailable making further provision of service fruitless toward reaching the specified vocational or independent-living goal; or

3. the results of an extended evaluation provide clear and convincing evidence that the individual would be unable to benefit from vocational rehabilitation services in terms of an employment outcome; or

4. the individual is unmotivated for treatment; or

5. the individual has severe anosagnosia (i.e., unawareness of deficits) that is not improving with treatment.

Individuals Served in Fiscal Year 1993

Services to vocational rehabilitation clients through providers other than WWRC

In Fiscal Year 1993, the DRS VR field services program served 433 individuals with traumatic brain injury. During that year, DRS provided cognitive rehabilitation services to a total of 15 vocational rehabilitation applicants/clients who sustained a brain injury as a primary or secondary disability. The agency expended a total of $157,753 for cognitive rehabilitation services for these 15 individuals. Costs ranged from $225 for one individual to

$79,600 for an individual placed in an out-of-state program. Excluding the out-of-state case, average cost per individual for cognitive rehabilitation services for Fiscal Year 93 was $5,584. These services were provided by nine community-based providers in Virginia and one out-of-state program.

Services to VR clients and other individuals provided through WWRC

In Fiscal Year 1993-1994, approximately 24 percent of all services provided by the Head Trauma Program were cognitive rehabilitation services. During that year the HTP provided cognitive rehabilitation services to 138 individuals. The average individual received 8-1/2 hours of cognitive rehabilitation services; total cost to the program was $47,667. Individuals included in this total were either hospital patients, outpatients, or residents of the cognitive rehabilitation dormitory at WWRC. The number of individuals served who were vocational rehabilitation clients was not available (see following section on data limitations). As the table below indicates, dormitory residents received the greatest amount of cognitive rehabilitation services.

Table 1: Cognitive Rehabilitation Services provided through the WWRC Head Trauma Program

Type of Resident	Number of Persons Receiving Services	Average Hrs of Therapy
Hospital patient	9	20 minutes
Outpatient	73	36 minutes
Cognitive Rehab. Dormitory Resident	56	20 hours

In addition to individuals served through the Head Trauma Program, in Fiscal Year 1993, 118 individuals received cognitive-linguistic services provided by a WWRC speech language pathologists in the Communication Services Division. The 118 individuals included vocational rehabilitation clients and individuals receiving services on an out-patient basis. Individuals received an average of 12 hours of therapy.

The Occupational Therapy Division provided 1,353 hours of individual therapy services which included cognitive rehabilitation. Total cost of individual services in Fiscal Year 1993 was $28,997. In addition, 56 hours of group therapy were provided at a total cost of $1,090. Information on the number of individuals who received these services was not available.

Fiscal Year 1993 Outcome Data

Data Limitations

A number of barriers and data limitations currently prohibit effective analysis of long-term outcome/benefit for individuals who have received cognitive rehabilitation services. DRS tracks its clients through the Vocational Rehabilitation Information System (VRIS) which provides basic status and demographic information about agency clients, from application to case closure. The system utilizes the federal coding structure mandated by the Rehabilitative Services Administration. Until 1993, no disability codes specific to traumatic brain injury existed. Instead individuals were coded into the system by the results of their disability, i.e., visual impairment resulting from traumatic brain injury. Thus, it was impossible to determine how many individuals had a primary or secondary disability of brain injury. New federal codes, implemented by DRS in July 1993, specify traumatic brain injury as a specific disability with resulting impairments. Thus an individual would now be coded as having traumatic brain injury resulting in orthopedic impairment, visual impairment, etc. Unfortunately there is not a specific code for cognitive impairment; individuals whose primary impairment is cognition are coded under the category "all impairments not otherwise specified." As a result, DRS cannot effectively determine how many clients or applicants for services have cognitive deficits as a primary impairment.

A second barrier is that state vocational rehabilitation programs do not typically track long-term outcomes for their clients. Thus, data on DRS clients who received cognitive rehabilitation services is not available beyond case closure, i.e., the time at which a client exits the vocational rehabilitation system. VRIS does indicate the last known status of agency clients' using codes dictated by the federal Rehabilitative Services Administration. Outcome information was not available on individuals who received cognitive rehabilitation services through Woodrow Wilson Rehabilitation Center because the Center is in the process of computerizing its client databases.

Client outcomes

The following information was available on the 15 individuals provided cognitive rehabilitation services during Fiscal Year 1993 through providers other than WWRC.

- Three individuals are employed. Two of these individuals are coded as Status 26, meaning that their case was successfully closed after 60 days of continuous employment. The third individual's case is still open.

- One individual is coded as Status 20, Ready to Work, but is not yet employed.

- Three individuals are currently receiving vocational rehabilitation training services.

- One person is receiving physical restoration services; one person is in counseling and guidance status.

- One individual is receiving cognitive rehabilitation as a pre-vocational service and is currently in the plan (IWRP) development stage.

- DRS closed the cases of five individuals after application, evaluation, or development of the rehabilitation plan as unsuccessful. This includes individuals who are determined ineligible for DRS services or whose cases are closed before initiation of IWRP services.

Virginia Cognitive Rehabilitation Pilot Program

The Cognitive Rehabilitation Task Force recommended the establishment of a cognitive rehabilitation pilot project to strengthen services to persons with brain injury. The Department of Rehabilitative Services is administering this program, originally funded by the 1993 General Assembly as a one-year pilot project.

The purpose of the project is two-fold: it provides a method for insurance providers and state agencies to collaboratively test the effectiveness of cognitive rehabilitation in assisting persons with brain injury to live and work in the community. In addition, the project will demonstrate a model for the purchase and delivery of cognitive rehabilitation services. During its first year of operation, the project will serve six individuals with brain injury. Each participant will receive an average of six months of service. The first participant entered the program in March 1994.

Through this program, the cognitive rehabilitation provider, participant, and project staff will collaboratively identify goals and time frames for services. Each participant will receive case management and neurological oversight from professionals who are independent of the cognitive rehabilitation provider. Case managers will meet regularly with providers to monitor participant progress. Cognitive rehabilitation services will include community living skills instruction.

Staff will use case studies, demographic information, and functional assessments to determine participant outcomes. These assessments will include a community integration scale and a "return to normal living" index. Participant success will also be measured by an assessment of each participant's ability to move to a more independent living situation or

continue in a rehabilitation plan that could include a return to school, vocational training, or job placement.

Current Cognitive Rehabilitation Funding Sources in Virginia

As noted in the introduction to this study report, there is limited funding available to pay for cognitive rehabilitation services for individuals with brain injury. Sources which may fund this service (subject to various criteria and limitations) include private insurance, Medicare, Medicaid, Workers Compensation, patient self-payment, and state agency or local agency sponsorship for eligible individuals (DRS, DVH, local education agencies). Cognitive rehabilitation services for eligible DRS clients with no similar benefits (i.e., insurance or Medicaid) are funded through a combination of federal (Title I and Title VI-C) and state funds.

To acquire a clearer picture of who was paying for cognitive rehabilitation services for individuals who were neither vocational rehabilitation clients nor receiving services through WWRC, DRS surveyed 35 facilities throughout the state. These facilities were known to provide cognitive rehabilitation services; most are Medicaid-approved providers. The survey assessed (1) the number of individuals served by each facility within the last fiscal year; (2) the average cost of services per client; (3) the average hours of therapy per client; and (4) principal payment sources. Twelve responses were received, a response rate of 32.5 percent.

An analysis of the data on Table 2 shows that the 12 respondent facilities provided cognitive rehabilitation services to over 850 individuals at an average cost of $3,925 per individual. The average range of costs was a low of $255 to a high of $15,656 at a residential inpatient rehabilitation facility. Individuals received an average of 24.7 hours of therapy (with a range of 2 hours/individual to 116 hours).

Table 2 also illustrates principal payment sources for this service. Approximately one-third of cognitive rehabilitation services offered by the 12 respondents were paid for by private insurance; 15.7 percent were paid by Medicaid. A little over 12 percent of services were covered by Workers Compensation while patients and their families paid for less than 2 percent of services. The figures regarding payment by Medicare are somewhat misleading because several providers included Medicare-paid costs in the "other" category, which also included indigent care and provider financial assistance; one provider included Medicare-paid costs in the "private insurance" category. Thus, Medicare can be assumed to have paid anywhere from 20 to 30 percent of cognitive rehabilitation costs for individuals served by the respondent providers. Only one provider listed DRS as a payment source for individuals served in the last fiscal year.

TABLE 2
PRIVATE PROVIDER SURVEY

Number Receiving Services	% of Persons with TBI	% Stroke Persons w/ Stroke	% Other Condition	Ave. Cost of Services/ Client	Ave. Hrs. Therapy/ Client	% Paid by Private Insurance	% Paid by Medicaid Dollars	% Paid by Workers Comp.	% Paid by Patient/ Family	% Paid by Medicare	Other Payment Sources
25	90	10		$3,496	36	30	29	40	1		
210	68	22	10	2,000	15	8	63	11	5		17*
229	17	82	1	255	1.97	70**	25	5			
60	15	85		4,000	52	10	10		10	70	
	15	85			11	12	2	2		84	
32	44	31	25	3,886	28	60					DRS-40
	8	80	12		4	21	9				70**
	30	60	10		4	40	6	4			50**
83	53	36	11	606	5	78		20	2		
30	75	20	5	1,500	3.5	30	10	60			
92	5	65	30	15,656	116	25	5	5		65	
100	80	10	10		20	20	30	5	5	30	10**

* Includes financial assistance from provider **Provider included costs paid by Medicare

Total Persons who rec'd svs.	Average % with TBI	Average % with Stroke	Average % Other Condition	Total Average Cost	Total Ave. Hrs. Therapy	Average % Paid by Insurance	Average % Paid by Medicaid	Average % Paid by WComp	Average % Family Payment	Average % Medicare Payment	Average % Other Payment
861	41.7	48.8	9.5	$3,925	24.7	33.6%	15.7%	12.6%	1.9%	20.7*	15.5%*
n=9	n=12	n=12	n=12	n=8	n=12	n=12	n=12	n=12	n=12	n=12	n-12

Percentage of costs paid by Medicare are higher than they appear since several providers asterisked above included costs paid by Medicare in the "private insurance" and "other" categories. Average cost paid by private insurance is up to 3 percent lower than the figure listed above since one provider included Medicare-paid costs in this category. Note, where "n" is less than 12, providers did not furnish information specific to a particular question.

While it might appear from the figures reported in Table 2 that payment for cognitive rehabilitation services is not as limited as indicated in this and other studies, note that 9 of the 12 respondents (75%) reported that the services were not billed as cognitive rehabilitation but were billed by the individual discipline of the provider, i.e., psychological, speech, or occupational therapy services. Only three providers indicated that services are billed either by individual discipline or as cognitive rehabilitation services. These results, while not considered statistically significant due to the low number of completed surveys, nonetheless reflect several important issues. First, cognitive rehabilitation is rarely funded, either publicly or privately, as a separate, reimbursable service or therapy during the post-acute stage of brain injury (the time during which an individual may benefit the most from cognitive rehabilitation). Instead, cognitive rehabilitation is incorporated into other treatment modalities and billed as such to insurance companies. Unfortunately, this makes it difficult to obtain a true picture of the scope of services in Virginia. For example, is an individual receiving speech therapy with a cognitive component or is a speech therapist providing cognitive rehabilitation services? The answer may vary from therapist to therapist or even session to session, depending upon the provider.

