

## CHP Case Study 2009

### The Case Study : Section 1

*Hi, my name is Jessica and I am a 19-year-old college freshman. I will be starting college this Fall. I've looked forward to this time in my life and I should be happy and enthusiastic about going away to the college of my choice. That all changed, however, when we received a phone call that my younger brother had been hurt in an accident. At first I thought it was just a few broken bones, but he suffered a brain injury. I know other kids who have had concussions and they were a little groggy and had to take it easy for a few days, but I didn't know anything about brain injury. Nothing prepared me for the way his injury has affected not only him, but also our entire family.*

*My brother Tommy was definitely a jock. As a 17-year-old high school junior, he had already begun to stand out as an impressive athlete in track and field, especially in the pole vault. He spent a great deal of time in the weight room at school lifting with his friends and teammates. He also enjoyed skateboarding, and skiing; he loved to go fast.*

*On Saturday May 1, 2009, Tommy was participating in a track and field meet. The unthinkable happened! He was in the middle of a vault when something went wrong. He missed the mat and hit the ground! He lay motionless. The athletic trainer immediately rushed to his side. When the athletic trainer got to his side Tommy was just beginning to open his eyes and regain consciousness. There was a lot of blood coming from his right arm and it looked deformed. Although he seemed to be in a tremendous amount of pain, he did know who he was and where he was. I saw him wiggle his toes and move his fingers. For a moment it seemed like he was going to be okay, but he wasn't. A few minutes later, everything started to go wrong and he became unconscious again. The ambulance arrived, and the athletic trainer helped get Tommy ready and he was rushed to the hospital.*

*Tommy was unconscious when he arrived at the hospital and the doctor informed us that it would take a few days to realize the extent of the injury. The doctors explained that he had some internal bleeding and swelling in his brain. In addition to the injury to his brain, he suffered a skull fracture and several broken bones in his right shoulder and arm.*

*Thankfully, he woke up from the coma after 3 days, but he was still in really bad shape. He couldn't speak, eat or walk. He received intensive rehabilitation and made a lot of progress, according to the health care professionals. Now after 3 months, he can talk and is beginning to walk, but his behavior is really different. He will say and do things that are inappropriate. It's gotten better, but it's still noticeable that something is not quite right. Before the accident, he was a real health fanatic. Now his eating habits have totally changed. He pigs out on stuff that he would never even touch before – like 3 bags of Doritos at one time! Mom is really upset about that. Tommy was also really laid back before but now he loses his temper all the time. He also denies a lot of his problems, like his hearing loss and seizures.*

*Tommy was an inpatient at a local hospital for 30 days. After that, his insurance wouldn't pay for any further hospitalization, so he was transferred to an inpatient rehabilitation center within the hospital where he's been for the past 2 months. Now his insurance has maxed out there as well, so the hospital is planning to send him home. There was a strong difference in opinion among the members of the clinical team as to whether he should go back to school or go to a special outpatient treatment center. But we're not sure if his insurance will cover OP treatments, and even if it does, for how long. Our family was confused about what Tommy should do. Tommy wants to return to school but I'm worried about whether he can really handle it. I am so scared for him and my mom. He's been in a totally sheltered environment with maximum structure. How is he going to be able to make it at school? How will he be able to get around to all of his classes, and carry his backpack and books? On top of that, how will he get to school in the morning? My mom is supposed to leave for work 45 minutes before Tommy has to be to school. Tommy's always driven himself to school. Will he have to ride the bus and how will that work out? Will my mom even be able to care for him and my little brother at home? What will Tommy's peers and teachers think of him? I know that he can't stay in a facility forever. What if the insurance doesn't cover OP treatments? How will we pay for that? I also heard one of the rehabilitation staff say that he could benefit from a longer stay but that it is not possible because of his insurance. It's scary to think that our family will have to figure it all out.*

*Fortunately, Tommy's family doesn't have to "figure it all out" alone. The interdisciplinary team at the rehabilitation facility will have to make recommendations and appropriate referrals to assure that Tommy's needs are met. Resources in the health care system as well as in the public school system may be available, however, further private insurance coverage is limited and the public school only provides services related to educational needs. Your job, as a member of the interdisciplinary team will be to determine what the needs are and how they will be met.*

