SEIU HEALTHCARE NW
TRAINING PARTNERSHIP

STUDENT GUIDE

MODULE 8

Neurological Conditions: Spinal Cord Injury, Traumatic Brain Injury, and Stroke

Introduction

Purpose

The **Assisting the Consumer With a Neurological Condition** course is designed to help you understand three common neurological conditions and how they can affect the life of a Consumer on a daily basis. One of your main roles as a Home Care Aide (HCA) is to help Consumers be as independent as possible by customizing your assistance to each person according to each care plan.

Assumptions

What assumptions do you have about spinal cord injuries, traumatic brain injuries, and strokes? What assumptions do students have about their role as a Home Care Aide working with Consumers with neurological conditions?

What is an assumption?

An assumption is a belief that a person has about things or people that is based on past experiences and what he or she has learned. Sometimes assumptions are true but other times they are false. We are going to learn what is true and false about some general assumptions. Remember, each Consumer's condition(s) is unique, so there are always exceptions.

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Lesson 1: Spinal Cord Injury

Learning Objectives

- List the different parts of the body that are controlled by the spinal cord
- List the points of the spine and describe how a damaged location affects different abilities
- Prioritize, in order, the demographic breakdown of Consumers with spinal cord injuries (SCIs)
- Identify the common symptoms and complications that Consumers with SCIs may experience
- Identify the different stages of pressure ulcers and common practices to reduce the likelihood that they will occur
- Locate different points on Consumers' bodies where pressure ulcers are likely to occur
- Differentiate activities that should and should not be done to assist in the prevention of pressure ulcers

Activity A: What Does the Spine Control?

Instructions:

Take 10 minutes to make a list of the different elements of the body and bodily processes that can be affected by an injury to the spinal cord.

1. _____.
2. _____.
3. _____.
4. _____.
5. _____.
6. _____.
7. _____.

8. _____.

9. _____.

10. _____.

Different Levels of Injury

Spinal Cord Injury Categories

Directions:

Label the points of injury and the affected areas using the terms provided on the presentation screen.

Draw a person:

Paraplegia – Loss of feeling or movement in the legs and in part or all of the trunk, usually due to an injury to the spinal cord below the neck (52%).

Quadriplegia – Paralysis of all four limbs, or from the neck down, due to an injury to the neck (47%). Also known as tetraplegia.

“Incomplete” and “complete” are two terms that are often used to describe injuries. This is because two Consumers with the same injury location can exhibit different abilities. One Consumer with an **incomplete injury** can have feeling in his or her legs, whereas another who has a **complete injury** will have no feeling.

Cervical (neck) injuries – Result in tetraplegia, or quadriplegia, which is the partial or total loss of the use of all the limbs and the torso. Paraplegia is similar but does not affect the arms.

Injury Location	Effects
C3 vertebrae and above	Usually, loss of diaphragm function and needing a ventilator to breathe
C4	No movement of the biceps and shoulders
C5	No movement of the biceps, shoulders, wrists, and hands
C6	Limited wrist control and no hand function
C7 and T1	Stiff hands and fingers, some use of arms
Thoracic (chest level) injury	Paraplegia. Movement of the hands, arms, and neck usually are not affected; neither is breathing
T1 to T8	Unstable midsection and no stomach muscle control. The lower the level of injury, the less severe the effects
T9 to T12	Some loss of trunk- and stomach-muscle control

Lumbar and sacral injuries – Injuries to the lumbar or sacral regions of the spinal cord mean less control of the legs and hips, urinary system, and anus.

Demographics

- Males: 80%
- Age: 15- to 35-year-olds (at the time of injury) account for 50%-70%
- White: 65%
- African-American: 25%
- Hispanic: 8%

Causes of Spinal Cord Injury

- Motor vehicle accidents: 41.3%
- Falls: 27.3%
- Violence: 15%

- Sports: 7.9%
- Other/unknown: 8.5%

Common Medical Complications or Secondary Conditions

Directions:

Write down the names of the conditions, and write “EXP” next to them if you have worked with a Consumer who had them.

1. _____ •
2. _____ •
3. _____ •
4. _____ •
5. _____ •
6. _____ •
7. _____ •
8. _____ •
9. _____ •
10. _____ •

Autonomic Dysreflexia

Autonomic Dysreflexia is a rapid increase in high blood pressure. This usually happens when something irritates the body below the injury.

The most common irritations are bowel impaction and distention in the bladder. Other causes include medication side effects and various disease processes.

Symptoms

- Pounding headache
- Flushed (reddened) face
- Red blotches on the skin above the spinal injury
- Perspiration (sweating)
- Nasal (nose-related) stuffiness
- Nausea
- Goose bumps below the injury
- Cold, clammy skin below the injury

Treatment

Sitting Consumers up and dangling their legs over the bedside can reduce their blood pressure so it falls below dangerous levels. This can also provide some symptom relief. Follow a Consumer's regular pattern of bowel movements, and if there is an impaction call your supervisor or case manager to report it. Sometimes prescribed drugs can be used. A supervisor or case manager should be immediately contacted when this condition is suspected.

Bladder and Bowel Control Problems

Consumers sometimes have trouble knowing when their bladder is full. It is important that they follow a regular bowel movement schedule to make sure that they do not get a urinary tract infection.

Consumers learn about and create **bowel programs** as part of their rehabilitative therapy, and it is important that these programs be maintained in their activities of daily living (ADL).

Bowel programs and how to assist the Consumer are covered in the Toileting and Bathing Module.

Vascular/Circulatory Control

Low blood pressure and swelling of the limbs are common increased risks for blood clots. A Lack of activity leads to poor blood circulation and fatigue. Some Consumers may wear special stockings.

Fall Injuries

Make sure you put items that Consumers use often close to them. This will help prevent them from falling as a result of to reaching too far. Remove clutter from hallways, walkways, or any likely path of movement.

Impaired Skin Sensation

Consumers who have a complete injury will have no skin feeling below the injury, whereas those with an incomplete injury may have some. Many Consumers injure themselves in their daily living activities without noticing; therefore, it is important that you be observant.

