The type and severity of the sequelae of closed head trauma will depend upon the location, type, and extent of the injury. Residual deficits may be physical, cognitive, behavioral, and/or emotional. The rehabilitation professional must address the needs of each client individually in terms of all of the above, based on extensive testing and evaluation, in order to select the most appropriate rehabilitative setting.

Severe traumatic head injury may result in permanent impairment of a variety of brain-related functions. It is important to understand such residual deficits, how they affect the client and his or her family and how they differ from other neurological impairments. Each traumatically head-injured adult will present unique difficulties relative to the particular location, type, and extent of injury. Hence, rehabilitation plans must be suited to each individual case based on the sequelae, which continue to be present after the initial recovery phase.

This discussion will emphasize those sequelae of traumatic head injury, which involve ongoing quality of life issues rather than those which are primarily medical in nature. Ordinarily the rehabilitation specialist does not become involved with a client until after the acute phase of medical treatment and recovery. Immediately following the accident attention will concentrate on procedures designed to save the patient's life and prevent secondary complications related to the head injury or to other multiple injuries, which commonly coincide with the head injury. Once medical stability is attained, attention may be turned to appropriate rehabilitation processes, and it is here that the rehabilitation specialist should begin to assure that the services provided are appropriate to the individual's needs. Consideration should be given to several factors in making recommendations for rehabilitation, assuming that the client is no longer comatose and that his/her condition is such that rehabilitation efforts will be tolerated:

1. Should such rehabilitation efforts be accomplished in the local facility where the patient has been receiving medical care or would a transfer to a rehabilitation facility be more appropriate?
2. Does the local hospital have a rehabilitation unit?
3. If so, does the rehabilitation unit meet the guidelines for acute treatment of the traumatically head injured as described by the Commission on the Accreditation of Rehabilitation Facilities (see CARF standards manual, 1985)?
4. Are the staff providing the treatment trained, experienced, and familiar with the unique rehabilitation needs of the head-injured client?
5. What are the family concerns in making a decision regarding the location of treatment?
6. Is the facility prepared to deal with all of the sequelae of the head injury, not just the physical rehabilitation?
Following is an outline and brief description of some of the residual deficits which may continue to be evident either permanently or for a significant length of time as a result of traumatically induced brain damage.

**Physical:**
(1) Confinement to a wheelchair due to physical disability so severe that the individual is unable to ambulate even with assistive devices.
(2) Other motor deficits such as hemiplegia, a wide-based gait, or poor balance which may require that the individual use assistive devices to ambulate or use a wheelchair for mobility to avoid fatigue when traveling long distances is necessary.
(3) Sensory integration impairments, which may result in impaired perception of temperature, changes in tactile sensation, or difficulty with visual-motor integration.
(4) Visual deficits resulting from muscle imbalance, which may cause double vision, or neurological damage causing severe visual field impairments.
(5) Motor speech disorders such as dysarthria and oral apraxia.

**Cognitive:**
(1) Attention and concentration may be reduced so that the patient is unable to attend to a task or activity for a sufficient length of time or is unable to ignore extraneous stimuli in the environment.
(2) Memory impairments of a variety of types are frequently seen in this population, including deficits of immediate, and short- and long-term memory, and difficulty in storage or retrieval of information. Memory impairments may have a significant impact on all other cognitive functions.
(3) Problem solving and decision-making are difficult for this population because they frequently do not have the ability to eliminate the whole of a situation, but rather look at only the immediate information. Abstract thinking is replaced by a very concrete approach.
(4) Processing speed is frequently reduced resulting in delay of response to stimuli as well as an overall slowness to act. On occasion, however, the head-injured person may be rather impulsive, acting rapidly without thinking out the consequences of his or her behavior.
(5) Organization and planning may be impaired, with the most common difficulty involving poor sequencing abilities. The patient may not be able to comprehend the need to plan in advance for either major events or even simple everyday tasks and may not be able to properly sequence the steps necessary to accomplish a task.
(6) The traumatically brain-injured client may exhibit difficulty with concept formation and the entire association process. There may be impaired abilities to categorize and generalize which may severely impair the learning process.
(7) There is frequently a rigidity of response present which precludes the exploration of alternative solutions to problems.
(8) Auditory and/or visual processing, abilities may be impaired even though the peripheral sensory systems may be intact. It cannot be assumed that the brain-
injured client is hearing or seeing the same way as others do.  
(9) Due to a variety of cognitive impairments, the client may not be able to make 
appropriate judgments on major life decisions and may have difficulty responding 
to the immediate environment as well.

**Behavioral:**
(1) Inability to engage in purposeful activity.  
(2) Disinhibition.  
(3) Inability to appropriately respond to environmental cues.  
(4) Socially inappropriate behavior.  
(5) Social skill deficits.  
(6) Impulsivity.  
(7) Poor initiation.

**Emotional:**
(1) Personality regression is common in traumatically head injured adults, 
characterized by increased dependency and childlike behavior. There is often an 
accompanying reduced ability to cope with the demands of rehabilitation as well 
as with the everyday stresses of life.  
(2) Denial may range from an inability to recognize and accent the actual deficits 
which are present to an inability to perceive the impact which these deficits will 
have in the future on the life of the patient, his or her family, and on interpersonal 
relationships.  
(3) A head-injured client frequently exhibits reduced self-esteem when beginning 
to recognize that he or she is different from before.  
(4) Depression is common among traumatically head-injured adults, but it is 
difficult to differentiate clinical depression from other cognitive and physiological 
symptoms.

Works Cited:  
Commission on Accreditation of Rehabilitation Facilities. (1985). Standards 
Manual. (Full Citation Missing).