*The hospital assigned a case worker to Tommy's case upon admission to the IP unit, as is policy. The case worker in Tommy's case is approximately 30 years old with 2 years experience as a case worker. Previously, he worked in the dietary department of the hospital while earning his college degree in social work. The case worker speaks English as a second language. Both Tommy's mother and sister have not related well with the case worker, and appear to have some potential diversity issues with his background. Tommy's sister has told several of the nurses confidentially that she doesn't believe the case worker is qualified to oversee Tommy's complex case. One of the nurses shared this information with the clinical director who brushed it off since the sister is only 19 years old.*

*In addition, both the mother and the sister were offered counseling sessions with an in-house clergy, but to date both have said they don't feel that they have a need for counseling.*

## **The Case Study : Section 2**

Patient: Thomas "Tommy" Moore  
DOB: February 12, 1992  
Date of Onset: May 1, 2009  
Date of Report: July 22, 2009

### **Medical Diagnosis:** (as of July 22, 2009)

1. Traumatic brain injury secondary to fall
2. Status-post basilar skull fracture – mixed temporal bone
3. Motor deficit: Full weight bearing on lower extremities, mild deficits in coordination and balance
4. Status upper extremity: Full range of motion of upper extremities; complete union of clavicle, radius, and ulna; mild to moderate deficits in strength, coordination, reaction time
5. Moderately-severe conductive hearing loss, bilaterally secondary to disarticulated ossicles.
6. Post-traumatic generalized seizures
7. Postconcussional disorder. including
  - a. Cognitive communication deficits: impulsivity and mild deficits in executive function, memory
  - b. Adjustment disorder with depressed mood

### **Medical Course:**

Suffered fall during pole vault jump and hit head on concrete. Had loss of consciousness and was in coma for 3 days. Initial Glasgow Coma Scale score = IV initial Ranchos Los Amigos Scale-revised (RLAS-R – scale I – X) = II. Epidural hematoma; Positive signs for mixed temporal bone fracture included: Raccoon eyes, Battle sign, CSF otorrhea; Cerebral edema, mild increased intracranial pressure Began to emerge from coma on day 3 with steady improvement in function.

Motor function: Simple fracture of clavicle- stabilized with figure 8 wrap; compound fracture of radius and ulna immobilized with upper extremity cast; lower extremity sensation intact with full passive range of motion; ambulation status- to be assessed Recovery complicated by development of post-traumatic generalized seizures beginning on day 8 following injury resulting in secondary epilepsy. Initial treatment with Valproic acid (Depakote) ( 750 mg twice daily) was prescribed. At the time of transfer to rehab, seizure activity was fairly well controlled, with 1 episode occurring within the last 2 weeks.

Progressed to RLAS-R = IV with transfer to Rehabilitation Facility on May 28, 2009

**Social History:**

Lives at home with mother, older sister (age 19) and younger brother (age 11) Parents are divorced and father is supportive but lives in Virginia. Mother works full time. Tommy is a junior at Eastern High School; GPA = 3. Field and track athlete: high jump, relay race and pole vault. Active in recreational sports – skiing and skateboarding. Large video game collection. Tommy has a fairly large social network of friends, coaches and teammates who have shown concern and support for him and his family.

**Current Medical Status: July 22, 2009**Interdisciplinary Case Conference Summary

Current RLAS-R level = VII – VIII

**Medical:**

Current Medication: **Paxil (paroxetine- 40 mg at bedtime), Valproic acid (Depakote) (750 mg twice daily)**

Current labs include CBC, coagulation studies, basic chemistry profile, liver function studies, therapeutic blood levels

Labs:

<u>CBC</u>		<u>Chemistries</u>		<u>Coag Studies</u>	
WBC	6520 cells/mm <sup>3</sup>	FBS	90mg/dL	<b>Platelets</b>	<b>120,000mm<sup>3</sup>*</b>
Bands	6%	BUN	6mg/dL	<b>Prothrombin</b>	<b>12 sec</b>
Segs	50%	Creatinine	0.8mg/dL	<b>APPT</b>	<b>31 sec</b>
Eos	2%	K+	4.0mEq/L	<b>Fibrinogen</b>	<b>300mg/dL</b>
Basos	0%	Na+	138mEq/L		
Lymphs	30%	Cl	100mEq/L		
Monos	3%	CO <sub>2</sub>	25mEq/L		
RBC	4.0x10 <sup>-6</sup> /mm <sup>3</sup> *	Albumin	3.0g/dL	<u>Drug Levels</u>	
Hct	38%*	Pre-albumin	18mg/dL	<b>Valproate</b>	<b>40mcg/ml</b>
Hgb	11 g/dL*	AST	18U/L	<b>Valproic acid</b>	<b>100 mcg/ml</b>
MCV	82mm <sup>3</sup> *	LDH	200U/L		
MCHC	32g/dL*	Amylase	100U/L		
MCH	26pg/cell*	Alkaline Phosphatase	150U/L		
		Bilirubin	1.2mg/dL		

\* indicates abnormal value

**Nutrition:** Tommy is 5'10" and currently weights 165 pounds. His weight prior to his injury was 170 pounds. He lost 12 pounds in the post-traumatic period and is now gaining back weight to his pre-accident weight, but with obvious change in body

composition from lean and muscularized to more adipose tissue that is increasingly centrally located. He is still suffering from mild anemia and protein deficiency. His appetite is good and he has no difficulty consuming any foods. When his sister visited Tommy recently she was very surprised to see that his choice of food had changed dramatically from his training and competition diet. Tommy is currently eating many convenience and "fast foods" which are low in nutrients and high in calories. The dietary department of the hospital has been notified not to send any snack or junk foods to Tommy's room for meals, but somehow he still manages to get them. On one occasion, he hoarded and then binged on snack foods brought in by visitors. His sister has spoken with his mother about his food choices and expressed her concern about his ability to plan and prepare a healthy meal for himself, but his mother just mutters that that's the least of the problems at the moment. She appears very overwhelmed. Tommy will be making his own food choices when he goes home as his mother has returned to full time work and arrives home at 6 PM.

**ADL's – Self-Care/ Safety Awareness** Thomas is able to complete familiar and routine self care tasks independently. For example, he is able to bathe, dress, shave, and feed independently. Because of difficulty with executive functions and short term memory, he needs memory aids and direct supervision to complete more complex instrumental activities of daily living. For example, he has difficulty planning for and sequencing non-routine activities for the day or week, managing his money, preparing meals, scheduling transportation, and predicting or responding to safety issues. Eligible by age to drive, he does not understand why the medical team and his parents do not allow him to do so. He misjudges social situations, not attending to or interpreting the subtleties of the verbal and non-verbal communications of others. He responds by becoming withdrawn and self-negating, or by becoming angry and argumentative.

**Motor Skills:** At twelve weeks post the accident Thomas's right radius, ulna, and clavicle have healed. The figure-8 shoulder sling and the arm cast have been removed. His range of motion is limited above his shoulder and he has difficulty with rotation at his wrist. He is able to exert mild muscle strength to move objects against gravity, though only 80% of his normal capacity. He is able to complete familiar, multi-step tasks that require coordination of his arms and hands when in a distraction reduced environment. However, in more distracting environments or in environments where he feels social pressure, he has difficulty concurrently attending to the movements of his arms/hands and concentrating on complex cognitive tasks. Thus, he has difficulty simultaneously writing legibly or typing accurately while taking class notes or composing essays. His speed and reaction time are somewhat delayed, thus he takes longer to complete upper extremity motor tasks, and may miss catching thrown or falling objects. Similar to gross movements involving his trunk and leg muscles, he needs multiple practice opportunities and feedback from others to learn how to sequence and execute new, multi- step movements of his arms and hands. He does not readily self correct his own mistakes, nor generalize learned movement patterns to new situations.

**Ambulation:** Thomas is now able to walk independently within confined, familiar spaces such as the practice apartment on the rehab unit, using a widened gait pattern.

