Introduction and Background of Head Injury

Purpose and Use of Resources and Services Directory

The intent of the directory is to help individuals, families, and providers know what resources and services are available in the state of Oklahoma for head injury and other conditions, and how they may seek referral or obtain them directly. The need for such a document became readily apparent while responding to the many inquiries and requests for information related to head injury, immediate and long term services, and disability-related social and employment issues. Although developed for persons who sustained a brain injury and their families, the directory is useful for persons with other conditions, persons with disabilities, and the general population. The agencies, organizations, and the broad array of health and social services citizens may need are included in the directory. The services are organized by the phases or continuum of care that patients and families may encounter following an injury event, from prehospital to acute and rehabilitative care to the broad array of community life services.

Substantial information is devoted to specific populations such as children, Native Americans, veterans, and the organizations that provide basic health and social services to improve daily living. The accessibility and availability of services in Oklahoma vary by geographic region, resources, and the distribution of professionals and other providers. The resource needs of children 18 years and younger were highlighted in a recent follow up study of children with head injury which helped to determine need for short- and long-term rehabilitation, information about special education, and transitional services to higher education and work.

The directory was first completed in 2006 after review and input by colleagues and members of the Advisory Council and Task Force. The Directory Committee assisted with distribution of materials. Information in the directory is updated periodically and includes all aspects of care and the services that may be needed and requested by persons with traumatic brain injury and other conditions. Because each individual, family, or provider wants information specific to their area(s) of need, individual sections may be requested by calling the Injury Prevention Service (405/271-3430) or information may be downloaded from the IPS web page (http://ips.health.ok.gov). If there are further questions after reviewing the information, individuals may contact the Traumatic Brain Injury Program.

Contact information for direction listings is subject to change.
Definition of Selected Terms

Abbreviated Injury Scale (AIS) – Abbreviated injury scale (AIS) scoring was developed by the Association of Automotive Medicine, initially for the purpose of assessing survival following motor vehicle crashes. It is a standardized system for categorizing injury type and severity. Although AIS is based on anatomical injury, it includes physiologic measures as injury descriptors, such as occurrence and length of loss of consciousness, amount of bleeding, etc. AIS 1 is not consistent with the definition of traumatic brain injury. AIS 2 is moderate injury. AIS is serious injury. AIS 4 severe injury, and AIS 5 critical injury. AIS 6 is a nonsalvageable injury.

Americans with Disability Act (ADA) – The ADA is a federal act that was passed in 1990 to prohibit discrimination against persons with disabilities, including brain injury, in the areas of:

- Public accommodations such as building and sidewalk accessibility
- Employment
- Transportation
- State and Local Government Services
- Telecommunications

Assault – An act of violence resulting in injury.

Case Management – Facilitating the access of a patient to appropriate medical, rehabilitation and support programs, and coordination of the delivery of services. This role may involve liaison with various professionals and agencies, advocacy on behalf of the patient, and arranging for purchase of services where no appropriate programs are available.

Cognitive Ability – The ability to accumulate and retain new knowledge.

Cognitive Rehabilitation – Therapy which helps persons in the management of problems in perception, memory, thinking, attention, judgment and problem solving. Skills are practiced and strategies devised/taught to improve function and compensate for deficits. The interventions are based on an assessment and understanding of the person’s brain-behavior deficits. Services are provided by qualified practitioners.

Community re-entry/integration – Services to prepare client to enter community knowing where and how needed services may be obtained.

Community Resources – Public or private agencies, schools or programs offering services to the public. They are usually funded by government agencies, community initiatives, donations and fees.

Community Skills – Those abilities needed to function independently in the community. They may include: telephone skills, money management, pedestrian skills, use of public transportation, meal planning and cooking.
**Compensation Technique** – A method of working around a functional impairment by using techniques designed to help a person with a disability overcome the impairment (for example, for memory impairment, a person uses a calendar or notebook to record information).