There are clearly payment barriers relating to the provision of cognitive rehabilitation services as a separate reimbursable service. Until these barriers are eliminated, providers will continue to bill for services which may or may not be cognitive rehabilitation as defined in this study report. It is essential that cognitive rehabilitation be recognized as a separate reimbursable therapy during all phases of recovery from a brain injury. Ultimately this will allow individuals with brain injury to receive treatment and rehabilitative services that will facilitate their recovery and for many individuals, their return to the community and the workplace. It will also increase the ability of public and private funding sources to monitor and evaluate the services for which they are paying.

Emerging Issues

In addition to clinical, funding, and programmatic barriers to providing effective cognitive rehabilitation services (see Also Appendices A-C), a number of additional issues will continue to effect the delivery of cognitive rehabilitation services to individuals with brain injury, including vocational rehabilitation clients. These emerging issues include the following:

- Inadequate interagency coordination regarding services to individuals with brain injury, particularly those with dual diagnoses of brain injury and visual impairment, mental health impairment, or substance abuse;

- Lack of a recognized discipline in cognitive rehabilitation (e.g., because of insurance payment restrictions, services are generally billed as occupational, speech, or psychological services) and therefore no statewide standards and guidelines for providers of cognitive rehabilitation. Clients and purchasers of this service may have difficulty comparing services offered by one provider to services offered by another. This issue relates back to the question discussed earlier as to how, for example, one can determine whether an individual is receiving cognitive rehabilitation services delivered by a speech pathologist or speech therapy with a cognitive component. Both the Task Force on Head Injury of the American Congress of Rehabilitation Medicine and the Society for Cognitive Rehabilitation have drafted standards for provision of this service; DRS will continue to monitor the work of these two organizations as well as other professional organizations seeking to recognize cognitive rehabilitation as a legitimate treatment separate from speech, occupational, and psychological therapy disciplines;

- Lack of counselor/case manager knowledge, training and education regarding the appropriate use and value of cognitive rehabilitation services as evidenced by the fact that out of 435 VR clients with brain injury in Fiscal Year 1993, only 15 (3%) received this service rather than the 65 (15%) projected to be able to benefit from cognitive rehabilitation. In its 1993 Brain Injury Services Expansion Study DRS estimated that a minimum of 15 percent of the 10,500 who sustain a brain injury each year could benefit from cognitive rehabilitation services.

- Inadequate data systems within and between state agencies to track long-term outcomes for clients who receive cognitive rehabilitation as either a prevocational or vocational service.

Recommendations

There are a number of recommendations which would enhance the provision of cognitive rehabilitation services to Department of Rehabilitative Services clients. The agency supports the provision of cognitive rehabilitation services to appropriate individuals, including those individuals who require this service on a prevocational basis. As noted in Section II above, DRS has projected that approximately 15 percent of the 10,500 individuals in Virginia who sustain a brain injury each year could benefit from cognitive rehabilitation services. Extrapolating to actual agency clientele, in 1993, 15 percent of the agency's 435 clients with brain injury (65 individuals) could have benefited from receiving this service.

Only 15 of these individuals actually received such services during Fiscal Year 1993 (3%). At the current average cost of $5,584 per client, the agency projects an additional annual expense of $279,200 to serve 50 more individuals. This amount can be absorbed by the Department's current appropriation. This extrapolated figure includes only persons served through the DRS VR field offices, not individuals served through WWRC, other agencies, or those who remain unserved.

To effectively provide cognitive rehabilitation services to individuals with brain injury, agency recommendations encompass policy changes, funding considerations, outcome studies, monitoring/tracking mechanisms, and quality control provisions. In most cases, these recommendations represent an expansion of current practices and services rather than new developments. Recommendations include the following:

1. Based on existing efforts and models, educate an increasing number of counselors, vocational evaluators and other staff, both VR field services and WWRC, about the role and value of cognitive rehabilitation services to individuals with brain injury.

2. Develop policy and procedures for the purchase and evaluation of cognitive rehabilitation services which will assist counselors and other appropriate staff to

    - identify appropriate candidates for prevocational or vocational cognitive rehabilitation services;

    - utilize and promote an interdisciplinary approach to decision-making, program planning, and program implementation;

    - specify conditions of DRS sponsorship/limitations on service provision, including sponsorship of in-state versus out-of-state cognitive rehabilitation services;

    - develop IWRPs which identify cognitive goals, time frames for meeting goals, and cognitive criteria for terminating cognitive rehabilitation services;

    - measure client progress toward meeting goals and monitor service provision;

    - ensure appropriate coordination between hospital-based (acute) and rehabilitation facility or community-based (post-acute) cognitive rehabilitation services.

3. Evaluate results of the Cognitive Rehabilitation Pilot Program and modify DRS policies, procedures, and practices as necessary to ensure effective service delivery to individuals with brain injury.

4. Expand the current pool of qualified providers by identifying current and potential providers through a statewide survey of neuropsychologists, speech-language pathologists, and occupational therapists. This would facilitate increased statewide access to cognitive rehabilitation services. It would also ensure greater client and counselor choice of provider and type of service.

5. Collaborate with the Commonwealth's Individual and Family Supports Task Force to develop a statewide Medicaid waiver for individuals with brain injury. This waiver will redirect Medicaid funds to allow services to be provided in community-based settings rather than in nursing facilities. This would have a positive impact on individuals with brain injury since it would facilitate rehabilitation and recovery in a more normalized environment.

Agency Response to HJR 573

Department of Mental Health, Mental Retardation, and Substance Abuse Services

The directive given by HJR 573 to DMHMRSAS states that the department "shall explore the feasibility of recognizing cognitive rehabilitation as a pre-treatment modality of services for persons with the dual diagnosis of brain injury and mental illness, mental retardation or substance abuse." Three components were studied and reported: These were: (a) The current status of cognitive rehabilitation services provided by DMHMRSAS; (b) Considerations in the provision of cognitive rehabilitation services; and (c) Emerging issues in the provision of cognitive rehabilitation services.

Current Status of Cognitive Rehabilitation Services in DMHMRSAS

Cognitive rehabilitation services are not provided directly by the Department of Mental Health, Mental Retardation and Substance Abuse Services. The primary role of the department is to work collaboratively with other agencies to refer consumers and their families to appropriate services. Therefore, the Department will: (a) Identify at intake the existence/non existence of a traumatic brain injury; (b) Ensure that Case Managers understand the condition and initiate appropriate referrals; and (c) Integrate current DMHMRSAS service to ensure holistic treatment.

Data/tracking issues

Initial attempts to retrieve client data through automated means were marginally successful. Existing data elements do not include traumatic brain injury specifically. Related physical conditions are assessed at intake, however, the treatment taxonomy does not include this condition. Knowledge of consumers having a traumatic brain injury was primarily reported based on direct case manager experience with specific consumers. When information was retrievable through automated means the volume of cases reported and methods of analysis were suspect in validity.

Number of individuals served by DMHMRSAS

An assessment of current consumers being served by DMHMRSAS was conducted through phone surveys of the 40 Community Services Boards and public facilities operated by the department. The purpose was to assess the number of consumers having a dual diagnosis of traumatic brain injury in addition to the existing mental health, mental

retardation or substance abuse diagnosis. Two additional pieces of information were requested regarding the current provision of cognitive rehabilitation services and the current cost of such services.

The work group definitions of traumatic brain injury and cognitive rehabilitation Services were used to classify the number of consumers potentially needing cognitive rehabilitation services based on a traumatic brain injury and to assess the extent to which these services are currently provided. Attempts were made to retrieve the information through the Automated Management information system, (ICDE) in conjunction with anecdotal reports from CSB program staff.

Results of the analysis are based on 48 responding service providers indicating a response rate of 92.3 percent. Data indicate the number of consumers with dual diagnosis. Responses by type of organization can be seen in Table 1. Automated data proved unreliable and direct staff reporting was used.

TABLE 1: DMHMRSAS SURVEY RESPONSES

ORGANIZATION	TOTAL INDIV.	MH/ TBI	MR/ TBI	SA TBI	UNSPEC/ TBI
CSB's	123	23	41	3	56
MH FACILITIES	31	31	-	-	-
MR TRAINING CENTERS	11	-	11	-	-
TOTALS	156	54	52	3	56

Significant findings from the consumer survey

- Variations in interpretation of definition and identification of consumers having dual diagnosis.
- The Individual Client Database does not consistently reflect existence of the condition.

- While providers currently provide habilitation and training in cognitive development, it does not meet the strict definition of cognitive rehabilitation.

- Due in part to differing definitions and cost reporting methodology, cost factors are not delineated in such a way as to capture the individual service costs for cognitive rehabilitation.

Agency/provider criteria for providing cognitive rehabilitation

The Code of Virginia specifies the populations to be served by state hospitals, training centers and Community Services Boards. Individuals who evidence cognitive deficits due to head injury that occurred during the developmental period (prior to age 18) may be classified as having mental retardation and may be eligible to receive MR services. Those who sustain a head injury after the developmental period are not eligible for MR services. Since cognitive rehabilitation services are outside the scope of services provided by DMHMRSAS and the CSBs, there are no established criteria for providing cognitive rehabilitation within the department.

Definition of successful outcome

A successful outcome for services is defined as the consumer reaching his/her maximum potential for independent functioning in the least restrictive setting available. The optimal outcome is reintegration into the normal culture with natural support systems and the demonstrated ability to function independently.

Summary of current practices

Consumers eligible for services by DMHMRSAS receive services as prescribed by an individual treatment plan developed through an interdisciplinary team of professionals. Progress in treatment is monitored on a regular basis with modifications in treatment driven by these data. Where appropriate, referrals are made for other services across agencies to meet specific needs. cognitive rehabilitation as defined for purposes of this study is not an element in the current taxonomy.

Considerations in the Provision of Cognitive Rehabilitation Services

Role of DMHMRSAS

The appropriate role for DMHMRSAS is in the identification, referral and collaborative treatment of consumers with dual diagnosis of mental illness, mental retardation or substance abuse with a traumatic brain injury. Initial assessment at intake will identify dually diagnosed consumers who could potentially benefit from cognitive rehabilitation services. The Department of Mental Health, Mental Retardation and Substance Abuse Services with the CSB's refer these individuals to the agency deemed appropriate to provide this service. Joint case management and treatment plan development would be necessary in order for the DMHMRSAS services to link with proposed cognitive rehabilitation services. Treatment providers would be incorporated into the treatment planning process to insure cost effectiveness and non-duplication.

Expansion of services

Criteria for who should receive the service, provision of the service and any limitations placed on the service would need to be developed by the provider. There is not sufficient consumer data at this time to project these criteria. The refinement of the identification process would produce a more realistic baseline of potential consumers.