However, in more open spaces, he has difficulty simultaneously attending to the terrain, pacing his gait, and maintaining his balance. Thus, he has a tendency to trip over objects, and misjudge the distance between himself and another person or object. His reaction time to vestibular clues is somewhat delayed. He needs to catch his balance when making sudden shifts in the direction of his movements, and may fall when leaning too far forward or to the sides. Though able to sequence and execute familiar movement patterns, he needs multiple practice opportunities and feedback from others to learn how to sequence and execute new, multi-step movements. He does not readily self correct his own mistakes, nor generalize learned movement patterns to new situations.

### **Cognition/ Speech-Language:**

RLAS-R level VII – VIII

Tommy is oriented to person and place, but inconsistently oriented to time. Requires daily logbook to remember details (writes events as they occur) and stay on schedule. Memory for personal information is good but has reduced short-term memory. He really needs written reminders along with auditory directions for multi-step tasks. He's -still bothered by distractions when completing tasks but is able to attend for 45 minutes without distractions. When distractions are present, his ability to attend to a task fluctuates and he usually needs re-direction. He has low frustration tolerance especially when tired or overloaded. He's completing math at grade level and comprehends reading tasks with 75% accuracy in a quiet environment. Accuracy for academic tasks decreases with distraction, fatigue and/or frustration level.

### **Hearing:**

Tommy has a moderately-severe conductive hearing loss, bilaterally. He has disarticulated ossicles in both ears. Speech Reception Thresholds of 60 dB HL for the right ear and 65 dB HL for the left ear were in good agreement with pure tone averages. Word recognition scores were 93% for the right ear and 96% for the left ear when the stimuli was presented at 40 dB SL. Type A<sub>D</sub> tympanograms were obtained in both ears consistent with disarticulated ossicles. Acoustic reflex thresholds were absent for all conditions except Tommy also suffers from tinnitus and vertigo.

He has been given a bone conduction hearing aid so he can communicate with the physicians and nurses but he does not like that it is a headband (it doesn't always stay in place) and is concerned about his appearance.

### **Behavior/social skills:**

Tommy has been more argumentative with staff lately. He overestimates his abilities and gets frustrated and upset when he needs assistance with daily tasks. He is exceptionally frustrated when he receives visits from friends and teammates and they can readily see him struggling with basic activities of daily living. In an effort to make him feel included, the conversations often involve reminiscing of past track and field events, current social and school situations and recreational activities that Tommy and his friends were involved in. Tommy has verbalized on many occasions that he would

like to be able to participate in activities that he used to be able to do. However, even though he overestimates his abilities from time to time, he clearly is aware of his limitations when he sees how healthy and active his friends are. He gets easily embarrassed around his friends and teammates and has even refused to take visitors on several occasions. In response to this, the visits from friends and teammates have become less and less frequent.

**Psychological status:**

Tommy is extremely embarrassed by his seizure activity. While hospitalized in the trauma unit, he witnessed other patients with seizure activity. The thought of losing control of bowel/bladder function, generalized tonic-clonic contractions, the classic epileptic cry, and noisy breathing following the seizure activity cause great distress. Additionally, following his own seizure activity, he complained of headache, fatigue, muscle soreness and depression.

**Issues to Consider:**

1. Ability to resume his previous activities (within the home, at school, athletic field, in the community)
2. Environmental supports (home, school, athletic team, community) (see attached)
3. Environmental barriers (home, school, athletic team, community) (see attached)
4. Interdisciplinary health and education issues
  - Address Primary, Secondary, and Tertiary Prevention
  - Individual
  - Family
  - School/ Community

## **The Case Study : Appendix**

### Ranchos Los Amigos Scales- Revised (only levels III – IX shown here)

#### **Level III - Localized Response: Total Assistance**

- Demonstrates withdrawal or vocalization to painful stimuli.
- Turns toward or away from auditory stimuli.
- Blinks when strong light crosses visual field.
- Follows moving object passed within visual field.
- Responds to discomfort by pulling tubes or restraints.
- Responds inconsistently to simple commands.
- Responses directly related to type of stimulus.
- May respond to some persons (especially family and friends) but not to others.