**Competitive Employment** – Work in the competitive labor market that is performed on a full-time or part-time basis in an integrated setting; and for which the individual is compensated at or above, but not less than, the minimum wage.

**Computed Tomography** – CT scanning is the most common imaging modality used initially for the diagnosis and medical management of head-injured patients. CT scan evaluates presence or absence of intracranial hemorrhage and osseous injuries, and has relatively low cost.

**Day program** – A non-residential program of services intended to increase the functional ability of the consumer through therapeutic intervention and supervised activities. These services facilitate community integration.

**Depression** - A state of disorder marked by sadness, inactivity and self-depreciation.

**Disability** (Many medical, economic, and social definitions) - Limitation in performing tasks, activities and roles in the manner or within the range considered normal for persons of the same age, gender, culture, and education. The expression of a physical, mental, or sensory limitation in a social context; the gap between a person's capabilities and the demands of the environment. Includes developmental disability, and disability related to chronic disease, injury and secondary conditions.

**Disability Rating Scale (DRS)** – The DRS evaluates the person on 8 categories of disability and scores his or her functioning areas that include, among others:

- Level of arousal, awareness, and responsiveness
- Cognitive skills needed for self-care activities
- Dependence on others
- Psychosocial adaptability, which includes flexibility and the ability to adapt to different people and situations. The highest possible score is 30 points. In this scale, a lower score is better.

**Evaluation in a Workshop Setting** – A process whereby the client’s work potential is assessed in a controlled area using simulated or actual job tasks to assess ability to relate to demands of the work environment and perform adequately. Has the following characteristics: 1) client may not be paid; 2) client is exposed to tasks on which performance can be assessed; 3) client’s performance is supervised and evaluated in coordination with the evaluation staff; and 4) existence of established evaluation program.

**Emergency medical services system** – An organized system that provides personnel, facilities and equipment for the coordinated delivery of health care services in a specific geographical area under emergent conditions.
Epidemiology – The study of the distribution and determinants of health and disease (including injuries) in populations.

- It is a component of public health and constitutes the scientific methods used to reason about the cause and natural course of disease or conditions.
- Epidemiologic research incorporates statistical techniques with an understanding of biological, behavioral and social mechanisms important in disease occurrence and spread.
- Utilizes group/aggregate data; numerator-denominator oriented.

Epidemiologic Measures

**Rate**

Measures the risk of acquiring the injury/disease (incidence) in a certain time interval:

\[
\frac{\text{Numerator}}{\text{Denominator}} = \frac{\text{(New cases in a time interval)}}{\text{(Population at risk of developing disease or being injured at the beginning of the time interval)}}
\]

**Surveillance**

The ongoing systematic collection, analysis and interpretation of health/injury data needed to plan, implement, and evaluate programs.

**Incidence**

Measures risk of disease or injury in a population.

**Prevalence**

Measures the burden of disease or injury within a population.

**Evaluation On-The-Job** – Has the characteristics: 1) the client is not necessarily paid; 2) it is primarily for the client’s benefit; 3) it will not necessarily result in employment; 4) the employer does not experience immediate gain; 5) the client does not displace or fill any vacant worker slots; and, the client’s performance is supervised and evaluated by the employer and/or the evaluation staff. The client is given the opportunity to experience the specific requirements necessary to do the specific job in an actual job setting.

**Follow up – Vocational** – Supportive assistance during the initial stage of a new program or job placement and which may determine to what degree the past and present program is adequate in meeting client needs and/or ascertain the readiness of clients to benefit from new programs.

**Family Services** – Services provided by a social worker or counselor to assist family (and patient) counseling in coping with the particular disease/condition of a client.

**Functional Assessment** – An evaluation that determines how well a person with a disability can perform specific job-related duties. The assessment may be done at a mock job setting or in an actual job setting during a period of several days.