Service demands at present are pressuring existing systems both financially and in terms of the systems capacity to meet existing needs. Expansion of the service system would require creation of funding sources, changes in existing regulations, and staff training to support the additional needs of this population. The number of individuals who could benefit from the inclusion of cognitive rehabilitation is undetermined due to the fact that having a traumatic brain injury does not in itself suggest benefit from cognitive rehabilitation services. Many other variables determine the potential for benefit. Time since injury, type of injury and degree of trauma are just a few determinants of eligibility and predicting potential benefit.

Emerging Issues

Quality control

Some definitions of cognitive rehabilitation specify the controlled delivery of these services through a neuropsychologist, occupational therapist or speech pathologist. While this is an attempt to protect and insure quality service, these particular disciplines are

experiencing great difficulty in meeting existing demands for service. Further work is needed to develop regulations and credentialing for providers of cognitive rehabilitation. A possible alternative is language allowing the delivery of such a service "under the supervision of" a member of one or more of these disciplines. There may also be other disciplines not recognized by the professional community that could potentially provide the service, or a portion thereof, given additional training. Individuals already working in these and other disciplines may or may not have current training in this service modality.

Service coordination

Existing referral systems exist between agencies for the provision of services. Dually diagnosed individuals present a special challenge to human service providers. Historically each agency has served it's defined constituency. However, there is an increasing level of participation developing across agencies in an effort to meet the needs of non-traditional cases. Consumers needing multiple agency support could be referred to an interagency council for review and collaboration of service delivery.

Identification of population

Management Information Systems across providers differ in their codes and methods of identifying specific diagnosis. Agreement of diagnosis and reference codes within each database must be reached in order to consistently identify consumers who could potentially benefit from the service. This could be achieved through a multi-agency work group to isolate department codes across databases, e.g. DSM3-R, ICD9, PRAISE, IDEA, ICAP, ICDE.

Training/education

Training in the identification of traumatic brain injury is necessary at the provider level in order to initiate the process of service development. This would allow case managers and intake personnel to refer the consumer to the relevant provider for further determination as to the potential benefit of cognitive rehabilitation.

Funding issues

Current payment is established through the Department of Medical Assistance Services for the neurological components of cognitive rehabilitation. Psychological and behavioral services are not included in current payment structures. This would need to be modified in order for the service to be fully provided.

Cost of service

Costs of service are not available from DMHMRSAS since this service component is not included in the Core Services Taxonomy.

Conclusions and Recommendations

DMHMRSAS recognizes the existence of consumers within the service system who have a dual diagnosis of traumatic brain injury and a presenting diagnosis eligible for treatment by this agency. The role of this department in improving service sensitivity will be in the area of identification and service coordination with the agency(ies) identified to provide cognitive rehabilitation. This formally would be accomplished by modifying databases to capture those individuals who might benefit from cognitive rehabilitation and initiating referrals for service. Inclusion of providers in the interdisciplinary process would insure contiguity and integration of services.

The current demand for cognitive rehabilitation is undetermined as are the costs associated with providing such a service. Further study is required to better delineate service need to develop a proper program structure. Improvements in staff knowledge base and documentation systems will provide more stable data for future planning. The provision of cognitive rehabilitation services is outside the service array of DMHMRSAS. However, increased collaboration with agencies and providers will enhance access of our consumers to these developing services. While the DMHMRSAS has identified a number of individuals with a traumatic brain injury history, the need for cognitive rehabilitation services for these individuals has not been determined. The existence of a traumatic brain injury does not in all cases call for cognitive rehabilitation. While the actual number of consumers identified is relatively small, the area deserves more study and development across agencies. The following is recommended:

1. Establish a multi agency task force to review existing data codes for traumatic brain injury and develop new coding systems where necessary to account for consumers needing service.

2. Perform a Training Needs Assessment across providers to determine the types of training and technical assistance needed to address services to this population.

3. Establish a specific referral system for insuring multi-agency collaboration for service delivery to potential consumers

Agency Response to HJR 573

Virginia Department for the Visually Handicapped

The Virginia General Assembly, through House Joint Resolution 573 directed the Virginia Department for the Visually Handicapped to "explore the feasibility of recognizing cognitive rehabilitation as an acceptable training modality of pre-vocational services for clients with concomitant visual impairment and brain injury", and to submit study results to the Secretary of Health and Human Resources by July 1, 1994 (HJR 573).

The following report will: (a) show that the Virginia Department for the Visually Handicapped does recognize cognitive rehabilitation as an acceptable training modality of pre-vocational services for clients with visual impairment and brain injury; (b) describe the conditions, regulations and policies under which the Department currently provides this service; and (c) make recommendations for improvement of cognitive rehabilitation services provided by the Agency.

Eligibility Criteria

The mission of the Virginia Department for the Visually Handicapped (VDVH) is to enable Virginians with visual disabilities to achieve their maximum level of independence and participation in society. The department provides services to all persons who meet the criteria for visual eligibility:

- persons having a visual acuity of 20/200 or less in the better eye with correction or a field restriction of 20 degrees or less in the better eye;

- persons having a visual acuity between 20/100 and 20/200 in the better eye with correction or a field restriction of 30 degrees or less in the better eye if the person has been unable to adjust satisfactorily to his/her loss of vision and if it is felt that the person should have specialized services available through the Department;

- persons having night blindness or a rapidly progressive eye condition which, in the opinion of a qualified ophthalmologist, will reduce his/her distance vision to 20/200 or less or 20 degrees or less;

- persons for whom eye treatment and/or surgery are recommended regardless of the visual acuity.

Programs and Services

Specialized training programs and services are available through the Department to assist persons who are blind or visually impaired in achieving their maximum level of independent functioning. Programs and services include Vocational Rehabilitation (VR) Services, Rehabilitation Teaching/Independent Living (RT/IL) Services, Virginia Rehabilitation Center for the Blind (VRCB), Program for Infants, Children and Youth (PICY), Instructional Materials and Resource Center (IMRC), Library Services, Virginia Industries for the Blind--Richmond, Charlottesville, (VIB), Vending Facilities, Low Vision Services, Deaf-Blind Services, Intake Services and Volunteer Services.

Federal legislation makes funds available for operation of the Vocational Rehabilitation and Independent Living Programs. In order to receive federal funds, a state must commit funds for the program to match federal funds. The state, by accepting federal funds, assumes responsibility for operation of the programs within the framework of federal laws. Among these are the Rehabilitation Act of 1973, as amended, the Civil Rights Act of 1964, and the Americans with Disabilities Act of 1990. Clients served by VDVH who need cognitive rehabilitation services are most frequently funded by one of these two programs.

Vocational rehabilitation services:

An individual may be deemed eligible for VR services if the individual has a disability that requires vocational rehabilitation services to prepare for, enter, engage in, or retain employment. The physical or mental impairment must constitute or result in a substantial impediment to employment, and seriously limit the individual in one or more functional capacities for an employment outcome.

Medical, psychological, educational, functional, social, and vocational evaluations that have been obtained may assist the VR counselor in determining whether or not the applicant meets the criteria to be eligible for services. The counselor must also consider the applicant's potential to benefit from rehabilitation services.

Cognitive rehabilitation services are included under the category of physical or mental restoration services. These are medical and medically-related services which may, within a reasonable period of time, be expected to remove or substantially reduce/stabilize the

handicapping effects of a physical or mental condition. Physical or mental restoration services must be provided by licensed medical practitioners and payment for services will only be approved after a determination has been made as to what other resources will pay (Medicaid, Medicare, Other Insurance).

The VDVH typically measures the success of clients served under the VR program as achieving a successful outcome when, it has been determined under documentation that, the services rendered to the individual under the Individual Written Rehabilitation Plan (IWRP) has a substantial impact on the client's job, that the individual obtained his/her vocational goal, or the individual has been determined to be suitably employed for a minimum of 60 days. (Vocational Rehabilitation Policies and Procedures Manual).

Rehabilitation teaching/independent living services:

To be eligible for rehabilitation teaching/independent living services with VDVH, a client must have a visual disability which, for that individual, constitutes a substantial impediment to personal independent functioning. The Rehabilitation Teaching/Independent Living Program can purchase cognitive rehabilitation services for clients to determine their eligibility for services and to provide short-term evaluation and training for clients who have the potential to improve their independent functioning within their home and community environments and to improve their potential to become employed.

Clients served under the RT/IL Program have achieved success when the client has completed the teaching program insofar as possible and a major change has occurred in the client's ability to perform daily tasks formerly difficult or not possible due to visual loss or other disabilities or the services have assisted the client in accomplishing as much as possible in the present circumstances. (Rehabilitation Teaching Policies and Procedures Manual).

Since October, 1993, the Department no longer receives the federal grant for Independent Living Services, which in the past paid for cognitive rehabilitation services. The Rehabilitation Teaching/Independent Living Program for 1993-94 has a limited amount of general fund dollars which is divided among six regional offices and is most frequently used for adaptive equipment that enables clients to live independently. If RT/IL clients have the potential to become employed, services between the VR and RT/IL programs can be coordinated, however. Under the coordinated program, VR could fund needed cognitive rehabilitation services.

Virginia Rehabilitation Center for the Blind:

The Virginia Rehabilitation Center for the Blind (VRCB) provides intensive counseling, independent living training, and other pre-vocational services to enable visual impaired and blind individuals, along with other disabilities, to attain optimum personal, social, and/or vocational independence (VRCB Trainee Handbook). The various Center programs focus primarily on adjustment training, although within the last two years, the Center has developed a Customer Service Training Program and a Pizza Hut training program, which prepare clients for these two specific jobs. Most clients who come to the Center are referred from the VDVH rehabilitation counselor or rehabilitation teacher and continue to be funded under those two programs, with VR priority. Therefore, cognitive rehabilitation services may be arranged by Center staff while persons are receiving other services at the Center, but are purchased primarily through the VR programs using allocated federal funding.

VRCB measures the success of clients attending the Center using the functional rating scale, a tool used to document the ability of clients to independently perform skills in the various training areas prior to, during, and after training. Documented improvements in the functional ability of clients to perform tasks, depending on the individuals' goals, are considered to have attained some degree of success. VRCB also utilizes a client exit interview to determine client satisfaction with their training. Most clients who make recognizable achievements towards their goals feel they have been successful in their training program.

Criteria for terminating services

Generally, any services, including cognitive rehabilitation services, provided through the VR program, the RT/IL program, or VRCB are terminated when it has been determined through written documentation that:

- an evaluation of vocational potential has been received;
- counseling and guidance with one or more other services have been provided;
- services rendered under the IWRP had a substantial impact on the client's employment or independent living potential or job;
- vocational goals have been obtained; or
- no further progress can be made.(VR Policies and Procedures Manual)

Status of Current Cognitive Rehabilitation Services:

Because of its consistency with the literature, VDVH accepts the definition of cognitive rehabilitation used by the study group and included in Section II of this study report.

VDVH currently provides cognitive rehabilitation services using the general criteria for providing VR services, for defining a successful outcome, and for terminating VR services. The Agency has no other written criteria which defines or establishes criteria for cognitive rehabilitation as a separate entity. VDVH staff depend on the evaluation of other professionals (licensed neuropsychologists, occupational therapists, and speech therapists) as well as recommendations from other agencies, with whom services are being coordinated, such as DRS or WWRC, to assist in determining the need, defining success or terminating services, for cognitive rehabilitation and other brain-injury related services.