- Test water temperature before Consumers wash at the sink or bathe
- Monitor the temperature of food and beverages to avoid burns
- If Consumers perform activities in the kitchen, ensure that their clothing is not loose, since it could potentially be exposed to flame

Pain

Consumers with SCIs can still experience pain or discomfort. The most common type of pain experienced with an SCI is **neuropathic** pain, which occurs around the injury area. This is also known as the “circle of fire” or “ring of fire.” Other types of pain include musculoskeletal (pain in the bones, muscles, and joints) and **visceral** (pain in the abdomen).

Because every injury is different and each Consumer feels pain differently, it is important that HCAs learn about a Consumer’s normal status, also known as that person’s baseline. Consumers may experience “rings of fire” and “phantom pains” on an ongoing basis. Learning these norms will allow you to set a baseline for gauging when something is not normal, in which case you should report to your supervisor or case manager.

Pressure Ulcers

List the additional names used for this condition.

1. _____.
2. _____.

3. _____.

4. _____.

5. _____.

Stages of a Pressure Ulcer

Write down the symptoms that are shown in the PowerPoint.

	Symptoms
Stage 1	
Stage 2	
Stage 3	
Stage 4	

Pressure Ulcers: Common Causes

In the space below, write the common causes as provided on the presentation screen.

1. _____.

2. _____.

3. _____.

4. _____.

Activity B: Pressure Ulcer Locations

Instructions:

In this activity you will work with a partner. One of you will play the role of Home Care Aide, and the other will act as the Consumer. Using the red disks provided by the instructor, the HCA will attach them to the locations on the Consumer where pressure ulcers would most likely develop.

Prevention Tips

- Help the Consumer change position at least every two hours
- Use items that can help reduce pressure, such as pillows and foam padding
- Encourage the Consumer to eat healthy, well-balanced meals that contain enough calories to sustain health
- Encourage the Consumer to drink plenty of water (eight to 10 cups) every day
- Help the Consumer to exercise daily, including range-of-motion exercises for immobile Consumers
- Assist the Consumer in keeping skin clean and dry, including after urination or a bowel movement
- Be aware that bed sheet wrinkles can cause pressure points on the skin

Do Not

- Massage the area of the ulcer. Massage can damage tissue under the skin
- Use donut- or ring-shaped cushions. They interfere with blood flow to the area and cause complications
- Use sheepskins, because they only shift pressure or friction from one vulnerable site to another
- Use a heat lamp
- Use plastic sheets
- Use harsh soaps, skin agents with alcohol, or antibacterial soaps
- Apply powders

Debrief

Instructions:

Working with a partner, you have 10 minutes to discuss what you can do with Consumers to help prevent pressure ulcers while assisting them with their activities of daily living.

Write your answers in the space provided and share them with your fellow students.

Notes:

Lesson 2: Traumatic Brain Injury

Learning Objectives

- Describe what a traumatic brain injury (TBI) is and what the common causes of the condition are
- List the common symptoms of a traumatic brain injury
- List actions that will reduce the occurrence of headaches
- Recognize key behaviors that often change in a Consumer who has experienced a traumatic brain injury
- Appraise various causes of headaches and strategies to prevent or reduce them
- Construct individual methods for evaluating and reporting persistent headaches

Introduction

The Definition of a Traumatic Brain Injury

A **traumatic brain injury** is damage to brain cells, which may be limited to the area directly below the point of impact on the skull.

A severe blow or jolt can cause multiple points of damage because the brain may bounce back and forth in the skull.

An object penetrating the skull may damage brain cells, blood vessels, and protective tissues around the brain.

Bleeding in or around the brain, swelling, and blood clots can disrupt the oxygen supply to the brain and cause widespread damage.

Activity A: Causes of Traumatic Brain Injury

Instructions:

Working with a partner, write down as many different causes of TBIs as you can think of, with as many specifics about each injury as possible. Use the space below to record your answers.

What Is a Traumatic Brain Injury?

A traumatic brain injury is a forceful jolt to the brain that causes a change in a person. A TBI can cause changes in people physically, mentally, behaviorally, or emotionally and may be temporary or permanent. It can cause partial or total disability.

Individual TBI survivors are different, and they are affected by their injury in different ways. The symptoms can also be unpredictable. Certain symptoms can exist and then disappear, but return months, weeks, or even years later. When a Consumer's symptoms or behaviors change, they should be reported. Most Consumers with a TBI do get better when the right kind of assistance is provided to help them in their recovery.

Until a person with a TBI recovers enough, he or she may be no more able to control emotions, behaviors, or physical symptoms than a person with a broken leg would be able to stand and walk normally before the bone has set.

Common Symptoms of Traumatic Brain Injury

Every injury is different. The following are some general changes that have been observed in large groups of Consumers. The Consumers you assist may have any combination of them. TBIs usually result from something violent or forceful happening to people, so they may have other injuries in addition to the one to their brain.

Physical Changes

- Decreased control over one side of the body
- Fatigue
- Changes in perception of touch, special perception, and visual perception
- Hearing problems
- Problems with balance and coordination
- Problems with skilled motor activity, such as finger movements
- Problems with breathing, heart rate, walking, and sleeping

What other conditions might an HCA see that have the same symptoms as those just given?

Recognizing Changes in Behavior

One of the things that a Consumer's care team will find useful is tracking any personality changes. Talking with the Consumer's family will help you get an idea of the person's baseline. Remember, if anything the Consumer does is different from his or her baseline, you must report it to your supervisor or case manager.

List common behavioral and emotional changes.

List common thinking and processing changes.

Headaches

Headaches are probably the most reported symptom among Consumers with TBIs. There are common causes to these headaches.

List common causes of headaches among Consumers with TBIs.

List common treatments that an HCA can assist with.

Encourage the Consumer to Avoid Foods That Trigger Headaches:

- Cold foods
- Some cheeses
- Chocolate

Activity B: Reporting Persistent Headaches

Instructions:

Working in teams, come up with a method that helps each of you assist in observing and documenting headaches so that they can be reported to the Consumer's care team. Think about looking for things that repeat.