#### **Level IV - Confused/Agitated: Maximal Assistance**

- Alert and in heightened state of activity.
- Purposeful attempts to remove restraints or tubes or crawl out of bed.
- May perform motor activities such as sitting, reaching and walking but without any apparent purpose or upon another's request.
- Very brief and usually non-purposeful moments of sustained alternatives and divided attention.
- Absent short-term memory.
- May cry out or scream out of proportion to stimulus even after its removal.
- May exhibit aggressive or flight behavior.
- Mood may swing from euphoric to hostile with no apparent relationship to environmental events.
- Unable to cooperate with treatment efforts.
- Verbalizations are frequently incoherent and/or inappropriate to activity or environment.

#### **Level V - Confused, Inappropriate Non-Agitated: Maximal Assistance**

- Alert, not agitated but may wander randomly or with a vague intention of going home.
- May become agitated in response to external stimulation, and/or lack of environmental structure.
- Not oriented to person, place or time.
- Frequent brief periods, non-purposeful sustained attention.
- Severely impaired recent memory, with confusion of past and present in reaction to ongoing activity.
- Absent goal directed, problem solving, self-monitoring behavior.
- Often demonstrates inappropriate use of objects without external direction.
- May be able to perform previously learned tasks when structured and cues provided.
- Unable to learn new information.
- Able to respond appropriately to simple commands fairly consistently with external structures and cues.
- Responses to simple commands without external structure are random and non-purposeful in relation to command.
- Able to converse on a social, automatic level for brief periods of time when provided external structure and cues.
- Verbalizations about present events become inappropriate and confabulatory when external structure and cues are not provided.
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### **Level VI - Confused, Appropriate: Moderate Assistance**

- Inconsistently oriented to person, time and place.
- Able to attend to highly familiar tasks in non-distracting environment for 30 minutes with moderate redirection.
- Remote memory has more depth and detail than recent memory.
- Vague recognition of some staff.
- Able to use assistive memory aide with maximum assistance.
- Emerging awareness of appropriate response to self, family and basic needs.
- Moderate assist to problem solve barriers to task completion.
- Supervised for old learning (e.g. self care).
- Shows carry over for relearned familiar tasks (e.g. self care).
- Maximum assistance for new learning with little or no carry over.
- Unaware of impairments, disabilities and safety risks.
- Consistently follows simple directions.
- Verbal expressions are appropriate in highly familiar and structured situations

### **Level VII - Automatic, Appropriate: Minimal Assistance for Daily Living Skills**

- Consistently oriented to person and place, within highly familiar environments. Moderate assistance for orientation to time.
- Able to attend to highly familiar tasks in a non-distraction environment for at least 30 minutes with minimal assist to complete tasks.
- Minimal supervision for new learning.
- Demonstrates carry over of new learning.
- Initiates and carries out steps to complete familiar personal and household routine but has shallow recall of what he/she has been doing.
- Able to monitor accuracy and completeness of each step in routine personal and household ADLs and modify plan with minimal assistance.
- Superficial awareness of his/her condition but unaware of specific impairments and disabilities and the limits they place on his/her ability to safely, accurately and completely carry out his/her household, community, work and leisure ADLs.
- Minimal supervision for safety in routine home and community activities.
- Unrealistic planning for the future.
- Unable to think about consequences of a decision or action.
- Overestimates abilities.
- Unaware of others' needs and feelings.
- Oppositional/uncooperative.
- Unable to recognize inappropriate social interaction behavior.

### **Level VIII - Purposeful, Appropriate: Stand-By Assistance**

- Consistently oriented to person, place and time.
- Independently attends to and completes familiar tasks for 1 hour in distracting environments.
- Able to recall and integrate past and recent events.
- Uses assistive memory devices to recall daily schedule, "to do" lists and record critical information for later use with stand-by assistance.
- Initiates and carries out steps to complete familiar personal, household, community, work and leisure routines with stand-by assistance and can modify the plan when needed with minimal assistance.
- Requires no assistance once new tasks/activities are learned.