**Functional Limitation** – Any restriction or lack of ability to perform an activity in the manner or within the range considered normal for a human being, which is chronic or permanent in nature, and/or which is judged to be a cultural, social, economic, and/or environmental disadvantage.
Glasgow Coma Score (GCS) – Developed by Teasdale and Jennett

Use of three items proven to be the most sensitive measures of severity of head injury and predictors of immediate outcome. (There is no absolute measure of what constitutes a severe injury.) The GCS measures eye opening (4 points), best motor response (6 points), and verbal response (5 points).

<table>
<thead>
<tr>
<th>Response</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eye opening</td>
<td></td>
</tr>
<tr>
<td>Opens eyes on own</td>
<td>E4</td>
</tr>
<tr>
<td>Opens eyes when asked in a loud voice</td>
<td>3</td>
</tr>
<tr>
<td>Opens eyes when pinched</td>
<td>2</td>
</tr>
<tr>
<td>Does not open eyes</td>
<td>1</td>
</tr>
<tr>
<td>Best motor response</td>
<td></td>
</tr>
<tr>
<td>Follows simple commands</td>
<td>M6</td>
</tr>
<tr>
<td>Pulls examiner’s hand away when pinched</td>
<td>5</td>
</tr>
<tr>
<td>Pulls a part of body away when examiner pinches him</td>
<td>4</td>
</tr>
<tr>
<td>Flexes body inappropriately to pain (decorticate posturing)</td>
<td>3</td>
</tr>
<tr>
<td>Body becomes rigid in an extended position when examiner pinches person</td>
<td>2</td>
</tr>
<tr>
<td>Has no motor response to pinch</td>
<td>1</td>
</tr>
<tr>
<td>Verbal response (Talking)</td>
<td></td>
</tr>
<tr>
<td>Carries on a conversation correctly and tells examiner where he is, who he is, and the month and year</td>
<td>V5</td>
</tr>
<tr>
<td>Seems confused or disoriented</td>
<td>4</td>
</tr>
<tr>
<td>Talks so examiner can understand person but makes no sense</td>
<td>3</td>
</tr>
<tr>
<td>Makes sounds that examiner cannot understand</td>
<td>2</td>
</tr>
<tr>
<td>Makes no noise</td>
<td>1</td>
</tr>
</tbody>
</table>

Handicap – A condition, barrier, or disadvantage imposed by society, the environment, or by one's self that limits or prevents fulfillment of a (social) role that is "normal" for an individual.

Health Service – The delivery of direct, preventive, assessment and therapeutic intervention services to individuals whose growth, adjustment, or functioning is actually impaired or may be at risk of impairment.

Home Modifications – Redesigned staircase, ramps, toilets, new entrances to home to allow passage and movement, etc.

Homicide – The killing of one person by another.

Impairment – Discrete loss or abnormality of mental, cognitive, emotional, physiological, biochemical, or anatomical structure or function at the organ level, including all losses or abnormalities, not just those attributable to the initial pathophysiology. All pathologies are accompanied by impairments in either the specific functioning of an organ or organ system.
Independent Living Center/Program – A place in the community for persons with disease, injury, or secondary conditions to learn basic self care and daily living skills to live in the community as independently as possible. Community-based services are available to maximize a person’s ability to be self-directed and allow her/him to live at home with the maximum personal control over how services are delivered, combined with the opportunity to work as appropriate.

Instrument – A questionnaire, test or other data collection form used to gather information about an opinion, condition or injury and/or knowledge, attitudes, behavior, etc.

Job Modification or Accommodation – Any change or adjustment to a work task in order that a person with a disability may perform that task at the highest possible level of independence.

Job training - Services to provide client with various skills specific to job types.

