• Every 23 seconds a person in the United States sustains a traumatic brain injury (TBI)

Comparative Incidence

Comparison of Annual Incidence

Traumatic Brain Injury

Brain Injury Association of America, 2005
Leading Causes of Traumatic Brain Injury

Epidemiology of TBI in the Civilian Population

LIFE WITH BRAIN INJURY

- Brain injury is the silent epidemic

- 3.2 million people in the US are living with a long term disability due to brain injury

An estimated 10 million Americans are affected by stroke and TBI, making brain injury the second most prevalent injury and disability in the United States.

Every 23 seconds, one person in the United States sustains a traumatic brain injury.

1.4 million Americans survive traumatic brain injuries each year.

More than 55,000 people die every year as a result of traumatic brain injury.

56% of adults with brain injuries tested positive for blood alcohol.

Each year, 2.4 million women are physically abused by an intimate partner. The head, face and neck are the most frequent sites of injury.
Domestic Violence and TBI

Greater than 90% of all injuries secondary to domestic violence occur to the head, neck or face region.

(Monahan & O'Leary 1999)

Women Reporting to ERs for Injuries Associated with DV:

• 30% of battered women reported a loss of consciousness at least once.
• 67% reported residual problems that were potentially head-injury related.

(Corrigan 2003)

The Signature Wound...The Tip of the Iceberg

• As many as 20% of US combat troops leaving Iraq and Afghanistan are affected by traumatic brain injury.1

• "...it is unknown how many soldiers have suffered a TBI during OEF/OIF." The incidence of moderate to severe TBI's are well captured, but the "overall incidence of mild TBI or concussion in the military" is unknown.1

• The effects of concussion from blast injury are not always immediately apparent.
Blasts

- Are the **leading cause** of TBI for active duty military personnel\(^1\)
- Account for 69% of TBI cases in the current conflicts\(^2\)

\(^1\) The Defense and Veterans Brain Injury Center, http://dvbic.org/blastinjury.html

THE BRAIN

Controls **everything** we do
...breathing
...walking
...talking
...thinking
...behaving
...feeling

DEFINITION – ACQUIRED BRAIN INJURY

Injury to the brain which is not hereditary, congenital or degenerative, and may include brain damage resulting from events such as stroke, aneurysms, anoxia from near drowning, toxic substances or traumatic brain injury (TBI)
ACQUIRED BRAIN INJURY
INCLUDES:
- Aneurysm
- Stroke
- Encephalitis
- Anoxia

Traumatic brain injury
- Gunshot wound
- Concussion blast injuries
- Head hitting windshield
- Severe whiplash
- Shaken Baby Syndrome
- Domestic Violence
- Toxic exposure (CO, lead paint, neurotoxins, inhaled vapors)

ACQUIRED BRAIN INJURY
EXCLUDES:
- Congenital Disorders
  - Intellectual Disabilities
  - Cerebral Palsy
  - Birth Injuries
- Progressive Disorders
  - Alzheimer’s Disease
- Psychiatric Disorders
  - In which there is no known or obvious central nervous system damage

DEFINITION – TRAUMATIC BRAIN INJURY
- Traumatic brain injury is a specific type of damage to the brain that results when the head:
  - hits a stationary object (e.g., windshield in a car crash)
  - is hit (e.g., mugging)
  - is penetrated (e.g., gunshot wound)
  - is violently shaken by external force (e.g., Shaken Baby Syndrome, severe whiplash)
  - Concussion blast injury
- Often included, especially in terms of service provision groups, are individuals with other types of post-natal acquired injuries, such as strokes or aneurysms.
HOW BRAIN DAMAGE OCCURS

The brain is a complicated organ, with millions of cells and connections.

While specific areas of the brain may be related to specific functions, in reality each function (walking, lifting an arm, speaking, etc.) involves many areas of the brain communicating and interacting with each other.

HOW BRAIN DAMAGE OCCURS

Damage to the brain may vary in extent, area and type of damage depending upon:
- nature of the injury
- severity of the injury
- how the injury occurred
- quickness of medical response

HOW BRAIN DAMAGE OCCURS IN A TBI

- Focal Damage
  - Skull Fracture
  - Contusion or bruises under the location of a particular area of impact
- Fronto-Temporal Contusions/Lacerations
  - Bruising of brain or tearing of blood vessels in the frontal and temporal lobes of the brain caused by brain hitting or rotating across ridges inside skull
- Diffuse Axonal Injury
  - Shifting and rotation of brain inside skull will result in tearing and shearing injuries to the brain's long connecting nerve fibers or axons
HOW BRAIN DAMAGE OCCURS IN A TBI

Some time after the injury the following may affect the brain:

- Hematoma (Blood Vessel Damage)
- Brain Swelling
- Increased Intracranial Pressure
- Intracranial Infection
- Seizures

CUMULATIVE EFFECTS OF REPEATED CONCUSSIONS

- History of 3 previous concussions increases risk of repeated concussions 3-fold.
- Athletes with history of 3+ concussions report significantly more symptoms and have lower memory scores at baseline
- Symptoms following repeat concussions may be more serious and resolve at a slower rate
- Worse case = “second-impact syndrome”

REPEATED BRAIN INJURY

- Typical of ongoing domestic violence.
- Leads to increased cognitive, physical, and emotional dysfunction over time.

(Hibbard 2002)
EVERY PERSON WITH BRAIN INJURY IS DIFFERENT

There are vast differences from person to person because:

• Every individual is different prior to an injury
• Every brain injury is different

COMMON PROBLEMS AFTER BRAIN INJURY

Broad Functional Categories:

• PHYSICAL
• COGNITIVE
• EXECUTIVE FUNCTIONING
• AFFECTIVE/BEHAVIORAL
• PSYCHOSOCIAL

FOR AN ABUSED WOMAN, TBI MAY MAKE IT MORE DIFFICULT TO...

