BRAIN INJURY IN OLDER ADULTS:

Brain Injury Association of PA
Annual Conference

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Objectives
Participants will be able to:

- Identify at least two reasons why seniors are at greater risk for brain injury;
- Discuss at least three ways diagnosis, recovery, and treatment can be different for older people with brain injuries;
- Discuss at least three things we can do to minimize risk of brain injury in older people.

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Contents are the responsibility of the authors and do not necessarily represent the official view of ACL.

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Some background…

This work is funded by TBI State Implementation Grant.

These grants are charged with addressing:

- Populations at high risk for TBI
- A lack of information regarding available services and supports
- Shortage of healthcare professionals who have training in TBI (specifically, an ability to identify TBI and treat the resulting symptoms)
- TBI services spread across a variety of agencies resulting in services being difficult for families to find and/or navigate

Populations at high risk for TBI

- Children 0 – 4 (African American children have the highest rate for this age group)
- Youth aged 15 -19 (African American youth have the highest rate for this age group)
- **Older adults**
- Athletes of all ages
- Homeless individuals of all ages
- Incarcerated individuals, including juvenile offenders
- Individuals harmed by domestic violence

Grant Activities

- Training – For professionals working with older adults in Pennsylvania
- Providing information about TBI to families of older adults and those aging with brain injuries
- Insuring that information about brain injury resources are available to those audiences

The overarching goal is to build a sustainable service delivery infrastructure for individuals with TBI and those at high risk for TBI.

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The focus of the work :

- Brain injuries which occur when people are aged 65 and older
- The effects of aging after having a brain injury earlier in life
- Ideas for maintaining brain health
- Ways to minimize risk of further injury

Changing statistics…

The American population is getting older…

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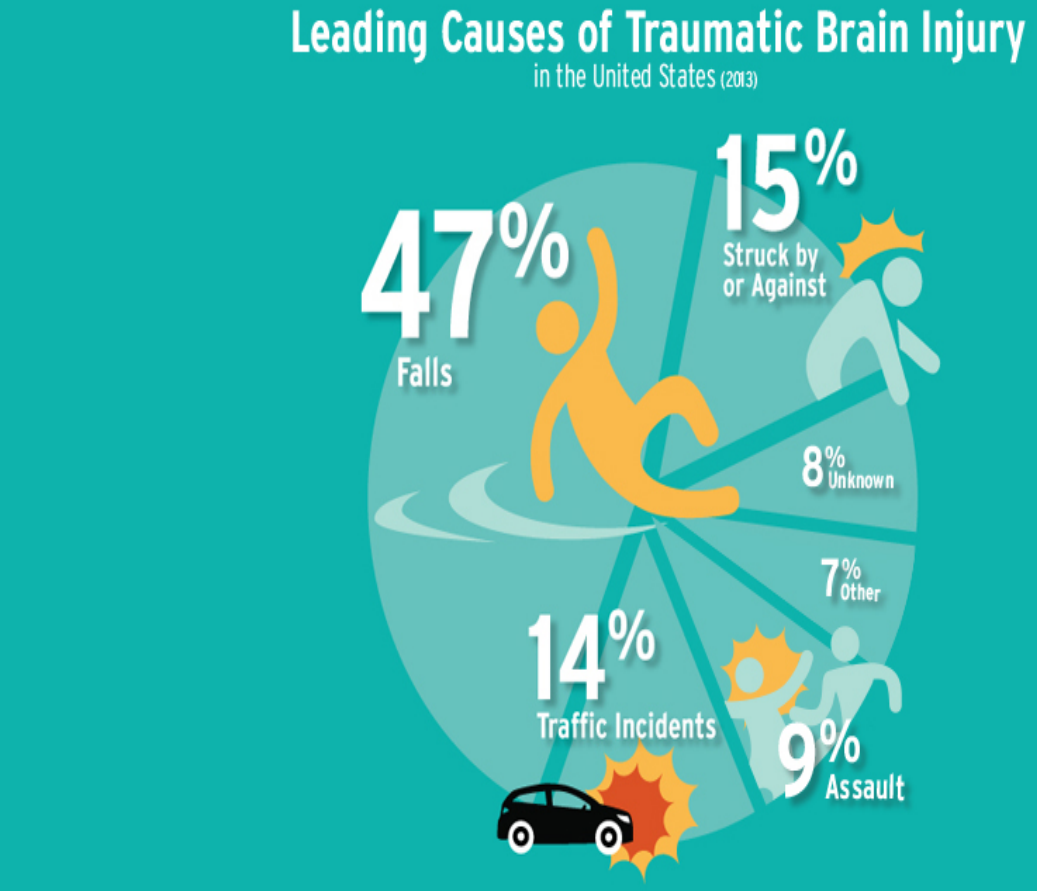
The leading causes of brain injury are too…