How to Talk About Headaches

COLDER [1]

Character – What the headache feels like
Onset – How the headache started
Location – Where exactly the headache hurts
Duration – How long the headache lasts
Exacerbation – What makes the headache worse
Relief – What makes the headache lessen or get better

Video: "Traumatic Brain Injury: A Caregiver Journey"

Instructions:

While watching the video, answer the following questions:

The Facts and Faces of Traumatic Brain Injury

1. Some people believe that the effects of a TBI are relatively short term. But they can be much longer. How long has Todd had his injury?
2. What is a common symptom that is noticeable across most of the Consumers in the video?
3. What are some activities that can be done with the Consumer to help that person recover from a TBI?
4. What is a popular strategy used by Home Care Aides to teach Consumers?

Lesson 3: Stroke

Learning Objectives

- Describe what a stroke is and identify the common causes of the condition
- List the symptoms of a stroke
- Identify the risk factors for a stroke
- List the visible long-term effects of a stroke
- Distinguish the common complicating conditions that Consumers with strokes might experience

What Is a Stroke?

Sometimes called a **brain attack**, strokes happen when the blood flow to part of the brain is blocked or when a blood vessel in the brain bursts. In either case, parts of the brain become damaged or die.

Symptoms of a Stroke

- Sudden numbness or weakness of the face, arm, or leg
- Sudden confusion or trouble speaking or understanding others
- Sudden trouble seeing in one or both eyes
- Sudden dizziness, trouble walking, or loss of balance or coordination
- Sudden severe headache with no known cause

If you see all these symptoms, call 911.

Risk Factors for Strokes

- High blood pressure
- Heart disease
- Diabetes
- Cigarette smoking
- Prior stroke
- High cholesterol
- Obesity
- Excessive alcohol consumption

Once a Consumer has had a stroke, there is a greater chance it will happen again.

Chance of Recurrence After First Stroke

3% to 10%	30 days
5% to 14%	1 year
25% to 40%	5 years

Visible Long-Term Effects of a Stroke

- Weakness or paralysis on one side of the body that may affect the whole side or just an arm or leg
- Spasticity, stiffness in muscles, or painful muscle spasms
- Problems with balance and/or coordination
- Problems using language
- Bodily neglect or inattention (being unaware of or ignoring sensations on one side of the body)
- Pain, numbness, or odd sensations
- Problems with memory, thinking, attention, or learning
- Being unaware of the effects of a stroke
- Trouble swallowing
- Problems with bowel or bladder control
- Fatigue
- Difficulty controlling emotions
- Depression

Emotional Changes

Some Consumers will suddenly burst into tears for no apparent reason. This can continue for several weeks or months and sometimes longer. Sometimes this can be associated with depression or is caused by the physical change in the brain.

Epilepsy/Seizures

A seizure can be a short period of unconsciousness or a severe shaking of the whole body, and some people can have more than one kind. About 25% of people will have an epileptic fit after a stroke. This is something that should be reported to a supervisor or case manager.

How to Help

- Turn the person onto his or her side, and remove any hard or sharp objects from the area
- Loosen restrictive clothing, such as a collar or belt
- Place something soft and flat under the person's head
- Never force anything, especially your fingers, into the person's mouth
- Call 911 if the seizure lasts more than two minutes, if multiple seizures occur, or if you suspect that the Consumer has swallowed his or her own vomit

Chest Infections

Chest infections can occur after a stroke, especially if the stroke caused the Consumer difficulty in swallowing. The person can accidentally inhale food particles because of the loss of control.

Symptoms

- Cough
- High temperature
- Breathlessness

Thrombosis

"Thrombosis" means abnormal blood clots. After a stroke, people have more risk of a blood clot lodging in their leg. Movement is important to keep the blood flowing through the leg muscles properly. Less commonly, a clot can travel from where it formed in the deep veins to obstruct the blood flow in the lungs. This is called a pulmonary embolism. Symptoms include breathlessness, fast or irregular heartbeat, and faintness and chest pain while breathing. If you suspect that a Consumer has this condition, contact emergency medical services.

Lesson 4: Common Conditions

Learning Objectives

- List the issues that are common to Consumers with neurological conditions
- Identify the symptoms of a urinary tract infection so you can report it
- Identify strategies to help improve the Consumer's cognition and physical abilities
- Plan activities with the Consumer to reduce the occurrence of constipation and incontinence

Strokes and traumatic brain injuries create a number of similar symptoms. This lesson will discuss some of those symptoms and possible solutions.

Lecture: "Bladder and Bowel Control"

Sometimes Consumers don't know when their bladder is full. The following are ways that you can help. Follow along with the PowerPoint slideshow and write down the tips in the space provided.

Tips to Help Urinary Incontinence:

Urinary Tract Infection Symptoms

- Urine with a bad smell, cloudiness, blood, or sediment
- Burning when urinating or around a catheter
- Fever and chills
- Cramps in the lower abdomen or inside the pelvic region
- Pain in the lower back
- Frequent urination or feeling that he or she has to go to the bathroom, even when the bladder is empty

If you see any of these symptoms, be sure to report them.

Constipation and Bowel Incontinence Causes

- Reduced fluid intake
- Diet
- Not moving around enough
- Side effects from prescription drugs
- Being unaware of the need to use the bathroom
- Weakness in the muscle that controls bowel movement

Activity A: Cognitive Thinking Assistance

Working in teams, you will be assigned questions to answer. The answers need to be detailed, and you will present them to the class. Use the following information to guide your answers.

Information That Can Be Used to Complete This Activity

Thinking and Cognition

- Try to form a routine – doing certain tasks at regular times during the day
- Break tasks down into steps
- If something needs to be done, make a note of it right away
- Make a habit of always putting things away in the same place, where they can easily be found

Assisting Consumers Who Struggle With Speaking

- Help the Consumer use props (photos, maps) to make conversation easier
- Encourage the Consumer to draw or write things down
- Encourage the Consumer to take his or her time
- Encourage the Consumer to stay calm
- Assist the Consumer in creating a communication book that includes words, pictures, and symbols

What's Involved in Stroke Rehabilitation?