Through the cooperative agreement between the Department of Rehabilitative Services (DRS) and the Virginia Department for the Visually Handicapped, VDVH is responsible for referring clients to DRS when the primary disability is other than blindness or deaf-blindness (including brain injury) and individuals need the specialized services provided by DRS counselors or other specialized staff. VDVH is also responsible for accepting referrals from DRS for clients whose primary disability is visual impairment/blindness. Further, the cooperative agreement states that DRS and VDVH will work together to determine appropriate services, maximize client placement, staff cases of persons who are jointly served with multiple or severe disabilities, provide staff training opportunities and continue the interagency team to strengthen services with concomitant traumatic brain injury and visual impairment (TBI/VI). (VR Policies and Procedures Manual). Frequently, cognitive rehabilitation services may be provided to clients by DRS prior to referral to VDVH or at the same time services are being provided by VDVH, since the cooperative agreement allows cases to be open to both agencies at the same time.

The VDVH purchases cognitive rehabilitation services from other agencies and private vendors after it has been determined what other funding sources will pay. Community-based providers are utilized in the locality where the client is currently receiving services. The cooperative agreement with DRS also allots for $85,000 worth of services that can be provided to VDVH clients at WWRC during FY 1993, which includes the Head Trauma Program and cognitive rehabilitation services.

TBI/VI survey results:

The Traumatic Brain Injury/Visually Impaired Service Team, consisting of members from DRS and VDVH completed a study in December 1992 that attempted to identify the number of brain-injured/visually impaired clients served by the two agencies for one year. In that study, which identified cases from March 1, 1991 through February 29, 1992, VDVH served 106 brain injured/visually impaired clients. Approximately 10 percent of the VDVH cases received cognitive rehabilitation services. The study indicated other services purchased by VDVH which could have included some cognitive remediation, such as occupational therapy, speech therapy, and WWRC services. Had those services specified any cognitive rehabilitation services included, statistics for cognitive rehabilitation services could have been significantly impacted. In that same study, 32 percent of the 806 brain injured/visually impaired identified by DRS received cognitive remediation. According to the survey, "...surveys recorded information for the TBI/VI population only and numbers for services to brain injured cases in general are not included; therefore, statistics for the 806 brain injured clients served by DRS would ultimately be higher." (TBI/VI Service Team Report).

Agency Survey of Cognitive Rehabilitation Services for 1992-93:

The agency does not have an automated system of recording or retrieving data regarding cognitive rehabilitation services, since they are included under the category of physical/mental restorative services. As a result of the TBI/VI study, VDVH will be able to retrieve the number of traumatically brain-injured/visually impaired clients served at the end of FY 1993-94 for the first time. For the purposes of this feasibility study, it was necessary to survey vocational rehabilitation counselors and rehabilitation teachers in the six regional offices, and request that they perform a case-by-case review.

Results. The survey was mailed to 24 rehabilitation teachers and 18 vocational rehabilitation counselors in the six regional offices in the state of Virginia. VDVH had a 100 percent response to this survey. The following information was revealed through the responses:

- During FY 1992-93, 21 VDVH clients received cognitive rehabilitation services.

Individuals Receiving Cognitive Rehabilitation Services in FY 1993 by Regional Office:

Regional Office	Numbers receiving service	Disability in addition to blindness	Cost Authorized by VR	Cost Authorized by IL Grant	Hours of Cognitive Rehab	Providers	Disciplines of Providers	Number of Clients Unable to Provide Cog. Rehab. FY 93	Number of Clients Unable to Provide Cog. Rehab. FY 94
Bristol	0							1	
Fairfax	0								1
Norfolk	2 1	TBI TBI	$2000. $1600. 0			Riverside Hospital Head Trauma Rehab\ Hampton Roads	 Neuropsych.		
Richmond	0								2
Roanoke	3 2 5	TBI, CVA TBI TBI, CVA	$500. $3500.	$200.	30	WWRC WWRC WWRC	All 3	 2 3	 1 1
Waynesboro	1 5 2	 CVA CVA	0 0 cost covered by individuals	$162.52 (others not finan. elig.	1 80 100	UVA Neuropsych	Neuropsych. OT All 3		
Totals	21		$7600.00	$362.52	211			6	5

- VDVH paid for some or all the services for 11 of those clients with federal VR ($7600.00) or Independent Living Grant ($362.52) monies. In those cases, the costs of cognitive rehabilitation services covered by other resources prior to VR or covered through the cooperative agreement were not identified. For the remaining 10 cases, some costs were covered by the individuals themselves or funding sources were not identified.

- At least 211 hours of cognitive rehabilitation hours were provided to these clients, but some respondents were not able to identify the hours. Of the 211 hours identified, total costs covered by VDVH were significantly lower than customary service costs for the number of hours.

- Providers for cognitive rehabilitation included WWRC, Riverside Hospital, Head Trauma Rehabilitation of Hampton Roads, and UVA.

- No cognitive rehabilitation services were provided to clients in the Bristol, Fairfax or Richmond regions, although each of those regions had identified clients who needed the services VDVH was unable to provide.

- The Roanoke and Waynesboro regions (located closer to WWRC) provided cognitive rehabilitation services to 18 out of the 21 clients.

- Disciplines of providers included only neuropsychologists, occupational therapists, and speech therapists.

- Six clients were identified as needing cognitive rehabilitation services that VDVH could not provide in FY 1993 and five clients were identified in FY 1994. All of these were served under the rehabilitation teaching/independent living program, which operated with limited general fund dollars.

- All criteria for determining the need for and terminating cognitive rehabilitation met the general VR criteria for providing and closing services, but was different for each individual respondent.

Survey conclusions: Conclusions which could be drawn from the results of the survey and the overall feasibility study for VDVH include the following:

- Through federal funding for VR clients and the cooperative agreement with DRS (providing WWRC is able to accept all visually impaired/blind clients

referred), there appears to be adequate funding for eligible VR clients to receive cognitive rehabilitation services.

- Clients who require cognitive rehabilitation services who are served under the Rehabilitation Teaching/Independent Living Program are dependent on federal matching dollars provided through the Independent Living Grant. Should this grant not be renewed, cognitive rehabilitation services would not be available to these clients.

- Although highly knowledgeable and skilled in providing quality services to visually impaired/blind consumers, VDVH staff lack a clear understanding of cognitive rehabilitation, which could be a factor in the small number of clients receiving the services. When respondents were surveyed, at least half could not complete the survey without a standard definition of cognitive rehabilitation.

- There are discrepancies among criteria used by VDVH staff in determining the need, measuring the success, and terminating cognitive rehabilitation services for VDVH clients.

- There are huge discrepancies in costs paid for cognitive rehabilitation services by Agency staff and the number of hours of service provided. The costs indicated on the table do not truly reflect the total cost of cognitive rehabilitation services that were provided. For example, VR can authorize up to $60.00 per hour for cognitive rehabilitation, although the average cost of cognitive rehabilitation services when purchased from local vendors is about $90.00 per hour. From the services purchased from WWRC, it is not clear as to whether or not the actual cost was included or covered by the cooperative agreement.

- VDVH provides cognitive rehabilitation services for a minimum number of visually impaired/blind consumers after other resources have been explored.

- Because of limitations of VDVH's computerized data systems, the authentic scope of the need for cognitive rehabilitation services for visually impaired blind clients cannot be easily retrieved or measured with accuracy.

- There is no way to monitor a case-by-case review of cases served by the Agency and inaccuracies in individual reporting are probably significant for this study.

Recommendations

VDVH currently does recognize cognitive rehabilitation as an acceptable training modality of pre-vocational services for persons with concomitant visual impairment and brain injury and provides those services to clients of the Agency when indicated. Implementation of the following recommendations would enhance services currently provided by VDVH:

1. Conduct further study and identify ways to measure the demographics of persons with visual impairment and brain injury prior to the recommendation for establishment of specific state funding for cognitive rehabilitation services for clients with visual impairment/blindness who are not eligible for VR services. Studies conducted thus far indicate a very small number of clients who need the service.

2. Provide in-service training and education to service providers on the definition of cognitive rehabilitation services, appropriate referrals for such services and resources available for provision of these services.

3. Evaluate the current tracking system for cognitive rehabilitation services provided through this agency and consider including computerized data which more accurately tracks service recipients, funding sources, hours and cost of services.

4. Assess the development of specific, consistent policies and criteria for determining the need, measuring the outcome and terminating and funding cognitive rehabilitation services for clients of VDVH

5. Explore the option of providing cognitive rehabilitation services within the agency, rather than purchasing services from other agencies and private vendors, if Maximum Employment Levels (MEL) could be increased and positions could be established for hiring appropriate cognitive rehabilitation providers.

Agency Response to HJR 573

Virginia Department of Education

The Virginia Department of Education in response to House Joint Resolution No. 573 examined issues related to recognizing cognitive rehabilitation as an acceptable educationally related service when identified as part of the Individualized Education Plan.

The **Regulations Governing Special Education Programs for Children with Disabilities in Virginia** define "Related Services in Part I, under Definitions *"Related Services* means transportation and such developmental, corrective, and other supportive services as required to assist a child with a disability to benefit from special education, and includes speech-language pathology and audiology; psychological services; physical and occupational therapy; recreation, including therapeutic recreation; early intervention and assessment of disabilities in children; counseling services; including rehabilitation counseling; and medical services for diagnostic or evaluation purposes. The term also includes school health services, social work services in schools, and parent counseling and training."

Senate Report No. 94-168 provides a definition of 'related services' making clear that all such related services may not be required for each individual child and that such term includes early identification and assessment of disabilities and the provision of services to minimize the effects of such conditions. The list of related services is not exhaustive and may include other developmental, corrective, or supportive services (such as artistic and cultural programs, and art, music and dance therapy), if they are required to assist a child with a disability to benefit from special education.

Each related service defined under this part may include appropriate administrative and supervisory activities that are necessary for program planning, management and evaluation."

Current Status of Cognitive Rehabilitation Services in the Commonwealth

The Department of Education for the Commonwealth of Virginia recognizes that these Regulations provide the mechanism which allows for cognitive rehabilitation to be provided to a child deemed eligible for special education services under IDEA. Cognitive rehabilitation is a related service as it is developmental, corrective and supportive thus assisting the child in benefiting from special education.

The **Regulations Governing Special Education Program for Children with Disabilities in Virginia** state in Section 3.2 that the Individualized Education Planning Committee (IEP) has the responsibility for determining, reviewing progress and terminating related services.

The Department of Education in accordance with Federal Special Education reporting requirements, conducts a Special Education child count on December 1 of each year to obtain count of students with disabilities, by disability category. The preliminary (not final) total for TBI students for December 1, 1993 was 83. A random telephone survey of school divisions reporting these students was conducted by the Department of Education during the month of April, 1994. Results indicated that the majority of services related to cognitive rehabilitation as determined by the IEP were being provided by teachers of the learning disabled, speech-language pathologists and/or occupational therapists.

The Department of Education monitors the implementation of services under Part II, Section 2.2, part E. of the **Regulations Governing Special Education Programs for Children with Disabilities in Virginia.** The Department of Education conducts periodic review and evaluation of compliance of local educational agency's with state and federal laws and regulations pertaining to the education of children with disabilities and requires corrective actions where needed.