Long Term Acute Care Hospital/Center – A long term acute care (LTAC) hospital differs from acute care hospitals in three basic ways. First, length of stay (LOS) must be an average of 25 days based on a predetermined Diagnosis Related Group (DRG). Patients are discharged to LTACs as available when they need extended LOS and intensive medical services. Second, reimbursement for patients in LTACs is based on actual costs up to the TEFRA target. The TEFRA rate is determined by Cost Base/Medicare discharge which is controlled by the Balanced Budget Act of 1997. Long term acute care hospitals have an average length of stay (LOS) of 25 days. They provide 6.5 to 8.5 nursing hours per day based on acuity (amount of nursing time needed to assist/teach patients in activities of daily living (ADL) such as eating, grooming, and toileting.) The acuity of therapy is based on diagnosed need and patient tolerance. There are no maximums or minimums by guidelines and not all patients receive therapy. Type of patients served are ventilator dependent and medically complex patients. Long term acute care hospitals have an average length of stay (LOS) of 25 days. They provide 6.5 to 8.5 nursing hours per day based on acuity (amount of nursing time needed to assist/teach patients in activities of daily living (ADL) such as eating, grooming, and toileting.) Patients are usually discharged to home with family or Home Health, nursing home, a skilled nursing facility (SNF), assisted living, or rehabilitation.

Long term care facility/nursing home – A facility which provides 24-hour nursing care prescribed by a physician.

Medicaid – A medical assistance program that helps people who cannot afford to pay for their medical care. Medicaid is a joint federal/state funded program and covers a majority of people on low incomes, including pregnant women, senior adults, and persons with disabilities. Provided under Title XIX of the Social Security Act of 1966.

Magnetic Resonance Imaging (MRI) – MRI is sensitive in identifying parenchymal injuries, brainstem injuries, subdural hematomas of differing age and size, and nonhemorrhagic diffuse brain injuries.

Medicare – a health insurance program offered by the Social Security Administration to help people pay for their medical care. Part A helps pay for inpatient hospital care, inpatient care in a
skilled nursing facility following a hospital stay, and hospice care. Part B helps pay for doctor’s services, outpatient hospital care, diagnostic tests, ambulance services, and medical equipment. The hospital insurance system and the supplementary medical insurance for disabled or aged persons created by the 1965 amendments to the Social Security Act of 1966.

**Memory – Long Term** – Refers to recall thirty minutes or longer after presentation. Requires storage and retrieval of information which exceeds the limit of short-term memory.

**Memory – Short Term** – Primary or “working” memory; its contents are in conscious awareness. A limited capacity system that holds up to seven chunks of information over periods of 30 seconds to several minutes, depending upon the person’s attention to the task.

**Natural Work Supports** – Assistance provided to a person with a disability through means that already exist in a workplace (for example, a co-worker is a partner to the person with a disability).

**Outcome** – Refers to status of the injured at specific points in time. May refer to survival/no survival, or any measure of physical/mental/emotional/social effects post injury.

**Psychological Services** for TBI survivors that include cognitive retraining, management counseling of behavior, and the development of coping skills by the client and members of the family.

**Prevention** – Primary – Measures to prevent the injury/disease/condition from occurring.
Secondary – Measures to treat the injury/disease/condition to prevent further illness and disability.
Tertiary – Measures to maintain/enhance status and reduce progression to disability.

**Pre-vocational** – Providing basic training in tasks of specific jobs to individuals as training part of rehabilitation.

**Program** – A set of activities applied to preventing/educating on disease or injury; includes a plan, design, funding, implementation and evaluation.

**Quality of Life** – The total well being of an individual (usually as perceived by the individual), encompassing both physical and psychosocial determinants. A rating of what kind of existence a person experiences. In estimating the quality of life, elements include performance of societal roles, physical status, emotional status, social interactions, intellectual functioning, economic status, support systems and health status. Additional considerations are mobility and activities of daily life, living arrangements, social relationships, work and leisure activities, present satisfaction and future prospects.

**Reasoning – Problem-Solving** – The ability to analyze information related to a given situation and generate appropriate response options. Problem-solving is a sequential process that typically proceeds by: identification of the problem; generation of response options; evaluation of
response option appropriateness; selection and testing of first option; and analysis as to whether solution has been reached.

**Referral Source** – Person or facility sending a client for services. This includes such service agencies as vocational rehabilitation, physicians, industry, insurance companies, employment agencies, community action groups, and potential clients themselves.