Stroke rehabilitation may include some or all of the following therapies:

- **Therapy for communication disorders** can help Consumers regain lost abilities in speaking, listening, writing, and comprehension

- **Motor-skills strengthening** involves exercises that help improve a Consumer's muscle strength and coordination
- **Mobility training** can help teach Consumers to use walking aids, such as braces, walkers, or canes, to support part of their body's weight while they relearn how to walk
- **Range of motion therapy** uses exercises and other treatments to help lessen muscle tension, or spasticity, and regain range of motion
- **Psychological therapy** may involve antidepressant medications, counseling with a mental health professional, and participation in support groups

Common Needs and Care Strategies

Difficulty sleeping or the desire to sleep a lot during the day can pose problems, so helping the Consumer develop and maintain healthy sleeping patterns is very important.

Managing Sleep

Encourage the Consumer to avoid these close to bedtime:

- Caffeine
- Exercise
- Video games
- Fluids

Managing Fatigue

- Help the Consumer with pacing
- Help the Consumer conserve energy (so he or she can perform physical therapy)
- Assist the Consumer in setting up a daily schedule
- Help the Consumer exercise regularly

Managing Cognitive Effects

- Speak slowly
- Remind the Consumer about things that have happened
- Break down complex tasks and activities into steps
- Give the Consumer extra time to respond

- Avoid situations that are too stimulating
- Write down task lists and other information

Memory Tools for Consumers

Each Consumer is unique. What works for one will not work for another.

- Create checklists
- Use sticky notes around the home
- Use digital organizers
- Consider using binders to help Consumers keep their records

  Note: Patient-identifying information should not be written on material

Strategies for Helping Consumers With Symptoms

Problems With Body Movement

- Encourage Consumers to take their time and move slowly
- Help them regularly do any kind of exercise they are able to do
- If a Consumer cannot be very physically active yet, support him or her in finding another enjoyable hobby in the meantime

Difficulty Swallowing

- Be alert to choking risks
- Encourage Consumers to take their time when eating, drinking, or speaking

Changes in Speech and Communication

- Help Consumers write down what they want to say
- Give them time and be patient
- Use short, simple sentences and gestures
- Encourage Consumers to ask for statements to be repeated or clarified as often as is necessary, and be patient when they do ask
- Ask, “Did I make sense?” or “Did you get that?”
- Don’t finish sentences for Consumers. Instead, ask them to describe a word or what it sounds like
- Provide a word only if Consumers get frustrated and ask for your help

- Work with Consumers to develop or use tools, such as voice boxes or picture boards

Vision Impairment

- Encourage Consumers to turn their head to compensate for a reduced field of vision
- Tell Consumers about books on tape or large-print books

Hearing Impairment

- Talk with Consumers about hearing issues, and ask what you can do to help them understand or hear you
- Try to adjust surrounding noise if it is a problem

Changes in Taste and Smell

- Watch out for safety issues, such as spoiled food or food that is too hot
- Pay attention to textures and colors when preparing food to make eating more enjoyable

Pain

- Be alert for nonverbal signs of pain: agitation, aggressive behavior, or inability to sleep
- Assist Consumers in getting rest and as much exercise as they can achieve
- Help Consumers relax. Suggest strategies for dealing with their emotional reactions or redirect them with other conversation
- Use a pain management scale – with 0 being no pain and 5 being extremely painful – when talking with Consumers about pain

Cognitive Functioning Problems

- Help Consumers feel comfortable doing things at their own pace
- Do activities that will help develop challenged areas. For example, try memory games, hidden-picture games, or reading aloud
- Develop regular routines
- Write things down or use a voice recorder
- Keep the space free of noise, clutter, and other unnecessary distractions
- Avoid exposing Consumers to too much stimulation or information at once

- Help Consumers break down large or complex tasks into small, simple ones and do each step in the right order
- When Consumers struggle with motivation, do not ridicule or lecture them

Encourage Independence

- Be a helper instead of a doer
- Let Consumers do a task in their own way – even if you can do it faster or better
- Ask them about their preferences regarding tasks and care needs
- Divide tasks into smaller steps
- Before you step in, ask if you can help
- Praise Consumers for trying, and celebrate every success
- Encourage new hobbies
- Never scold or criticize Consumers

Promote Overall Health

- Make nutritious food and plenty of water available to Consumers
- Limit or avoid foods that are high in fat, sugar, caffeine, or alcohol
- Help Consumers get as much exercise as they are able to do
- Encourage Consumers to brush and floss regularly – and assist if necessary

Enjoy Time Together

- Share stories and jokes
- Do fun activities together – watch movies, play games, bake, go on “field trips,” and so on
- Ask Consumers every day what they would like to do
- Help the Consumer see family members and friends regularly

Strategies for Helping Consumers With Anger

Problems With Anger

Problems with anger that follow a TBI or stroke are often due to a variety of causes. Common causes include physical damage, grief over the loss and

changes in one's life, anger from before the incident that caused the TBI or stroke, and triggers that differ from those that the person had before the injury.

Since most people don't like to deal with anger, you have an opportunity to make a difference in an individual Consumer's recovery. By asking the Consumer how he or she is feeling and providing a safe place to express any emotions, you can reassure the Consumer that his or her feelings are OK and keep negative emotions from getting in the way of progress.

Remember, though, that the most important thing is for you to stay safe. Learn what triggers the Consumer's anger, and if necessary, walk away and let the person cool down before you try to help him or her through the episode.