Funding for Cognitive Rehabilitation as a Related Service

Each local school division (LEA) is responsible for providing the funding for services related to cognitive rehabilitation. State funds to assist local school divisions with the cost of providing special education and related services for students with TBI are provided through the State Education Agency's appropriations. Federal funds are available under Part B of Public Law 94-142, as amended (IDEA). The application of such funds is submitted to the State Department of Education according to applicable federal requirements.

Emerging Issues

The Department of Education recognizes the following as issues related to the provision of cognitive rehabilitation services:

- Agreement on a common definition of "cognitive rehabilitation" in the educational setting.

- Criteria for identification of those individuals with TBI who would benefit from cognitive rehabilitation training related to the student's educational program

- Criteria for identification of those individuals who have appropriate training to provide and/or supervise cognitive rehabilitation in the educational setting

- The need for continued preservice and in-service training in the area of cognitive rehabilitation for school personnel

Recommendations

As a result of this study the Department of Education recommends the following:

1. In-service training on cognitive rehabilitation be provided to appropriate school personnel. Funding for such training to be budgeted through the Comprehensive System of Personnel Development (CSPD) funds of the Department of Education.

2. Continued interagency collaboration/coordination regarding cognitive rehabilitation services.

Section III: Agency Response to HJR 573

Department of Medical Assistance Services

Introduction

In 1965, Congress created the Medicaid Assistance Program as Title XIX of the Social Security Act. The program provides for federal grants to the states for their individual Medical Assistance Programs and is officially entitled "Grants to States for Medical Assistance Programs." The popular name is "Medicaid."

The purpose of Title XIX is to enable the states to provide medical assistance (care) to eligible indigent persons and to help these individuals if their income and resources are insufficient to meet the costs of necessary medical services. Such persons include dependent children, the aged, the blind, the disabled, pregnant women, or needy children.

A jointly administered, federal/state program, Medicaid provides payment for necessary medical services to eligible persons who are unable to pay for such services. Funding for the program comes from both the federal and state governments. The amount of federal funds for each state is determined by the average per capita income of the state as compared to other states.

Virginia Medicaid provides coverage for physical rehabilitative services under two major programs: physical therapy and related services (physical therapy, occupational therapy, speech-language pathology services), and intensive rehabilitative services. Physical therapy, occupational therapy, and speech-language pathology services may be provided by an acute care inpatient hospital, rehabilitation agencies, home health providers, outpatient hospitals, and schools.

The Department of Medical Assistance Services (DMAS) implemented the intensive rehabilitation program in 1986 to provide a package of comprehensive rehabilitation services that must include rehabilitation nursing, occupational therapy, physical therapy, speech-language pathology services, cognitive therapy, social services, psychology, and therapeutic recreation. This comprehensive package of services must be provided by a free-standing rehabilitation hospital, a comprehensive outpatient rehabilitation facility (CORF), or by an acute care hospital that has a Medicare-exempt physical rehabilitation unit.

Eligibility for Service

DMAS provides cognitive rehabilitation services as a component of intensive rehabilitation programs (inpatient rehabilitation hospitals and CORF's); services are also available to the outpatient rehabilitation population if the program is carried out by speech-language pathologists, occupational therapists, or qualified psychologists licensed by the Board of Medicine or the Board of Psychology.

Services are available in specialized care units in certain nursing facilities within contractual agreements. Specialized care is defined as care required by nursing facility residents who have long-term health conditions demanding close medical supervision, 24-hour licensed nursing care, and specialized medical services or equipment.

Criteria for Reimbursement of Cognitive Rehabilitation Services

An individual qualifies for **intensive rehabilitation services** (which includes cognitive rehabilitation services) if:

- Adequate treatment of the medical condition requires an intensive rehabilitation program consisting of a multidisciplinary, coordinated approach to improve ability to function as independently as possible; and

- It has been established the rehabilitation program cannot be safely and adequately carried out in a less intense setting.

In addition, the individual must require at least two of the listed therapies in addition to rehabilitation nursing: occupational therapy, physical therapy, speech-language pathology services, or cognitive rehabilitation. The individual must be medically stable, the condition must be compatible with an active rehabilitation program, and a condition exists which can be treated by the rehabilitation program.

Outpatient rehabilitation services include physical therapy, occupational therapy, speech-language pathology services, and psychology services.

An individual qualifies for **outpatient rehabilitation services** if the medical condition has resulted in a deficit(s) for which the services required are of a level of complexity and sophistication so that these services can only be provided by a physical therapist, an occupational therapist, a speech- language pathologist, or a qualified psychologist. Any one

of these services may be offered as a sole service, and its provision is not contingent upon the provision of another of the services.

All these services must be prescribed by a physician and be a part of a written plan of care. Services must be specific and provide effective treatment for the individual's condition in accordance with accepted standards of medical practice; this includes the requirement that the amount, frequency, and duration of the services shall be reasonable.

Psychology services must be medically prescribed treatment directly and specifically related to an active, written treatment plan. Services may be provided by psychiatrists, clinical psychologists (licensed by the State Board of Medicine), or by psychologists clinical (licensed by the Board of Psychology).

Specialized care services (adult and pediatric) are available to individuals who meet nursing facility admission criteria, have a long-term health condition requiring close medical supervision, 24-hour licensed nursing care, and specialized services or equipment. One category of this program targets a population that requires comprehensive rehabilitative therapy services.

The individual must require a coordinated, multidisciplinary team approach to meet the needs and must require two of three rehabilitative services: physical therapy, occupational therapy, or speech-language pathology services.

Criteria for Terminating Cognitive Rehabilitation Services in Programs Reimbursed by DMAS

All individuals receiving Medicaid-funded rehabilitation services must demonstrate progress in the overall rehabilitative plan of care. Rehabilitation care reimbursement by DMAS is terminated, regardless of the approved length of service or stay, when progress toward established goals is unlikely, or when the services can be provided by someone other than the skilled rehabilitation professional.

Outcome Evaluation

Each individual receiving rehabilitation services must have in place a plan of care that includes patient outcome goals that are stated in terms of functional improvement, are measurable, and include time frames for achievement.

All rehabilitation services must be provided with the expectation, based on the assessment of the individual's rehabilitation potential, that the condition of the patient will improve in a reasonable and generally predictable period of time.

Individuals Served in FY 93

The following table illustrates the number of recipients served and expenditures in Fiscal Year 1993:

Recipients with brain injury	361
Number who received intensive rehabilitation*	63
Expenditure for FY 93	$1,222,250
Range	$1,300 -- $135,000
Average	$26,000

*Note: Those in intensive rehabilitation receive cognitive rehabilitation.

The expenditure of $1,222,250 is out of a total rehabilitation expenditure of $7,000,000. Reimbursement for intensive rehabilitation (includes cognitive rehabilitation) averages $475 per day. Duration of service in intensive rehabilitation is 30-150 days with an average of 90 days.

Outpatient rehabilitation services are reimbursed on an average of $75.00 per visit for speech-language pathology services and occupational therapy services; both disciplines may provide cognitive rehabilitation.

Reimbursement for psychology services varies depending on services provided; the average cost is $60.00 per visit.

Nursing facility expenditures (specialized care level) are $385 per day.

Note: The reimbursement for intensive rehabilitation and for specialized care in nursing facilities includes provision of all necessary services (includes room, board, supplies, treatment products, rehabilitation therapies, etc.) of which cognitive rehabilitation may be a part as prescribed by the physician.

Summary of Current Practice

Services are provided in twenty-two inpatient rehabilitation hospitals and three CORF's. Eleven nursing facilities provide specialized care units that offer comprehensive rehabilitation programs; four of these facilities have an identified focus on cognitive rehabilitation. Outpatient rehabilitative services are furnished by multiple types of providers and are generally accessible throughout the state.

Payment Sources

Payment sources for Virginia Medicaid include 50 percent from the General Fund and 50 percent from the Non-General Fund.

Quality Assurance

- The case manager model will enhance the coordination and collaboration of cognitive rehabilitation and other integrated service needs.

- Any provider must, in the plan of care, demonstrate collaboration/coordination of cognitive rehabilitation services with any and all providers of care, as well as with other involved state and local agencies and any other third-party payers.

- Providers must demonstrate, in the plan of care, justification for the involvement of more than one discipline to address and/or carry out interventions that relate to the same deficit or goal(s).

- Specialized training of individuals providing cognitive rehabilitation is necessary. Such preparation for other than health care professionals may include on-the-job preparation as well as, at a minimum, BS in a related field, certification as a certified occupational therapy assistant (COTA), or a student in a bachelor's or master's program.

- The responsibility for assuring appropriate preparation of these individuals rests with the physician, the psychologist, the speech-language pathologist, or the occupational therapist who develops the plan of care and provides direct supervision of the individual carrying out the plan for cognitive rehabilitation.

- All individuals who provide cognitive rehabilitation must be under the direct supervision of a physician or a psychologist. The plan of care, based on the assessment of need and functional deficits, must be in writing and be shared with the individuals providing the care. Goals must be clearly stated and are shared with the individuals involved in care provision; the role of each participant in implementation of the plan and in provision of care is clearly defined and a quality assurance mechanism is in place.

- Consumer involvement in development and implementation of the plan of care, as well as in monitoring response and outcome, within the capability of each consumer, must be assured.

On-site utilization review

- On-site utilization review is periodically carried out on a sample of Medicaid recipients receiving services from rehabilitation providers. The review focuses on care being provided by the rehabilitation provider; adequacy of services available to meet the needs and to provide for maximum response to the therapeutic intervention; the necessity and desirability of continued treatment of the recipient; feasibility of meeting the needs in alternative care arrangements; verification of the existence of required documentation; coordination of services, and evidence of non-duplicative services within related services.

Documentation requirements

- Documentation of outpatient cognitive rehabilitation services shall, at a minimum, include the clinical signs and symptoms; a chronological picture of the clinical course and treatment (including previous treatments, behavior, and other factors that may impede participation); physician's order which is in place prior to initiation of service; a plan of treatment/care based on assessment of the individual: the plan shall include frequency of service, interventions, outcome goals, time frames for goal achievement, duration of service, and discharge plan.

- Documentation must also evidence the anticipated improvement in functional level(s), and must include progress notes for each visit that include response to the treatment plan. There must be evidence that changes in the individual's condition result in appropriate changes in the plan of care, and there must be

ongoing exploration of services necessary to facilitate discharge. When services are terminated, there must be a discharge summary.

Non-reimbursable services

- Rehabilitation services that fail to meet DMAS criteria are not reimbursable. Such non reimbursable services will either be denied upon request for pre authorization or at the time of on-site utilization review. DMAS criteria for reimbursement include, but are not limited to, signed and dated physician order prior to provision of service, a plan of care in place prior to provision of service, evidence that services address the identified, medically necessary, **functional goals,** evidence that services are expected to substantially improve **functional ability;** and significant progress toward goals within a reasonable period of time is occurring. There must also be written documentation to support that services billed were rendered.