**Rehabilitation** – A comprehensive treatment program has the goal to reduce/overcome deficits following illness or injury, and to assist the individual to attain their optimal level of mental and physical ability; useful and productive activity. The process involves a planned, orderly sequence of multiple, coordinated services related to the total needs of the individual. Services may be delivered within acute care services, a separate hospital unit, separate facility, or on an outpatient basis. The scope of services may include physical therapy, occupational therapy, speech/language therapy, social services, exercise physiology, counseling, recreational therapy, psychological therapy, pain management, self care and, when possible, case management.

**Rehabilitation Hospital** – Either a separate unit/department in an acute care facility or a free-standing facility devoted exclusively to rehabilitation.

**Rehabilitation Therapies/Services**

**Physical** – A treatment program of services to help a patient attain functional independence or attain the level of independence possible.

**Occupational** – Provision of services geared to help the patient attain the highest potential in accomplishing activities of daily living to the level of independence possible.

**Speech/Language** – Services to help a patient learn/relearn ways to improve speech, language, oral, and pharyngeal sensory-motor function.

**Swallowing** – Services to help affected patients swallow normally when eating and talking.

**Cognitive** – Programs which help traumatic and other brain injury survivors in the management of specific problems in thinking and perception. Skills are practiced and strategies taught to help improve function and/or compensate for remaining deficits.

**Memory** – A type of cognitive therapy where skills are taught/learned to compensate or improve short-term memory.

**Remediation** – A method of compensation in which an internal system is created to enable one to function. It assumes that a potential exists to add a repertoire of skills, and that given the appropriate teaching strategies, learning can and will occur.

**Residential living** – Living in a supervised home while learning to function as independently as possible in order to return to one’s own home or live in a place with minimal or no supervision.
**Residual Disability Benefit** – A provision in an insurance policy that provides benefits in proportion to a reduction of earnings as a result of disability, as opposed to the inability to work full time.

**Secondary Condition** – People with disabling conditions are often at risk of developing secondary conditions that may result in further deterioration in health status, functional capacity, and quality of life. A secondary condition is an impairment, functional limitation, or disability that is causally related to a primary disabling condition and includes contractures, urinary tract infections, depression, cardiopulmonary conditions, decubitus ulcers, etc.

**Sheltered Work Setting** – Employment in a setting that is not community based in order that ongoing, high-level supervision on routine tasks can be provided. Persons who work in sheltered workshops generally have very severe impairments that preclude their working at an independent level.

**Specialized mobility equipment** – Use of limb apparatus, wheelchairs, specially equipped vehicles, etc. to move about.

**Supervised community residence** – This setting is a home similar to neighboring homes in terms of size and number of residents. Clients are provided individualized care, supervision, support and training services to maximize and/or maintain function and self-direction. Staff is present at night and other times when the client is present.

**Supported or supervised work program** – Vocational rehabilitation services designed to lead to an employment goal. On-the-job supports (environmental, special guidance in tasks, etc.) for a person learning to use specific work skills.

**Transitional care/living** – A non-medical residential program providing training for living in a setting of greater independence. The primary focus is on teaching functional skills and compensating for abilities that cannot be restored.

**Traumatic brain injury** – Injury to the brain sustained by blunt or penetrating trauma or from acceleration-deceleration forces, and includes ICD-9-CM codes 800.0-801.9, 803.0-804.9, 850.0-854.9 and 959.1. Conditions such as stroke, tumors, neurologic disease, or developmental disabilities are not included in this definition.

**Vocational** – Services to assist client in learning tasks usable in various training jobs/activities.

**Vocational Assessment/Evaluation** – To assess previous and present abilities and assist in vocation. The use of medical, psychological, social, vocational, educational, cultural and economic data/information to attain goals in a process which will assist individuals in vocational development.