Dealing With Anger

Here are some specific things you can do to respond to a Consumer's anger:

- Allow the Consumer to talk about it
- Help the Consumer find effective and satisfying ways to express anger (e.g., pounding nails into boards, hitting a pillow, having a "yell session" to get the anger out)
- Help the Consumer find a support group
- Find ways to alleviate the Consumer's frustration (e.g., simplify tasks or prepare for challenges by discussing them)
- Look for signs of anxiety, post-traumatic stress disorder (PTSD) from the event that caused the Consumer's injury, and depression. Read the "Depression Checklist" so you are familiar with the signs
- Treat all suicide threats as genuine, because suicide is a real risk. If the Consumer says he or she wants to die, has a plan for taking his or her life, or has the means to do so (a gun, a supply of medicine for overdose), call 911 first and then your supervisor immediately

The A-B-C Method

As you observe behaviors, both positive and negative, of an adult with a TBI, try to understand what may be contributing to or causing them. Look at what happens both before and after the behavior for clues about how to change challenging behavior. The A-B-C method will help you do this.

- **A**ntecedents – What was happening right before the behavior?

- **B**ehavior – What is the behavior?
- **C**onsequences – What happens as a result of the behavior?

How to Help

- Understanding the reasons why people act as they do is difficult. Human behavior is complicated. When a Consumer has a TBI, understanding that person's behavior may be even harder
- Be patient with the person you are assisting, as well as with yourself
- Use the A-B-C method to try to discover what causes or leads up to poor behavior
- Use the A-B-C method to look at the consequences and determine whether the Consumer is reacting to what you are saying or doing. If so, being aware of your own behavior and changing it may be all that is needed to change the problem behavior of the person with the TBI

Activity B: Anger

Directions:

Write your answers to the following case studies on the back of each page.

Scenario #1

Ricky is a young man of 19 who experienced a traumatic brain injury at the age of 17 as the result of a motor vehicle accident (MVA). Ricky has received care at home from an HCA because his mother and father work full time and do not feel that he is safe at home alone. Ricky was in a pleasant mood the morning that Sue, his HCA, arrived to begin her shift. Sometime in the late morning, his mood began to change. When Sue called him to the kitchen for lunch, he stayed in his bedroom and yelled down the stairs that he did not want to eat. He began to shout at Sue, telling her to leave him alone. His angry yelling escalated, and he told Sue to leave the house. Sue became frightened at Ricky's surprising change in behavior.

What should she do?

Scenario #2

Sarah is a 73-year-old single woman. She has worked as a professor of English at the local community college for 23 years. Sarah sustained a

traumatic brain injury when she slipped on a patch of ice, fell, and hit her head. The fall left Sarah unconscious, and she spent four weeks in the hospital after her accident. She has experienced memory loss and struggles with finding words to use in normal conversation. She has been working with a rehabilitation team and is making some progress. Matt has been hired as her HCA, and on his second day of work he arrived to find Sarah sitting at her table, trying to finish a crossword puzzle. When Matt made a remark about the puzzle, Sarah became very agitated and would not speak to him. She pressed hard on her pencil and scribbled on the paper with an angry expression. Matt, being new, was not sure what to do to help Sarah.

What do you think he should do?

Scenario #3

Gerald is a 34-year-old veteran of the Iraq war. He sustained a mild traumatic brain injury when he was exposed to a blast from an improvised explosive device. He has been living alone for two months after living with his parents for one year when he first came home from the war. Gerald is a student at the local community college. He has a Home Care Aide named Nancy who helps him two days per week to do laundry, prepare meals, and clean his apartment. This afternoon, when Nancy came to work, she noticed that Gerald was in an angry mood. When Nancy asked Gerald to help fold the laundry, he became very angry, pushed all the clean laundry from the table onto the floor, and stormed off to his room.

What should Nancy do now?

Scenario #4

Andrew is a 25-year-old veteran who was injured in Afghanistan. He was hit in the head by a piece of flying debris in a combat mission and sustained a mild traumatic brain injury. Andrew is living with a roommate who works full time. Andrew stays at home most of the day, unless he goes to meet with his support group at the local veterans' center. Luke is the HCA who helps Andrew three days per week. Luke and Andrew have been getting to know each other, and they get along well. Today Luke drove Andrew to the veterans' center and returned to pick him up after one hour. When Andrew got into the car, he was quiet and did not respond when Luke asked him about his time at the center. When Luke parked the car near Andrew's apartment, Andrew jumped out of the car and stormed into the house.

What should Luke do now?

Scenario #5

Connie is a 16-year-old who sustained a TBI when she fell off her bike. Connie has an HCA named Donna who comes to help her every day. Sometimes Connie forgets where she is, and on many mornings, she becomes confused when Donna arrives at the house. Connie's mother leaves for work every day half an hour after Donna arrives. Today after Connie's mother left, Connie was watching television when she became agitated and began calling loudly for her mother. When Donna came to her, Connie pushed her away and said she wanted her mom.

What should Donna do?

Scenario #6

Greg is a 63-year-old who sustained a TBI when he was involved in an MVA one year ago. Greg has had difficulties with speech ever since. He lives alone and has an HCA named Gloria who comes to help him every afternoon. Today Greg got some news from his father that his 86-year-old mother had experienced a stroke and was hospitalized. Greg lives 500 miles away from his family and does not have the money he needs to fly home. When Gloria came to work today, Greg was obviously upset. He was desperate to get home to see his mother and became angry when Gloria was not able to help him to buy a plane ticket online.

What should Gloria do to help Greg?

Scenario #7

Miranda is a 29-year-old Iraq war veteran. While she was in Iraq, she sustained multiple concussion blasts from repeated explosions in combat. Miranda has hired Rebecca, an HCA, to help her at home three days a week. Miranda has become very critical of Rebecca in recent weeks and today, since Rebecca arrived, Miranda has been argumentative and hostile. When Rebecca asked Miranda if they could talk about her mood, Miranda shouted at Rebecca and told her to leave her alone.

How do you think Rebecca can effectively communicate with Miranda at this time?

Scenario #8

Robert is a 57-year-old Vietnam War veteran. He has suffered from the effects of a traumatic brain injury he sustained years ago in Vietnam. Robert also sustained blast injuries that resulted in the amputation of both his legs. Lisa, Robert's HCA, comes to help him every day for four hours. Robert still becomes very angry when he experiences daily limitations related to his disabilities. Today, when he went into the bathroom and flipped on the light switch, the overhead light bulb burned out. By the time Lisa arrived, Robert had called his sister and was demanding that she leave her work to come over and replace the bulb. Robert continued to rage at Lisa about this problem.