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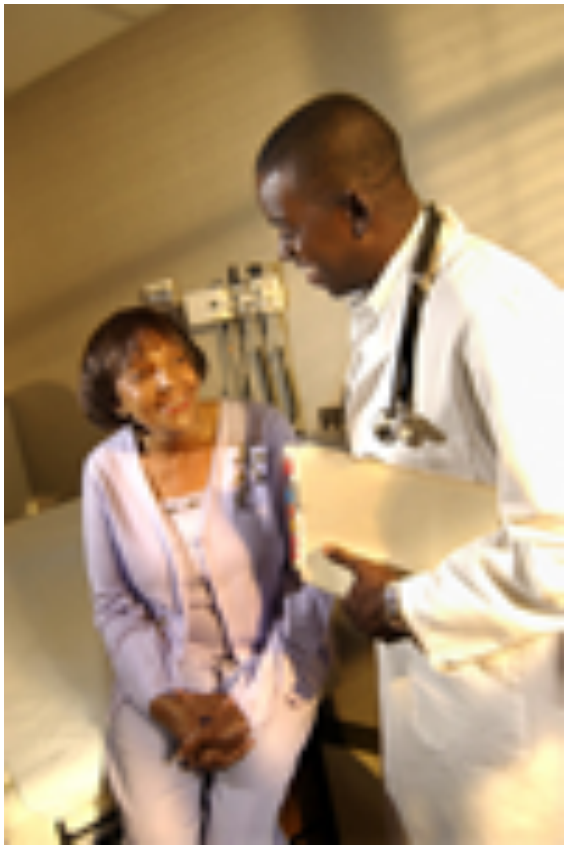
Older adults are at risk for TBI

- After age 65
- Falls are the most common cause
- Age impacts diagnosis and prognosis



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Most common causes of TBI in older adults:

- Falls
- Motor vehicle accidents
- Other causes:
  - Failed suicide attempts
  - Assaults

How does age raise the risk of TBI?

- Clinical and physiologic risk factors
  - Frailty
  - Chronic health conditions
  - Medication use (Polypharmacy)
  - Poor strength and balance

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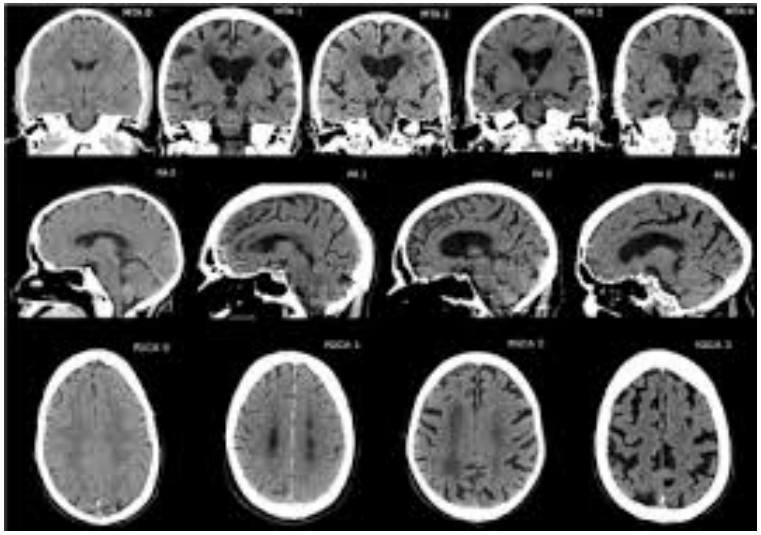
Changes within the brain