Related services/coordination of services

- Services must be coordinated from admission, through treatment, and through transition. Delays during any phase of transition must be minimized. Coordination of related services must be in place in order to facilitate the cognitive rehabilitation program. Such related services may include assistive technology, transportation, housing, finances, and others.

Training and Education Issues (Staff and Community)

- DMAS regularly participates in provider training within the provider community. Existing as well as new programs are addressed. Included are such issues as covered services, limitations of services, criteria for coverage of service, accessing covered services, expansion of services, documentation requirements, reimbursement procedures, and the appeal process.

- A major focus needing further development relative to outpatient cognitive rehabilitation is interagency training, consumer training, and advocacy group training.

Funding Implications: Fiscal Impact of Covering Outpatient Cognitive Rehabilitation Services (Data Analysis -- FY 1993)

Illustrated below are the computations for average cost per recipient, recognizing that some participants will require more services; while others will require less. This analysis assumes that each recipient will utilize cognitive rehabilitation services for approximately six months.

Type of Service	Average Cost per Unit	Average Utilization	Projected Cost
Psychiatric/Psychology	$ 60.00	weekly visits	$1,560
Speech-Language and/or Occupational Therapy Services	$75.00	3 visits per week	$5,850
Life Skills Coach	$12.50	30 hours per week	$9,750
Total			**$17,160**

Although all the above services are necessary to support a cognitive rehabilitation program, DMAS currently covers psychiatric and psychological services and medically necessary speech-language and occupational therapy services. DMAS may anticipate increased utilization of these services; however, we would have covered these services without the life skills coach component if we had been requested.

The only new service necessary to implement this coverage will be the costs associated with a life skills coach.

A total of 361 Medicaid recipients were identified with a diagnosis of TBI. Of these, 63 recipients (17 percent) received intensive rehabilitation services. Fifty-two recipients (91 percent) of those receiving intensive rehabilitation services also received subsequent outpatient rehabilitative therapy services. Eight recipients (13 percent) also received subsequent psychiatric or psychological services.

Had these 52 recipients required and received the services of a life skills coach, the cost for this service for a 6-month period of time would total $507,000 ($253,500 General Fund and $253,500 Non-General Fund).

A total of 261 Medicaid recipients who did not receive intensive rehabilitation services remained eligible for outpatient rehabilitative services. Of these, 211 recipients (81

percent) received outpatient rehabilitative services (PT, OT, SLP); of these 168 recipients (80 percent) received speech-language and/or occupational therapy services. Fifty recipients did not receive any outpatient rehabilitative therapy services. The reason(s) for not receiving these services is not available data. Two possibilities include that the recipient was discharged from acute care and was admitted from home to a nursing facility or to a state psychiatric hospital or the services may not have been medically necessary. (Fourteen (5 percent) of the 261 recipients received psychiatric or psychological services.)

Had these 50 recipients required and received the services of a life skills coach, the cost for this service for a 6-month period of time would total $487,500 ($243,750 General Fund and ($243,750 Non-General Fund).

Based on the known DMAS utilization rate of 80 percent, this recipient total of 102 (52 who received intensive as well as outpatient rehabilitative services and 50 who received neither intensive or outpatient rehabilitative services) factored at 80 percent, amounts to 82 recipients. Cost for the life skills coach for the 82 recipients would total $799,500 ($399,750 General Fund and $399,750 Non-General Fund).

Emerging Issues

Outpatient cognitive rehabilitation criteria

Criteria for providing cognitive rehabilitation to the outpatient population include:

- Adequate treatment of the condition requires a systematic, goal oriented program of therapeutic cognitive activities directed to achieving functional changes by reinforcing, strengthening, or re-establishing previously learned patterns of behavior, or establishing new patterns of cognitive behavior or compensatory mechanisms.

- Medical condition is stable and compatible with an active program of cognitive rehabilitation.

- The individual evidences potential for improvement; individual and/or caretaker demonstrates motivation to participate in the program and progress toward goal achievement is expected within a reasonable time frame.

Professional responsibility

- Cognitive rehabilitation services may be provided by physicians, psychologists, speech-language pathologists, and occupational therapists. These practitioners may render services in accordance with state requirements and within the scope of their practice.

- Provision of cognitive rehabilitation requires **identification of who may provide** these services in that there is no discipline with identifiable responsibility or specialized training in or certification for cognitive rehabilitation.

- Other individuals, under the direct supervision of the physician, the qualified psychologist, the speech-language pathologist, or the occupational therapist, and who have received specialized training in cognitive rehabilitation, including training in integration of cognitive skills in the community setting, may provide services. Such individuals may include job skills coaches, independent living skills coaches, certified occupational therapy assistants, rehabilitation counselors, teachers, and teacher aides.

Limitations on cognitive rehabilitation services

- Initially, all cognitive rehabilitation services reimbursed by DMAS must be preauthorized and must, as in all rehabilitation services, be related to an active, written plan of care that includes defined and **measurable outcome predictors.**

Implications of expansion

- Coverage and reimbursement of outpatient cognitive rehabilitation services will require regulatory changes in the Virginia State Plan for Medical Assistance. DMAS would need to develop definitions that discriminate between cognitive rehabilitation as an independent therapy type versus the scope of practice within occupational therapy, speech-language pathology services, and psychology services.

Recommendations

1. Individuals with acquired brain injuries whose physical rehabilitation needs have either been met, or those individuals whose physical needs no longer

represent the primary need or focus of care, will receive cognitive rehabilitative services on an outpatient basis.

2. DMAS would enter all traumatic brain injury (TBI) recipients into the automated data system; services received and reimbursed would be tracked. This would be an ongoing process throughout the continuum of care.

IV: Interagency Recommendations for Systems Change

1. The study agencies should collaborate to

   - explore opportunities for shared funding of cognitive rehabilitation services for mutual clients;

   - explore a specific referral system for insuring multi-agency coordination of service delivery to potential consumers and the development of improved client tracking information systems.

   - provide cross-agency training on cognitive rehabilitation services;

   - develop consistent statewide policy and procedures designed to reduce fiscal and bureaucratic barriers for individuals who require cognitive rehabilitation services; and

   - assure service quality, monitor client outcomes, and develop methods to assess client and family member satisfaction with service delivery and outcome.

   - monitor and remain current with

     - efforts of the Task Force on Head Injury of the American Congress of Rehabilitation Medicine and the Society for Cognitive Rehabilitation to develop and enforce standards for the provision of cognitive rehabilitation services.

     - research in the area of cognitive rehabilitation;

     - efforts by professional organizations and state/local agencies to develop certification or licensing standards for individuals providing cognitive rehabilitation services.

2. The study agencies should explore in greater detail the impact of having a dedicated funding source for individuals with brain injury such as an Impaired Drivers Trust Fund to expand prevocational cognitive rehabilitation and other services to individuals with brain injury who are unserved or underserved. If appropriate, present recommendation for the development of such a funding source to the Secretary of Health and Human Resources.

APPENDIX A

Profile of Individuals with Brain Injury

Appendix A: Profile of Individuals with Brain Injury

Characteristics of Persons with Brain Injury

Each year in the United States approximately 750,000 individuals sustain a brain injury. In Virginia, the estimate is 10,500 individuals per year. Brain injury is 10 times more frequent than spinal cord injury and 40 times more frequent than muscular dystrophy. Males are more likely to sustain a brain injury than females and two out of three persons with brain injury are under the age of 35. Approximately 50 percent of injuries occur as a result of traffic accidents; 22 percent result from falls. Nationwide, 70,000-90,000 individuals are permanently disabled as a result of a brain injury each year (Bishop, 1994).

Each person who sustains a brain injury experiences a unique set of problems. Injury to the brain may range from mild and temporary to severe and permanent. In addition to severity, the length of time since the brain injury occurred affects the level and quality of an individual's cognition, behavior, and emotions. Many individuals, during the early phase of recovery, exhibit confusion, disorientation as to time and place and verbal or physical aggression. Others experience significant physical impairment and require intensive physical rehabilitation to learn how to walk and talk again. Improvement in most areas occurs over time, although a full return to preinjury status generally does not happen.

Brain injury typically causes life-long changes, especially in cases of moderate to severe injury. However, some healing of the brain does occur, and certain skills and abilities may remain intact. An individual may be able to return to school, work, or community living, that person is *not* "cured." Common effects of a brain injury include physical, cognitive, and behavioral or emotional changes. These effects, as listed in the 1993 Woodrow Wilson Rehabilitation Center (WWRC) Brain Injury Services Expansion Study, include the following:

Physical Problems Affect the Ability to:

- Walk and use the arms and legs
- Speak clearly
- See, hear, and taste
- Have feelings in parts of the body
- Have strength and endurance
- Control bowel and bladder

Cognitive Problems Affect the Ability to:

- Pay attention and remember

- Think clearly and solve problems

Cognitive Problems Cont.

- Start or carry out a task
- Say what is meant
- Understand others
- Follow directions
- Manage time
- Handle money
- Read and write
- Recognize own problems

Changes in Personality May Result In:

- Difficulty controlling temper
- Anger and aggression resulting in verbal or physical outbursts
- Poor social skills
- Impulsivity
- Irritability
- Anxiety
- Depression or withdrawal
- Strained family relationships

Sensory impairments, concomitant injuries such as spinal cord injury, and pre- and post-injury problems (e.g., neurologic, orthopedic, substance abuse, or psychiatric problems) may also characterize an individual with brain injury. For example, an estimated one-third to one-half of individuals with brain injury have substance abuse problems, both preinjury and post-injury. Approximately 25 percent have co-existing visual impairments ranging from double vision, visual field impairments, legal blindness, visual tracking problems, and visual perceptual processing disorders. Most individuals with moderate to severe brain injury receive a variety of facility and community-based services. At certain points along an individual's continuum of recovery, the prognosis for benefiting from specific services may be poor due to the individual's state of awareness and readiness to pursue changes. Thus, for services to be effective, they must be consumer-focused, prescriptive, and offered at the time when the person can best benefit from the services.

Individuals who, as a result of their brain injury, are unable to recognize their strengths and deficits, may view rehabilitation programs as unnecessary. In addition, because of an impaired awareness of strengths and deficits, an individual may desire services that are unrelated to current need or ability to benefit, such as driver education or vocational training. The individual may even view basic therapeutic services, such as speech therapy or cognitive rehabilitation as unimportant or unnecessary.