(Multiple sources, including IPS/OSDH studies and publications, TIRR Brain Injury Glossary, Mayo Clinic Proceedings, CDC, and DRS.)
Background of Traumatic Head Injury

**Introduction.** Injury to the brain has been with us since the beginning of humankind. Despite protection by the skull, the head is vulnerable to injury because of its size and exposure to objects, weapons, and falls. In past centuries, the main causes of head injury were accidents, assaults, conflicts, and wars. Care of these injuries was complicated by limited knowledge and the lack of diagnostic and treatment methods. Many people suffered a variety of long-term effects they and their families had to “live with.”

Over time the causes and sequelae of brain injury have become prominent among conditions that affect many people. In the 20th and 21st centuries, recreation, sports, and the risks associated with industrialization and technology have contributed to increasing numbers of injuries. Recognition and documentation of the aftereffects of brain injury have increased dramatically since the Six-Day War in the Middle East during the 1960s when cognitive and behavioral long-term effects were studied among persons serving in the military. During the past 20 years, brain injury has evolved as a special focus among policy-makers, agencies, and health professionals. The 1990’s were declared the Decade of the Brain by President Reagan.

**Background.** Traumatic brain injury (TBI) is defined as a physiological disruption of brain function resulting from trauma that is either external, such as an object striking the head or the head striking an object, and/or internal, such as rapid acceleration/deceleration or rotation of the brain within the skull as in a car crash. The injuries may be open (skull penetrated) or closed (skull intact). Damage to the brain may interrupt connections within the brain affecting any part of the body. Present-day conflicts have resulted in thousands of military personnel sustaining severe local penetrating injuries and/or diffuse injuries (affecting all of the brain) that occur during blasts or explosions. The brain and the results of injury are very complex. Problems people may have after injury mainly depend on the part(s) of the brain that was injured, seriousness of the injury, if the person had other body injuries, age, their state of health, and how quickly they received treatment.

**Number of People Affected.** In the United States each year, an estimated one million people with TBI are treated and released from emergency rooms, about 260,000 are hospitalized, 51,000 die, and 80,000 to 90,000 have moderate to severe disabilities. The Centers for Disease Control and Prevention (CDC) estimates that 5.4 million people live with a traumatic brain injury-related disability. The risk of having a traumatic brain injury is substantial among all age groups, particularly adolescents and young adults, affecting relationships, work, school, and daily living. Many families suffer emotional and economic problems because of the costs involved in acute and long term care, rehabilitation, lost productivity, and ongoing health care needs. Presently, the leading causes of traumatic brain injury are motor vehicle crashes, violence, and falls. The increasing numbers of blast and other hearing/vision-related brain injuries sustained by service members in theatres of war are a national and local challenge for veterans health care and the communities the veterans return to following intensive acute and rehabilitative care.

Oklahoma is one in a group of states with the highest death rates from traumatic brain injury. According to data collected since 1992, an average of 3400 persons are hospitalized and 850 die from a brain injury each year. The causes of injury include motor vehicle crashed (32%), falls...
(31%), gunshot injuries (11%), assaults (8%), sports (4%) pedestrian (3%) and other causes (11%). An estimated 700 persons are discharged each year from the hospital with short- or long-term limitations and disabilities such as cognitive problems, sensory deficits, physical limitations, or behavior problems.

The main factors that determine survival and functional outcome for a person with brain injury are the extent of damage alone or in association with other traumatic injuries, immediate and appropriate medical diagnosis and treatment, and the prevention or control of secondary injuries to the brain such as swelling and infection.

The severity of injury is the best predictor of how far a person will move along the continuum of recuperation. Length of coma (LOC) is a reliable marker for judging injury severity and is measured by the time that has elapsed from injury to the time the person wakes up. In cases of minor brain injury, there may be no LOC, but in many cases LOC can last for minutes, hours, days, weeks, or years. Persons may also be confused for periods of time after they become conscious. The length of time they are confused is called post-traumatic amnesia (PTA). PTA is considered the second best marker of the severity of brain injury. With mild injury, the majority of people recover completely in 3 to 9 months without residual effects; however many have problems for a longer time and some for their lifetime. With moderate injury, a large proportion of persons with TBI become independent although many do not return to their level of functioning prior to injury. With severe injury, a small percentage of persons return to school, work, or are able to perform the activities they performed before injury. The majority of persons achieve some level of independence.