- Progressive loss of brain volume and increased space within the skull
- Changes in the brain's vasculature
- Increased likelihood of subdural hematoma or hemorrhage



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Brain injury in older adults

- Diagnosis can be challenging
  - Symptoms may be slow to develop
  - Symptoms may be hard to distinguish from baseline
  - Greater likelihood of intracranial hemorrhage, even with low velocity injuries

Diagnosis

- TBI is not always diagnosed immediately in older people
  - Symptoms may not emerge immediately or be recognized as related to TBI
  - Symptoms can be harder to differentiate from baseline

Morbidity and Mortality

- Morbidity
  - When older adults sustain TBIs, they are more likely to have prolonged recoveries and complications
- Mortality
  - When compared to younger people, older adults who sustain TBIs are at least twice as likely to die

Recovery and Prognosis

- Injuries are often more severe than expected
  - Brain factors: Atrophy, Neuroplasticity, Vasculature
- Advanced age is an independent risk factor for poor prognosis
- Co-morbidities impact outcomes
- Treatment is often less aggressive
- Older adults may have pre-existing impairments which hamper rehabilitation

Recovery and Prognosis

- Like other organs, an aging brain has a decreased ability to recover
- Recovery is slower
- Older people have less “reserves” to compensate for the effects of TBI
- Older adults with TBI are more likely to need the assistance of caregivers
- There is a 40 to 50% increase in the odds of poor recovery for every 10 years of age

Older adults with TBI

- Have more in-hospital procedures, such as neuroimaging and neurosurgery, longer hospital stays, and are more likely to require continued medical care than younger adults (Dams-O'Connor et al., 2013)
- Require more inpatient rehabilitation and make less improvement at one year than younger patients (Livingston et al., 2005; Mosenthal et al., 2004)
- Are more prone to cognitive dysfunction after TBI (Wang et al., 2012)

Older adults with TBI

- Continue to recover and improve after discharge (Mosenthal et al., 2004)
- Clinicians observe that with adequate resources, timely and appropriate surgical intervention, neuro-intensive care, and aggressive neurorehabilitation, both functional and cognitive outcome of elderly TBI patients can be as good as their younger counterparts (Mak et al., 2012)

Age is an exceedingly important parameter affecting recovery after TBI

Aging after TBI

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Getting old is hard ... Especially after TBI

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Aging affects all of us

- Reduced speed, reflexes
- More susceptible to stress/disease process
- Reduced senses: vision, hearing, olfactory
- Reduced short-term memory
- Impaired cognition

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Noted differences after disability

Normal Aging

- Biological changes are noted at age 25
- Physical illnesses noted at age 70
- Psychological maturity at age 35
- Social maturity peaks at age 55

Aging with Disability

- Biological changes noted 10 years after onset
- Physical illnesses start earlier
- Psychological maturity can be stunted at time of injury
- Social maturity can be interrupted

Brain Injury

- Not simply an “event”
- Often is the beginning of lifelong challenges
- Marked by increased risk for:
  - Early Mortality
  - Medical Conditions
  - Cognitive Decline
  - Psychiatric Conditions
  - Development of Neurodegenerative Conditions

Aging with TBI is difficult…

- Brain age is accelerated
- Decline is not uncommon
- Multiple systems may be adversely affected
  - CNS
  - Cardiovascular & Respiratory
  - Musculoskeletal
  - Gastrointestinal & Elimination
  - Neuroendocrine
  - Skin