What do you think Lisa should do to help Robert now?

Scenario #9

Evan is a 20-year-old who was injured in a skateboarding accident. He has been out of school for the six weeks since his accident. Maria, Evan's HCA, comes to work every morning to provide care for Evan while his mother goes to her part-time job. Today Evan has been confused and angry about his laptop computer. He has been trying to complete a simple take-home assignment in basic math. He was sitting quietly, staring at the screen, when Maria asked him how he was doing with his lesson. He began to cry and then slammed the computer shut and left the room.

What do you think Maria can do to help Evan?

Scenario #10

Sam is a 50-year-old executive who fell off a ladder, hit his head, and sustained a TBI from the fall. Since the fall two years ago, Sam's wife has gone to work full time, and she and Sam have hired an HCA, Alex, to help Sam everyday. Lately, when Alex has come to work, he has found Sam using his computer for inappropriate purposes. Alex knows that Sam's behavior has caused problems between Sam and his wife. Sam's wife has asked Alex to monitor Sam's behavior, and today, when Alex confronted Sam, Sam became extremely angry and ordered Alex to get out of his home.

What do you think Alex should do?

Review

Take notes while your class discusses the following questions:

1. What do the conditions we've learned about have in common?

2. What concerns or issues that these conditions have in common should an HCA be aware of?

3. What activities can an HCA perform that will help Consumers with one or more of these three conditions?

4. What is a pressure ulcer, and what activities can an HCA do to ensure that a Consumer does not develop one?

5. What activities can an HCA do with a Consumer to assist him or her with memory problems?

Glossary

Abdominal binder – A wide elastic binder used to help prevent a drop in blood pressure or used for cosmetic purposes, to hold in the abdomen. A rigid (non-elastic) binder is used to help empty the bladder in some Consumers.

Ace – An elastic bandage used to wrap extremities to help prevent blood pressure from lowering.

Acute rehabilitation program – A program that puts primary emphasis on the early rehabilitation phase, which usually begins as soon as a person is medically stable. The program is designed to be comprehensive and it is based in a medical facility, with a typical length of stay of two to three months. Treatment is provided by an identifiable team in a designated unit.

Ankylosis – The fixation of a joint, leading to immobility. This results from ossification or bony deposits of calcium at the joints.

ASIA score – A measure of function after spinal cord injury. Physicians use this term.

Atrophy – A wasting away or decrease in the size of a cell, tissue, organ, or body part due to lack of nourishment.

Augmentative and alternative communication (AAC) – Forms of communication that supplement or enhance speech or writing. These include electronic devices, picture boards, and sign language.

Autonomic dysreflexia (hyperreflexia) – A syndrome attributed to the interruption of the spinal cord's sympathetic pathways. This condition can occur in anyone who has a spinal cord injury at or above the T6 level. It is related to disconnections between the body below the injury and the control mechanisms for blood pressure and heart function. It causes the blood pressure to rise to potentially dangerous levels.

Autonomic nervous system – The part of the nervous system that controls involuntary activities, including the heart muscle, glands, and smooth muscle tissue. The autonomic nervous system is subdivided into the sympathetic and parasympathetic systems.

Balkan frame – A rectangular frame that may be placed over a hospital bed to reposition the Consumer or increase mobility. Loops or a trapeze are often hung from the Balkan frame to assist a patient in bed activities and wheelchair transfers to and from the bed.

Bladder training – A method by which the bladder is trained to empty (micturition) without the use of an indwelling catheter. It involves drinking measured amounts of fluid and allowing the bladder to fill and empty at timed intervals. See "intermittent catheterization."

Body jacket – A support made of plastic that fits over the chest, abdomen, and upper pelvis. It bolsters an unstable or recently fused spine.

Bowel program – The establishment of a "habit program" or a specific time to empty the bowel so that regularity can be achieved.

Brain attack – A condition more commonly known as a stroke.

Catheter – A flexible rubber or plastic tube for withdrawing or introducing fluids into a cavity of the body, usually the bladder.

Central cord syndrome – A lesion occurring almost exclusively in the cervical region. This produces sacral sensory sparing and greater weakness in the upper limbs than in the lower limbs. Central cord syndrome indicates that

there is an injury to the central structures of the spinal cord. It is the syndrome most commonly seen in older patients with cervical arthritis and may occur in the absence of spinal fracture.

Cerebrospinal fluid (CSF) – A colorless solution similar to plasma that protects the brain and spinal cord from shock. A lumbar puncture (spinal tap) is used to draw CSF.

Cervical – The upper spine (neck) area of the vertebral column. Cervical injuries often result in quadriplegia (tetraplegia).

Cognitive – The part of mental functions that deals with logic. It contrasts with "affective," which deals with emotions.

Condom catheter – An external urine-collecting device used by males.

Contracture – The stiffening of a body joint to the point that it can no longer be moved through its normal range.

Creatinine clearance – A 24-hour urine collection test to assess how the kidneys are functioning.

Crede – A technique of pressing down and inward over the bladder to facilitate voiding. Pronounced "cruh-day."

Demyelination – The loss of nerve fiber "insulation" due to trauma or disease, which reduces the ability of the nerves to conduct impulses (as in multiple sclerosis and some kinds of SCI).

Depression (dysthymia) – An abnormal lowering of mood of psychologic or physiologic origin that is more prolonged than mourning and is time-limited and related to a specific loss.

Derotational splints – Long splints on legs and feet used to prevent foot drop and external rotation of the hips. These splints are used when a patient is supine.

Dysphagia – Difficulty in swallowing.

Edema – Swelling, which is most common in legs and feet. Edema occurs when the body tissues contain an excessive amount of fluid (plasma), increasing skin sensitivity and risk of pressure sores.

Egg-crate mattress – A foam mattress resembling egg cartons that helps distribute pressure and prevent pressure sores.

Exacerbation – A recurrence or worsening of symptoms.

Extension – Movement that brings the body or limbs into a straight position. Also outward movements of body parts away from the center of the body (straightening).