Residual or After Effects of Traumatic Brain Injury
The types of problems people may experience following brain injury largely depends on the part(s) of the brain injured and the severity of injury. The figure below shows functions of the brain that may be affected.

Functional Domains of the Brain

![Diagram showing functional domains of the brain](Diagram)

*Frontal Lobe*
- Motor action
- Controlling attention
- Emotional control
- Guiding social behavior
- Judgment and problem-solving
- Executive functions
- Language

*Temporal Lobe*
- Memory
- Emotional and receptive language
- Comprehension of language
- Musical awareness
- Organization and sequencing skills

*Parietal Lobe*
- Tactile perception (touch)
- Awareness of spatial relationships
- Academic skills (reading)
- Using information from body senses

*Occipital Lobe*
- Visual perception and input
- Reading (perception and recognition of printed words)

*Cerebellum*
- Coordination and balance
- Motor skills

*Brain Stem*
- Regulates: Blood pressure
- Temperature
- Sleep
- Reflexes
- Orientation of information to and from the body

*Resources & Services Directory for Head Injury, Injury prevention Service, OSDH*
The three main types of problems that may be experienced by a person with traumatic brain injury are: 1) motor (body weakness or paralysis), or sensory deficits (vision, hearing, smell, touch); 2) cognitive such as impairments in language, verbal memory, perception, attention, slow information processing, and poor judgment; and 3) neurobehavioral, that includes impulsivity, agitation, inappropriate emotions, and poor frustration tolerance.

Rehabilitation provided in a hospital or rehabilitation center, when the person is in condition to benefit from therapies, helps a person to recover more rapidly. For most people with moderate to severe injuries, major gains are commonly made during the first two years after injury and more slowly after that. The person with the injury and the family should learn as much as possible about therapies and how to assist in recovery, particularly because resources and services needed over the long term are not available, so the family may have to provide ongoing care.

The Importance of Prevention

The three types of prevention are primary, secondary and tertiary:

Primary prevention involves the acquisition of habits and actions that will reduce the possibility of injury including:
- Use of protective equipment such as safety belts and helmets,
- Legislative controls related to vehicle condition, speed, roadways and condition of the driver,
- Knowledge and use of safety behaviors related to risks and hazards,
- Knowledge and use of appropriate environmental modifications, and
- Avoiding substance use.

Secondary prevention relates to:
- Prevention of secondary injuries through appropriate prehospital care and minimizing complications during acute hospital care,
- Prevention of additional brain injuries through knowledge of increased susceptibility (one of seven persons who experience a head injury is likely to suffer one or more head injuries), and use of primary prevention actions,
- Prevention of secondary conditions associated with the primary condition such as contractures, and treatment and/or education for preventing or controlling secondary conditions.

Tertiary prevention is the prevention of further impairment or disability and includes:
- Maintaining overall health status through good nutrition, exercise, taking care of personal, family and social needs, and using coping and adaptation skills,
- Assessing functional status periodically to intervene medically as needed, and
- Maintaining maximum functional independence given injury severity, overall health status and pre-injury level of function.
Disability
There are many definitions of disability but they all relate to a limitation in performing tasks, activities, and roles in the manner or within the range considered normal for persons of the same age, gender, culture, and education. Disability may refer to a physical, mental, sensory, or behavioral condition.

Approximately 35 million people in the United States have disabling conditions that interfere with their life activities. More than nine million people have physical or mental conditions that keep them from working, attending school, or maintaining a household. Annual disability-related costs to the nation total more than $170 billion. Oklahoma ranks fifth in the nation in the proportion of citizens who report one or more disabilities. A large number of people in Oklahoma are living with traumatic brain injury-related functional limitations or disabilities.

We hope that this directory of resources will help many people obtain assistance and the services they need in order to live as close to the level of independence they maintained prior to injury.