Service Needs of Persons with Brain Injury

Brain injury rehabilitation requires specialized staff, controlled environments, and high levels of supervision, both in facility-based and community-based services. Structure and close supervision are particularly important for individuals with severe cognitive and behavioral challenges. A holistic approach to treatment that integrates medical cognitive, psychosocial, and vocational rehabilitation assists individuals to achieve the highest possible level of social and vocational community reentry. In its 1993 WWRC Brain Injury Services Expansion Study, DRS describes a comprehensive and integrated system of services designed to effectively address the needs of persons with brain injury. This system includes the following:

- Holistic treatment model
- Treatment and residential environments that are highly structured, controlled, and supervised and have decreased stimulation
- Core treatment team of staff who specialize in brain injury
- Centralized case management
- Interdisciplinary treatment of persons with co-existing impairments such as substance abuse and psychiatric diagnosis
- Access to specialty consultants in neuroptometry, augmentative communication, rehabilitation engineering, multiple and sensory disabilities, and others as needed
- Full continuum of services
    - Medical rehabilitation (hospital-based)
    - Life skills (*cognitive rehabilitation*, independent living, psychosocial intervention, vocational training)
    - Community-based services (supported living, job and life skills, coaching, psychosocial support, behavior therapy)

APPENDIX B

Review of Research on Cognitive Rehabilitation Programs

Appendix B: Review of Research on Cognitive Rehabilitation

To provide treatment following a closed head injury, major medical centers have developed modern trauma units and, as a result, advances are continually being made in acute medical care. This, coupled with the introduction of air evacuation and innovative medical services, has given rise to an increased survival rate (Klauber, Barrett-Connor, Marshall and Bowers, 1981). In contrast with major efforts spent in the acute rehabilitation phase, long-term rehabilitative efforts lag far behind. Post-acute interventions are necessary, however, because the deficits that these individuals suffer are commonly of such a degree to preclude a return to pre-injury (or in medical terms, premorbid) functioning levels both in terms of life skills and vocational integration. Since a large portion of survivors of traumatic brain injury are young adults between the ages of 16 and 30 years; effective treatments can be valuable for the remainder of their lives (e.g., Brooks et al., 1984; Levin, Benton, and Grossman, 1982).

Traditional rehabilitative services such as physical, occupational, speech, and vocational therapies have a history of assisting individuals in their recovery. These treatments rely, in part, on behavioral techniques requiring both memory and learning as well as problem solving, visual perception, and sensory/motor skills. Cognitive rehabilitation is a specific rehabilitation therapy designed to improve general cognitive or thinking skills. Improving an individual's cognitive status allows him or her to benefit from other rehabilitation services and hopefully progress more rapidly toward independent living and vocational re-entry. It is important to differentiate cognitively-based psychotherapy used as a psychological tool in the treatment of anxiety and depression versus cognitive rehabilitation which is geared toward improving the individual's information processing status compromised as a result of an acquired brain injury.

This literature survey focuses on cognitive rehabilitation outcomes following traumatic brain injury. It should be noted that individuals with other acquired neurologic disorders (such conditions as cerebrovascular insult [i.e., stroke], resection of cerebral tumors, as well as the detrimental effects of various metabolic disorders [e.g., anoxia, diabetic encephalopathy] may need similar cognitive rehabilitation services, however a discussion of such is outside the scope of this study.

Theories of Cognitive Recovery

The goal of research in the neurobehavioral treatment of brain pathology is to develop techniques which increase the degree and rate of the body's natural recovery processes (Rothi and Horner, 1983). There are basically two theories of recovery from

lesions occurring in the central nervous system: The first is *restitution of function*; the second, *substitution of function* (Laurence and Stein, 1978).

Restitution of Function

The theory behind restitution of function implies that after an insult to the brain, there is spontaneous improvement of underlying physiologic mechanisms. Early recovery of function occurs as the acute or temporary affects of trauma diminishes (Luria, 1963). Recovery is assumed to be the result of neural pathways resuming activity as the lesion heals and neural systems restored (Rothi and Horner, 1983).

The use of cognitive rehabilitation techniques may be indicated at this stage of post-injury to promote further neurobehavioral recovery, particularly orientation, awareness of deficits, and short-term memory. Rehabilitation professionals often use cognitive techniques across disciplines to improve short-term memory, orientation, and awareness and speech and occupational therapists may include cognitive goals in their treatment programming. However, cognitive rehabilitation as a *formal* treatment technique is generally not employed until post-traumatic amnesia subsides, a period of time which varies by individual.

Substitution of Function

Where the theory of restitution of function implies spontaneous physiologic restoration during the acute phase of recovery, the theory of substitution of function suggests restoration that occurs in the chronic or later phases of recovery, e.g., six months later (Rothi and Horner, 1983). This theory is based on the assumption that improvements are the result of compensation and reorganization. Rothi and Horner (1983) described this theory in terms of the brain's capacity to functionally reorganize neural structures and state that this process may continue as long as the potential for learning is present.

The cognitive therapist can use neuropsychological testing to determine which functions of the brain remain relatively intact in which cerebral hemisphere. The individual can then be taught to compensate for his or her deficits by relying on those brain functions that are intact. For instance, an individual with memory deficits can be use nonverbal cues and memory strategies which employ spatial organization of new information. The goal of reorganization or cognitive rehabilitation is to provide the individual with alternative strategies that may be substituted in place of those which became disorganized due to neural damage. In this way, the person may achieve specific

behavioral goals predetermined with the assistance of a neuropsychologist or other treating clinician.

Cognitive Rehabilitation Outcome Research

There is limited research regarding outcomes for specific neurobehavioral remediation techniques, primarily because the field of cognitive rehabilitation is in its infancy. Both researchers and clinicians have limited access to proven techniques. As Newcombe (1982) notes, "in the absence of definitive knowledge of the efficacy of rehabilitation techniques, each case becomes a diagnostic and therapeutic experiment, requiring a balanced sequence of test-treat-test checked with matched controls" (p. 124-125). The following section briefly describes several outcome studies conducted within the last decade.

Prigatano, Fordyce, Ziner, Roveche, Pepping, and Wood (1984) described an intensive neuropsychological rehabilitation program they developed which included both cognitive rehabilitation and psychotherapeutic intervention. Study participants included 18 individuals with moderate to severe closed head injuries. The individuals were matched as closely as possible to 17 individuals in a non-treatment control group according to age, gender, education, injury severity, and time since injury. Participants received individual treatment emphasizing intensive cognitive rehabilitation. Six to eight individuals were treated at a time, four days a week, six hours per day, for a period of approximately six months. Treatment goals were increased awareness and acceptance of the injury and residual deficits, intensive cognitive rehabilitation of selected residual deficits and the development of a repertoire of compensatory skills designed to help each patient live effectively, in spite of intractable residual deficits" (p. 507).

Study results indicated that participant post-test performances on intellectual and memory measures improved significantly compared to that of the control group. Based on these results, the authors suggest that intensive remediation of deficits in persons with moderate to severe brain injury may improve neuropsychological functioning. They state that "obviously these findings need to be replicated in other settings . . ." (p. 511), but that it is encouraging that individuals with brain injury can learn new information and demonstrate reduced memory deficits with practice and training in a remediation program.

More recently, Mills, Nesbeda, Katz, and Alexander (1992) examined functional outcome versus improvement on neuropsychological tests following cognitive rehabilitation. They studied the functional outcomes of 42 individuals with traumatic brain injury following treatment in a structured outpatient post-acute cognitive

rehabilitation program. The program consisted of a minimum of six weeks of treatment and emphasized improving individuals' real-life functional abilities and psychological support. Follow-up at 6, 12, and 18 months documented a significant improvement on individuals' functional measures following cognitive rehabilitation intervention. Neuropsychological measures were not significantly different following treatment; however, there was a trend towards improvement. Functional improvements were independent of age, neuropathological category, injury severity and time post-injury. The authors concluded that post-acute traumatic brain injury treatments aimed at retraining real-life functional abilities exclusive of specific cognitive rehabilitation can lead to significant long-term improvement in the area of independence.

In a study published in 1988, Ryan and Ruff assembled empirically proven memory remediation techniques from the literature into a comprehensive treatment program for persons with brain injury. Twenty individuals with mild to moderate neuropsychological impairments were matched on the variables of age, gender, years of formal pre-injury education, and time elapsed since injury. Individuals were randomly assigned to the control or experimental remediation group and were unaware of the treatment they were receiving (the experimental group received the formal memory remediation; the control group received treatment focusing on psychosocial issues). Both groups as a whole improved on the neuropsychological memory measures. However, when the groups were subdivided according to the severity of neuropsychological functioning at intake, it became clear that only those individuals with mild residual impairments seemed to benefit from rehabilitative efforts; those with more moderate deficits did not respond to treatment.

Butler and Namerow (1988) conducted a critical review on cognitive rehabilitation in brain injury rehabilitation. These authors reviewed literature on functional recovery following brain injury in order to determine the validity of cognitively-based remediation as a therapeutic modality particularly since evidence has suggested that cognitive rehabilitation does not reliably improve treatment outcome and also does not seem to hasten the spontaneous recovery process. The authors indicated that cognitive rehabilitation is a "micro-treatment" process with goals that address subcomponent cognitive abilities such as visual and spatial processing, language, and verbal memory. They contrast this approach with skills acquisition training, a "macro-treatment" process with goals more functional in nature. Skills acquisition training as defined by the authors is less concerned with performance on computer tasks, for example, and focuses more on activities of daily living, psychosocial skills, and vocational re-integration. Butler and Namerow summarized the research indicating that altering behavior rather than "cognitive ability" per se may have a significant rehabilitation impact. The skills acquisition approach emphasizes such a rationale.

Benedict and Wechslerk (1992) used a multiple-form memory assessment design to evaluate the efficacy of long-term memory retraining in two adults with traumatic brain injury. To establish a significant degree of memory remediation, subjects had to demonstrate pre-treatment to post-treatment improvement on a standardized task. The authors claimed that their results supported early findings (Ryan and Ruff) suggesting that the effectiveness of memory retraining was dependent on the person's severity of injury. In essence, the more severely compromised the individuals were in terms of cognitive function, the less likely they were to benefit from cognitive rehabilitation and retraining strategies.

Summary

A brief review of the literature indicates that cognitive rehabilitation research studies have been relatively few in number, have not yielded consistent evidence of benefit, and have not provided information about the longevity of treatment effects (Kreutzer, 1994). The studies reviewed do demonstrate, however, that cognitive rehabilitation can be effective in improving select areas of neurobehavioral functioning for certain individuals. Cognitive rehabilitation appears to be less effective in improving neuropsychological functioning as measured by traditional psychometric tests. Studies have been hampered by their reliance on family reports, the lack of a clear relationship between neuropsychological test scores and the ability to perform activities of daily living, and the fact that neuropsychological assessments represent a highly structured situation and may not be representative of daily life behavior (Kreutzer, Devany, Myers, and Marwitz, (Chapter 5)).

At a recent conference of the International Neuropsychological Society (Cincinnati, 1994), a special topics presentation was initiated to discuss outcome following cognitive rehabilitation. The consensus was that neurobehavioral clinicians should not be asking "Does cognitive rehabilitation work?", but rather, when does one initiate cognitive rehabilitation, with which individuals, under what circumstances, and with what specific goals in mind.

APPENDIX C

Funding Options/Practices for Cognitive Rehabilitation in Other States

Appendix C: Funding Options/Practices for Cognitive Rehabilitation

The Rehabilitative Services Administration (RSA), U.S. Department of Education recently sponsored a Traumatic Brain Injury Effective Practices Study. Research Triangle Institute (RTI) conducted the study which was published by RSA in September 1993. Its purpose was to examine the capacity of vocational rehabilitation agencies to effectively serve individuals with brain injury. DRS reexamined this report within the context of the HJR 573 feasibility study to determine whether the study included data on (1) the provision of cognitive rehabilitation services to individuals with brain injury; and (2) unique or successful funding practices.