External continence device (ECD) – An external urine control device for males that attaches to the tip of the penis.

Fairley test – A urine test to determine the site of infection. For instance, it can determine whether infection exists in the bladder only or in a kidney as well.

Flaccidity – A form of paralysis in which muscles are soft and limp.

Foley catheter – A rubber tube placed in the urethra, extending to the bladder, in order to empty the bladder. It is held in place with a small fluid-filled balloon.

Gait training – Instruction in walking with or without equipment.

Glossopharyngeal breathing (GPB) – A means of forcing extra air into the lungs to expand the chest and achieve a functional cough. Also called "frog breathing."

Halo traction – The process of immobilizing the upper body and cervical spine with a traction device. The device consists of a metal ring around the head, held in place with pins into the skull. A supporting frame is attached to the ring and to a body jacket or vest to immobilize the upper body.

Harrington rods – Metal braces fixed along the spinal column for support and stabilization.
Hemiparesis – Partial paralysis or loss of movement on one side of the body.
Hemorrhagic stroke – A stroke that occurs when a blood vessel bursts in the brain. Blood accumulates and compresses the surrounding brain tissue.
Heterotopic ossification (HO) – The formation of new bone deposits in the connective tissue surrounding the major joints, primarily the hip and knee. A disorder characterized by the deposit of large quantities of calcium at the site of a bone injury, it is often the result of prolonged immobilization (heterotopic bone).
Hubbard tank – A large full-body tank of water used for wound care and range of motion.
Hydronephrosis – A kidney distended with urine to the point that its function is impaired. This can cause uremia, the toxic retention of blood nitrogen.
Hyperreflexia – See "autonomic dysreflexia."
Hyperesthesia – Grossly exaggerated tactile stimuli.
Hypoxia – A lack of blood oxygen due to impaired lung function.
Incomplete injury – An injury in which some sensation or motor control is preserved below the spinal cord lesion.
Incontinence – A lack of bowel and/or bladder control.
Indwelling catheter – A flexible tube that is retained in the bladder and used for continuous urinary draining to a leg bag or other device.
Intermittent catheterization program (ICP) – The use of a catheter to empty the bladder on a regular schedule. See “self-catheterization.”
Ischemia – A reduction of blood flow that is thought to be a major cause of secondary injury to the brain or spinal cord after trauma.
Ischemic stroke – A stroke that occurs when blood clots or other particles block blood vessels to the brain. Fatty deposits called plaque can also cause blockages by building up in the blood vessels.
Leg bag – An external bag that is strapped to the leg for the collection of urine.
Lesion – An injury or wound, or any pathologic or traumatic injury to the spinal cord.
Lithotripsy – A non-invasive treatment for kidney stones. Shock waves generated underwater by a spark plug crumble stones into pieces that will pass with urine.
Log roll – A method of turning a patient without twisting his or her spine, used when a person's spine is unstable.
Osteoporosis – Loss of bone density, common in immobile bones after SCI.
Ostomy – An opening in the skin to allow for a suprapubic cystostomy (catheter drainage), for elimination of intestinal contents (colostomy or ileostomy), or for passage of air (tracheostomy).
Paraplegia – The impairment or loss of motor and/or sensory function in the thoracic, lumbar, or sacral (but not cervical) segments of the spinal cord, secondary to damage of neural elements within the spinal canal. With paraplegia, arm functioning is spared, but depending on the level of injury, the trunk, legs, and pelvic organs may be involved. There are some types of paralysis involving the legs that are described by the impairment they cause.
Paraplegic – One who experiences loss of function below the cervical spinal cord segments, but who retains most function and sensation in the upper body.
Paresis – A weakness in voluntary muscle or slight paralysis.

Percussion – A forceful tapping on congested parts of the chest to facilitate postural drainage in people with high-level tetraplegia.
Piloerection – "Goose bumps."
Plasticity – A long-term adaptive mechanism by which the nervous system restores or modifies itself toward normal levels of function.
Postural drainage – The use of gravity to help clear the lungs of mucus by positioning the head lower than the chest.
Post-void residual (PVR) – The volume left in the bladder after the patient voids (urinates).
Pressure release – Relieving pressure from the ischial turberosities (the bones on which we sit) every 15 minutes in order to prevent pressure sores.
Pressure sore – A potentially dangerous skin breakdown due to pressure on the skin, resulting in infection and tissue death. Also known as a “decubitus ulcer.”
Priapism – A dangerous condition in which the penis remains erect due to the retention of blood.
Quad – Generally, a high quad is someone with an injury at C1, C2, and C3. Some doctors also group C4 quads into this category. Mid-level quads are those injured at C5. Low-level quads are those injured at C6 and C7. This isn't written in stone, and some doctors consider C4, C5, and C6 as mid-level, with C7 being low-level.
Quad cough – A method of helping a patient with tetraplegia cough by applying external pressure to the diaphragm, thus increasing the force and clearing the respiratory tract.
Quadriparesis – The partial loss of function in all four extremities of the body.
Quadriplegia – The loss of function of any injured or diseased cervical spinal cord segment, affecting all four body limbs. Outside the U.S., the term “tetraplegia” is used (it is etymologically more accurate, combining *tetra* and *plegia*, both from the Greek, rather than *quadri* and *plegia*, a Latin and Greek amalgam).
Range of motion (ROM) – The normal range of movement of any body joint. Range of motion also refers to exercises designed to maintain this range and prevent contractures.
Reciprocating gait orthosis (RGO) – A type of long leg brace used by paralyzed people for ambulation. It uses cables across the back to transfer energy from leg to leg, thereby simulating a more natural gait.
Reflux – The backflow of urine from the bladder into the ureters and kidney.
Residual urine – Urine that remains in the bladder after voiding. If too much is left, it can lead to a bladder infection.
Secondary injury – The biochemical and physiological changes that occur in the injured spinal cord after the initial trauma has done its damage.
Self-catheterization – Intermittent catheterization, the goal of which is to empty the bladder as needed, on one's own, minimizing the risk of infection.
Sensory level and motor level – When the term "sensory level" is used, it refers to the lowest segment of the spinal cord with normal sensory function on both sides of the body; the motor level is similarly defined with respect to motor function. These "levels" are determined by neurological examination of (1) a key sensory point within each of 28 dermatomes on the right side of the body and 28 dermatomes on the left side, and (2) a key muscle within each of 10 myotomes on the right side of the body and 10 myotomes on the left side.