• assess danger and defend herself against assaults
• make and remember safety plans
• go to school or hold a job
• leave an abusive partner
• live independently
• access services
• adapt to living in a shelter
• care for her children
### COMMON PROBLEMS AFTER BRAIN INJURY: PHYSICAL

- Loss of Smell and Taste
- Hearing Loss
- Visual Difficulties
- Balance Difficulties
- Dysarthria
- Motor Control and Coordination
- Fatigue
- Seizures
- Decreased Tolerance for Drugs and Alcohol
- Headaches
- Sleep Disturbances

### COMMON PROBLEMS AFTER BRAIN INJURY: COGNITIVE

- Short Term/Working Memory
- Attention
- Concentration
- Distractibility
- Decreased Verbal Fluency/Comprehension
- Information processing
- Arousal
- Problem Solving
- Charged Intellectual Functioning
- Abstraction and Conceptualization
- Slowed Reaction Time

### COMMON PROBLEMS AFTER BRAIN INJURY: EXECUTIVE FUNCTIONING

- Goal Setting
- Self-Monitoring
- Planning
- Initiating
- Modifying
- Bringing to Completion
COMMON PROBLEMS AFTER BRAIN INJURY AFFECTIVE/BEHAVIORAL

- Impulsivity
- Emotional Lability
- Irritability
- Decreased Frustration Tolerance
- Impaired Judgment
- Tension/Anxiety
- Depression
- Aggressive Behaviors
- Disinhibition
- Changed Sexual Drive
- Changed Personality

COMMON PROBLEMS AFTER BRAIN INJURY PSYCHOSOCIAL

- Educational/Vocational Problems
- Interpersonal Difficulties
  - Intimacy/Sexuality
  - Dependency Issues
  - Alcohol/Drugs
- Intra-Personal Difficulties
  - Loss of Self Esteem
  - Depression/Frustration/PTSD*
  - Shaken Sense of Self
  - Profound Sense of Loss
- Family Issues

RESULTS OF BRAIN INJURY

These are just lists of resulting problems that may occur. Not all individuals with a brain injury will have all these problems and each person may have a different combination of problems or “deficits”.
FEAR
ISOLATION
SHOCK
PAIN
ANGER
DENIAL
HOPE
ANXIETY

the injury...

A SAMPLING OF TREATMENT PROVIDERS

Psychiatrist
Social Worker
Neuropsychologist
Physical Therapist
Orthopedic Surgeon
Massage Therapist
Job coach
Pain Management Specialist
Speech Therapist
Nurse
Behavioral Optometrist
Clergy
Nurses
Orthopedic Surgeon
Physical Therapist
Psychologist
Behavioral Optometrist
Substance Abuse Counselor

RESULTS OF BRAIN INJURY

Remember, since you are talking about a brain that started out intact and then was damaged, people with brain injury will have many intact abilities.

This is you or me with some areas of function changed.
WORKING WITH PERSONS WITH BRAIN INJURY

It is critical to understand the individuals with whom you work so that you know what they are capable of doing for themselves and what they need help with (e.g., the type and level of support).

Don’t be mislead by what looks like a personality trait or a willful decision. You may be seeing brain injury related behavior.

SOME THINGS TO THINK ABOUT

• Minimize distractions
• Keep meetings short and direct
• Focus on one task at a time; stick to that topic
• Be concrete; break information into small pieces
• Double check to make sure she understands

MORE TO CONSIDER…

• Write information down (as long as it is safe)
• Develop and use checklists
• Break tasks and goals into small, tangible steps
• Allow extra time for completing tasks
• Provide feedback respectfully and positively
• LISTEN TO WHAT SHE IS EXPRESSING
HELPS

• H: were you HIT in the head?
• E: Did you seek EMERGENCY room treatment?
• L: Did you LOSE consciousness? (caution: not necessary to lose consciousness to sustain a TBI)
• P: Are you having problems with concentration and memory?
• S: Did you experience SICKNESS or other physical problems following the injury?

RESOURCES TO KNOW

NYS Waiver Programs
• Department of Health
• Office of Mental Retardation and Developmental Disabilities (OMRDD)

Community Based Rehabilitation Services
• Contact County Mental Health Departments
• Local Rehabilitation Programs- located in private hospitals, university medical centers, private practice physicians/therapists/counselors

Return to Work Vocational Planning
• Day Programs
• Volunteer Opportunities in Community
• VESID
• Cornell Cooperative Extension

RESOURCES TO KNOW

Housing
• Independent Living Centers

Transportation
• Local Transportation Authority

Medicare
• Social Security Disability Income
• Supplemental Security Income
THE BRAIN INJURY ASSOCIATION OF NEW YORK STATE

• Traumatic Brain Injury Training and Military Veterans Service Project
• Family Advocacy, Counseling & Training Services Program (FACTS)
• Support groups
• Caregiver Support
• Statewide resources
• Information and training about TBI
• Certified Brain Injury Specialist Training
• Annual conferences and symposia
• Family Help Line (800) 228-8201
• Project LEARN in the classroom (LEARNet)

FAMILY ADVOCACY, COUNSELING, AND TRAINING SERVICES PROGRAM (FACTS)

• A family support program operated by BIANYS and funded by NYS OMRDD.

• Users of the program must have sustained an injury prior to age 22 and be a NYS resident.

• There are 16 FACTS coordinators throughout NYS.