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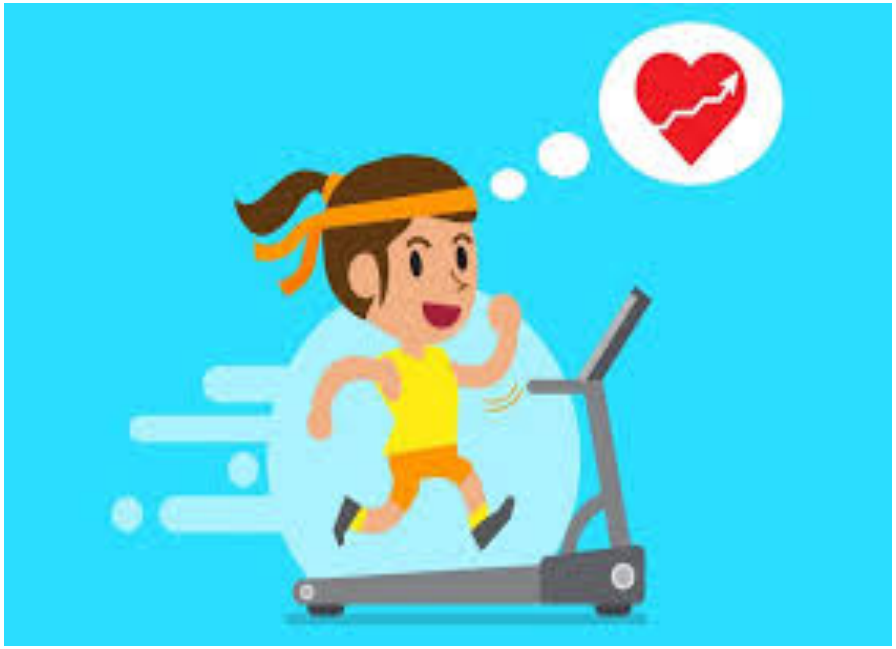
TBI at any age is a risk factor for:

- Epilepsy
- Stroke
- Neurodegenerative disease
  - Alzheimer's Disease and other dementias
    - No definitive link but an increased risk
    - Noted in patients with history of LOC and chronic deficit/dysfunction
    - Earlier onset of symptoms and diagnosis
  - Endocrine dysfunction
  - Parkinsonism

Ten elements of successful aging after TBI

1. Exercise
2. Brain health
3. Heart health
4. Advocate
5. Nutrition



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6. Mental health
7. Protect the brain
8. Socialize
9. Avoid drugs and alcohol
10. The brain is capable of making billions of connections—Make more!

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Healthy living after brain injury

Look for greatness in the survivor and the care provider (Avarcih & McDonnel, 2005)

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Ways to minimize risk of brain injury:

- Careful medical management
  - Coordinated care
  - Review medications
  - Identify need for evaluations, assistive devices, or services
  - Fall risk assessment
- Falls prevention
- Help individual remain socially-connected
- Help individual consider when to stop driving

And when an injury occurs…

- Take it seriously—
  - Symptoms of TBI may be late to develop
  - Older adults are at higher risk for developing intracranial bleeds
  - Seek appropriate evaluation and treatment

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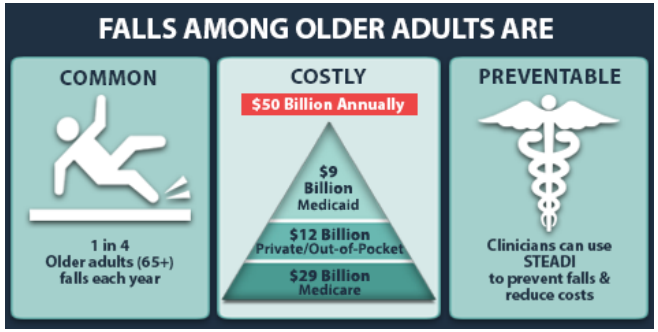
Importance of issue

National Council on Aging



STEADI
Stopping Elderly
Accidents, Deaths & Injuries

CDC

20

Every
20 Minutes
an older adult dies from
a fall in the United States.
Many more are injured.

https://www.cdc.gov/steadi/materials.html

CDC
CENTERS FOR DISEASE
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For further information

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www.biapa.org

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www.health.pa.gov

Toll Free Brain Injury Resource Line

1-800-444-6443

PA Department of Health

1-717-772-2763

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