Shunt – A tube used to drain a cavity. In the spinal cord, a shunt is used to treat a syrinx by equalizing pressures between the syrinx and the spinal fluids. In spina bifida, it is used to reduce pressure of hydrocephalus.

Skin breakdown – Skin breakdown (also termed "decubitus ulcers") occurs as a result of excessive pressure, primarily over the bones of the buttock.

Spasticity – Hyperactive muscles that move or jerk involuntarily. There are some benefits to spasticity:

1. It serves as a warning mechanism to identify pain or problems in areas of no sensation.
2. It helps in spotting an oncoming urinary tract infection.
3. It helps to maintain muscle size and bone strength.
4. It helps to maintain circulation.
5. It helps to prevent osteoporosis.

Speech and language pathology (SLP) – Structured activity focused on communication skills, perceptual and cognitive skills, and swallowing.

Sphincterotomy – The cutting of the bladder sphincter muscle to eliminate spasticity and related voiding problems.

Suctioning – The removal of mucus and secretions from the lungs. It is important for people with high-level tetraplegia who lack the ability to cough.

Suprapubic catheter – A catheter surgically that is inserted into the bladder by incision above the pubis.

Tendon lengthening – A procedure, usually involving the Achilles tendon, to treat contractures caused by spasms.

Tenodesis (hand splint) – A metal or plastic support for the hand, wrist, and/or fingers that is used to facilitate greater function in a disabled hand by transferring wrist extension into grip and finger control.

Tetraplegia (**quadriplegia**) – The impairment or loss of motor and/or sensory function in the cervical segments of the spinal cord due to the damage of neural elements within the spinal canal. Tetraplegia results in impaired function in the arms as well as in the trunk, legs, and pelvic organs. It does not include brachial plexus lesions or injury to peripheral nerves outside the neural canal.

Thoracic – Pertaining to the chest, vertebrae, or spinal cord segments between the cervical and lumbar areas.

Thrombophlebitis – A clot in a vein due to diminished blood flow, which can occur in a paralyzed leg. Symptoms include swelling and redness.

Tilt table – A table that is used to gradually increase a patient's tolerance to being in a standing position. It is also used to teach partial weight bearing and to give a prolonged stretch in each position.

Tracheostomy – An opening in the windpipe to facilitate breathing.

Upper motor neurons – The long nerve cells that originate in the brain and travel in tracts through the spinal cord. Any injury to these nerves cuts off contact with brain control. Reflex activity is still intact, however, resulting in spasticity. For men with upper motor neuron injuries, reflex erections are possible.

Urinary tract infection (UTI) – A bacterial invasion of the urinary tract, which includes the bladder, bladder neck, and urethra. Symptoms of UTI include urine that is cloudy, contains sediment, and smells foul, and fever. UTI involving the kidneys is preventable but dangerous. Medications often prescribed for UTI include Keflex, Macrodantin, Furadantin, Septra, Bactim,

Mandelamine, penicillin, and amoxicillin. Side effects vary but may include nausea and vomiting, skin rash, or hives.

Ventilator – A mechanical device to facilitate breathing in people with impaired diaphragm function.

Vital capacity – The measure of air in a full breath. It is an important consideration for people with high-level tetraplegia who also have impaired pulmonary function.

Weaning – The gradual removal of mechanical ventilation as the Consumer's lung strength and vital capacity increase.

Checklist: Changes in the Home

This is a list of suggested activities to perform at the Consumer's home upon his or her return. All these changes should be done with the approval and active involvement of the Consumer. Some of these items will not be appropriate for an individual Consumer's needs.

See the **Assistive Technology** module to learn more about the equipment that can be used.

Getting Around	
	Change areas of the home to allow space for a wheelchair.
	Move extra furniture out of the way to make room for a wheelchair or for walking with a walker or cane.
	Clear paths to the kitchen, bedroom, bathroom, and entrances.
	Move electrical cords out of the pathways.
	Tape down electric cords.
	Suggest non-skid shoes for the Consumer.
	Remove loose carpets and runners in the hallways and stairwells or fasten them with non-skid tape to improve traction.
	Replace thick carpeting with lower pile carpeting to make wheelchair or walker movement easier.
	Install handrails for support in going up and down stairs.
	Consider stair glides, stair lifts, and platform lifts if needed.
	Add or adjust lighting throughout the home to decrease glare and improve visibility in low-lit areas.
	Replace exterior steps with a ramp, if necessary. Ramps exist to go over steps.
Communication Technology	
	Create a list of telephone numbers and keep them next to the phone (use large text and avoid brightly colored paper).
	Enter the telephone numbers into the Consumer's programmable devices.
	Obtain a MedAlert device for the Consumer in case of falls.
Bathroom	

	Reduce the temperature of the water heater (to avoid burns).
	Obtain and use equipment to make getting into and out of the shower or bathtub easier.
	Install sturdy handrails.
	Install grab bars in the tub or shower.
	Install non-slip flooring trips inside and outside of the tub.
	Install a bathtub bench and toilet chair.
	Install easy-to-use water control knobs with easy-to-see settings or long-handled levers.
	Install an adjustable or handheld showerhead.
	Make sure bathing supplies are easy to reach.
Miscellaneous	
	Check that the Consumer has sunglasses.
	Place Post-it notepads in different rooms.
	Check for heavy curtains for light-sensitive Consumers.
Add Your Own Items	

Citation

[1] Tilney McDonough, V. (2009). *Post-traumatic headache after TBI: Brainline talks with Dr. Nathan Zasler.* Retrieved from http://www.brainline.org/content/2009/03/post-traumatic-headache-after-tbi-brainline-talks-dr-nathan-zasler.html