While the report did not specifically address the provision of cognitive rehabilitation services to persons with brain injury, it did provide valuable information on system linkages, service coordination, and funding supports (Chapter 5). In addition to the information gathered from the RTI report, DRS sent a request for information on cognitive rehabilitation sent to state vocational rehabilitation agencies and directly contacted seven states which reportedly had established some form of dedicated funding source to develop/provide services to individuals with brain injury.

DRS received materials on brain injury services from 12 state vocational rehabilitation agencies. Most of the respondents indicated that they purchased cognitive rehabilitation services for individuals with brain injury but did not have specific policies and procedures relating to the purchase of this service. The various definitions established by state vocational rehabilitation agencies for cognitive rehabilitation were fairly consistent with the definition and description used by DRS and adopted by the HJR 573 study team.

States with Dedicated Funding Sources

Information gathered from the RTI study, responses to the DRS survey, and telephone interviews indicate that the following states have or anticipate implementing state funding dedicated to the development and enhancement of services individuals with brain injury: Texas, Massachusetts, Florida, Georgia, Alabama, Connecticut, Alaska, and South Dakota, and Missouri. Additional activities may be taking place in states which did not respond to the department's request for information.

Florida, **Texas**, and **Alabama**, have each established a dedicated state fund for services to individuals with brain injury. **Georgia** expects its state legislature to pass a bill creating an Impaired Drivers and Speeders Fund during the 1995 legislative session. This fund will serve individuals with brain and spinal cord injury and will provide for

cognitive rehabilitation services. Georgia' s definition of cognitive rehabilitation is similar to that adopted by the study team. These services are limited to the post-acute stage and there must be evidence supported by neuropsychological or other evaluations that these services will assist the individual to attain a vocational goal. The state vocational rehabilitation program does not currently fund prevocational cognitive rehabilitation services. This year, the Georgia legislature is also expected to apply for a Traumatic Brain Injury Waiver. (For more information on states with TBI waivers, see following section.)

Florida has a comprehensive brain injury program which emphasizes prevention. Like Virginia, Florida has established a central brain injury registry and an array of in- and outpatient direct and consultative services are available for persons with brain injury. Florida created an Impaired Drivers and Speeders Trust Fund in 1988. Monies for the fund are obtained from surcharges on fines for speeding and Driving Under the Influence (DUI) and are appropriated to the division of vocational rehabilitation to provide services to individuals with brain or spinal cord injury. Fiscal Year 1994 funding is estimated at $10 million. The program serves individuals who are not eligible for the Title I vocational rehabilitation program, primarily because their disability is considered too severe. Prevocational cognitive rehabilitation services are sponsored through this program.

The overall goal of services provided through trust fund monies is to assist individuals with brain (and spinal cord) injury to successfully reintegrate into the community and, when feasible, pursue employment training through the state vocational rehabilitation (Title I/VI-C) program.. To be eligible for services, an individual must be a resident of Florida, be referred from the central registry, be medically stable, and appear have the ability to reintegrate into the community if provided the necessary services and supports. Trust fund revenues have decreased in the last year, primarily due to a reduction in speeding tickets and not all individuals who apply can be served. Currently the program turns down about 100 individuals each month.

As a result of its legislatively mandated Comprehensive Rehabilitation Fund, **Texas** generates an additional $8 million per year to serve individuals with traumatic brain injury who are considered to have disabilities too severe to participate in the Title I vocational rehabilitation program. Like Florida, this fund does not supplement Title I funding for vocational rehabilitation clients but rather provides services to a previously underserved population. Individuals can access the funds only if they have exhausted all similar benefits. The fund is in its third year of operation with monies generated from fines and court cases for individuals convicted of speeding, DUI, and other traffic

offenses; it is anticipated that monies generated through the fund will remain relatively stable.

Services available to individuals with brain injury (either through the vocational rehabilitation program or the Trust Fund) include inpatient comprehensive rehabilitation (for individuals who sustained a brain or spinal cord injury not more than 6 months prior); outpatient rehabilitation (at any time post-injury and including speech therapy, occupational therapy, physical therapy; and cognitive rehabilitation). Cognitive rehabilitation services provided through trust fund monies focus on prevocational, independent living, and memory skills. These services are provided through 20 private and public, not-for-profit facilities; outcome data indicate that 50-60 percent of individuals receiving cognitive rehabilitation who are at application or later become vocational rehabilitation clients are successfully employed. Despite the influx of funds from the Trust, there are still waiting lists in Texas for both vocational rehabilitation and fund-sponsored services for persons with brain injury.

The Impaired Driver's Trust Fund in **Alabama** was passed by the 1993 legislature. While monies have begun to accumulate in the fund; none have yet been expended. Alabama is in the process of implementing public hearings to determine exactly how the money is to be spent. Alabama is currently providing prevocational cognitive rehabilitation services through a grant-funded program to individuals who are not vocational rehabilitation clients. These services are not purchased but are being provided by case managers who have received information and training on cognitive rehabilitation. Vocational rehabilitation clients can receive cognitive rehabilitation services in state and locally-operated facilities. Failure to generalize learned skills from the state facility to community living has been cited as an ongoing problem.

The **Massachusetts** Statewide Head Injury Program (SHIP) is administered by the Independent Living Commission of the Massachusetts Rehabilitation Commission. SHIP is in its ninth year of operation with a current (1994) appropriation of $6.1 million. SHIP was designed to develop a service delivery system which meets the diverse needs of persons with traumatic brain injury. Originally, the program served only individuals in crisis at an average per client cost of $150,000. In order to conserve resources and serve greater numbers of individuals, the program shifted its focus and began developing a local service delivery system with intensive community-based supports. Currently less than 1 percent of individuals served by SHIP are in crisis; these individuals are now being served through other state programs.

The program provides an array of services including assessment, case management, comprehensive residential and/or out-patient evaluations, and

comprehensive community-based rehabilitation services. Among the services purchased by SHIP for clients are supervised living arrangements, transportation, assistive technology, home modifications, supported employment, and cognitive rehabilitation services. Cognitive rehabilitation services are contracted for on an out-patient basis through neuropsychologists, speech therapists, and occupational therapists as well as through community-based cognitive rehabilitation satellite programs, generally located in hospital settings. Individuals receiving hospital-based cognitive rehabilitation services are generally no more than two years post-injury.

Eligibility for SHIP services is based on a determination as to whether program services will benefit the individual in terms of living and functioning independently (Research Triangle Institute, 1993). The program generally serves individuals with very severe impairments; thus at the current time, very few SHIP clients are vocational rehabilitation clients. It is anticipated that as the vocational rehabilitation program begins serving greater numbers of persons with severe disabilities, referrals to SHIP from vocational rehabilitation and visa versa will increase. Demand for SHIP services continues to be greater than system capacity; last year the program had 2,200 applicants. Clients are therefore classified in accordance with the program's order of selection to determine priority for admission. Funding through SHIP is authorized only when other resources have been explored and/or expended.

Connecticut, **Alaska**, and **South Dakota** each received grant funds in recent years to develop or improve services to individuals with brain injury, including cognitive rehabilitation services. The awards, however, were quite small: South Dakota received $40,000 to provide cognitive rehabilitation and speech, occupational, and physical therapy. Alaska's vocational rehabilitation agency received $50,000 to flow through to private nonprofit facilities providing vocational and support services to individuals with brain injury.

In 1986, **Connecticut** received a $109,000 grant to (1) develop innovative services for individuals with traumatic brain injury with disabilities too severe to be served by the Title I program; (2) expand existing Title I vocational rehabilitation services; and (3) provide neurobehavioral inpatient and community-based services for individuals with severe behavioral challenges resulting from brain injury. Fiscal Year 1994 funding for this program is $250,000 for innovative and expanded service delivery and $500,000 for neurobehavioral services; the grant program is the payer of last resort. Individuals who receive grant-funded services are referred through the vocational rehabilitation program or through social services. Each year, the department is able to provide grant-funded support for approximately 25 individuals with brain injury to live and work in the community. It is estimated, however, that in Fiscal Year 1993, 2,000 individuals

sustained a brain injury in Connecticut. The state does not have a Central Registry and numerous people remain unserved. This year, the Department of Social Services, which includes the division of vocational rehabilitation, is hoping to apply for a TBI Medicaid waiver.

The **Missouri** Head Injury Advisory Council published a comprehensive report and action plan for services in 1990 which described a model service system that provides for cognitive rehabilitation services at every stage of recovery. Funding for purchase of services to individuals with brain injury in Missouri was first established in 1985 with an appropriation of $500,000. This appropriation was reduced each year thereafter; the 1990 appropriation was $207,000 and it was reported that few significant inroads into implementing the proposed model service delivery system have been made.

States with Traumatic Brain Injury Waivers

The Health Care Financing Administration (HCFA) is the federal agency responsible for overseeing the Medicaid program in each state. In addition to specified medical care, Medicaid pays for the following rehabilitation services for individuals with brain injury: (1) physical therapy, occupational therapy, and speech language pathology services; (2) cognitive rehabilitation services as a component of intensive rehabilitation programs (inpatient rehabilitation hospitals and certified outpatient rehabilitation facilities); and cognitive rehabilitative modalities to the outpatient population when carried out as a part of psychology, speech/language pathology, or occupational therapy plans of care. Cognitive rehabilitation services are also available in specialized care units in certain nursing facilities within contractural agreements.

A Home and Community Based Services (HCBS) Medicaid waiver allows states to select a group of Medicaid-eligible individuals to receive specialized services not generally available to all Medicaid recipients. With a HCFA-approved waiver program, a state can offer an array of services to meet the needs of persons with brain injury, which may have been previously unavailable under the existing Medicaid program. A critical component of a Medicaid waiver is that the federal government waives the "comparability of services" requirement, which stipulates that all Medicaid recipients must receive the same services. In addition, the state must show "cost neutrality," that is, the cost of proposed community supports must be less than or equal to the cost of care for individuals who need an institutional level of care covered by Medicaid. The waiver is intended to provide payment for needed services which would not otherwise be available under a state's Medicaid program.

Since cognitive rehabilitation is of specific interest to this study group, this section examine the provision of cognitive rehabilitation through a waiver program. To date, there are seven states with approved waiver programs for services for individuals with brain injury (informally called "TBI waivers"). Only two states, New Jersey and Minnesota, include cognitive rehabilitation therapy as a distinct service.

Of the services listed by the remaining five states, the following services may have the potential to incorporate a cognitive rehabilitation component:

1. Kansas: rehabilitation therapies and transitional living services

2. Louisiana: adult day health, extended physical therapy, occupational therapy, speech, hearing and language

3. New Hampshire: day habilitation

4. New York: intensive behavioral programs, independent living skills training and development, structured day programs, transitional living programs, home and community support services, coordination and community integration counseling

5. North Dakota: habilitation (prevocational and supported employment), behavioral management, transitional living, and residential care

In addition, Wisconsin has a waiver application which is pending approval by HCFA. The Wisconsin waiver lists supportive home care, adult day care, habilitation (alternate living arrangement, day services, prevocational, supported employment, and transportation), communication aids, daily living skills training and extended counseling and therapeutic services. Finally, three states (Connecticut, Georgia, and Virginia) are currently exploring the development of waivers to be submitted to HCFA. At this time, it is not known what those waivers will encompass.

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