- Aware of and acknowledges impairments and disabilities when they interfere with task completion but requires stand-by assistance to take appropriate corrective action.
- Thinks about consequences of a decision or action with minimal assistance.
- Overestimates or underestimates abilities.
- Acknowledges others' needs and feelings and responds appropriately with minimal assistance.
- Depressed.
- Irritable.
- Low frustration tolerance/easily angered.
- Argumentative.
- Self-centered.
- Uncharacteristically dependent/independent.
- Able to recognize and acknowledge inappropriate social interaction behavior while it is occurring and takes corrective action with minimal assistance.

#### **Level IX - Purposeful, Appropriate: Stand-By Assistance on Request**

- Independently shifts back and forth between tasks and completes them accurately for at least two consecutive hours.
- Uses assistive memory devices to recall daily schedule, "to do" lists and record critical information for later use with assistance when requested.
- Initiates and carries out steps to complete familiar personal, household, work and leisure tasks independently and unfamiliar personal, household, work and leisure tasks with assistance when requested.
- Aware of and acknowledges impairments and disabilities when they interfere with task completion and takes appropriate corrective action but requires stand-by assist to anticipate a problem before it occurs and take action to avoid it.
- Able to think about consequences of decisions or actions with assistance when requested.
- Accurately estimates abilities but requires stand-by assistance to adjust to task demands.
- Acknowledges others' needs and feelings and responds appropriately with stand-by assistance.
- Depression may continue.
- May be easily irritable.
- May have low frustration tolerance.
- Able to self monitor appropriateness of social interaction with stand-by assistance.

Appendix: ICF Checklist copyright World Health Organization, September 2001

### **PART 3: ENVIRONMENTAL FACTORS**

- Environmental factors make up the physical, social and attitudinal environment in which people live and conduct their lives.

**Qualifier in environment:  
Barriers or facilitator**

**0** No barriers  
**1** Mild barriers  
**2** Moderate barriers  
**3** Severe barriers  
**4** Complete barriers

**0** No facilitator  
**+1** Mild facilitator  
**+2** Moderate facilitator  
**+3** Severe facilitator  
**+4** Complete facilitator

<b>Short List of Environment</b>	<b>Qualifier Barrier or facilitator</b>
<b>e1. PRODUCTS AND TECHNOLOGY</b>	
e110 For personal consumption (food, medicine)	
e115 For personal use in daily living	
e120 For personal indoor and outdoor mobility and transportation	
e125 Products for communication	
e150 Design, construction and building products and technology of buildings for public use	
e155 Design, construction and building products and technology of buildings for private use	
<b>e2. NATURAL ENVIRONMENT AND HUMAN MADE CHANGES TO ENVIRONMENT</b>	
e225 Climate	
e240 Light	
e250 Sound	
<b>e3. SUPPORT AND RELATIONSHIPS</b>	
e310 Immediate family	
e320 Friends	
e325 Acquaintances, peers, colleagues, neighbors, and community members	
e330 People in position of authority	
e340 Personal care providers and personal assistants	
e355 Health professionals	
e360 Health related professionals	
<b>e4. ATTITUDES</b>	
e410 Individual attitudes of immediate family	
e420 Individual attitudes of friends	
e440 Individual attitudes of personal care providers and personal assistants	
e450 Individual attitudes of health professionals	
e455 Individual attitudes of health related professionals	
e460 Societal attitudes	
e465 Societal norms, practices and ideologies	
<b>E5. SERVICES, SYSTEMS, AND POLICIES</b>	
e525 Housing services, systems, and policies	
e535 Communication services, systems, and policies	
e540 Transportation services, systems, and policies	
e550 Legal services, systems, and policies	
e570 Social security, services, systems, and policies	
e575 General social support services, systems, and policies	

<b>e580</b> Health services, systems, and policies	
<b>e585</b> Education and training services, systems, and policies	
<b>e590</b> Labour and employment services, systems, and policies	
<b>ANY OTHER ENVIRONMENTAL FACTORS</b>	

#### **Part 4: OTHER CONTEXTUAL INFORMATION**

4.1 Give a thumbnail sketch of the individual and any other relevant information.

4.2 Include any **Personal Factors** as they impact on functioning (e.g. lifestyle, habits, social background, education, life events, race/ethnicity, sexual orientation and assets of the individual).