

# **Brain Injury in Alaska**

**We can do this!**

**Adam Grove, ND, CBIS**

**10/20/22**

# Thank you

To the Dena'ina people who have cared for this place we now inhabit. We came without invitation but I hope that through what we do together for the next hour we can offer a gift of wisdom and better health for all of us living here.

To The Alaska Mental Health Trust Authority for providing a grant to make the Alaska Brain Bus a reality and bringing me here today.

[alaskabrainbus.com](http://alaskabrainbus.com)

Trust  
Alaska Mental Health  
Trust Authority



# What is a Brain Injury



# What is a Brain Injury

A brain injury is an insult or injury to the brain which effects how it works.

Congenital brain injuries happen before or during birth. They include injuries such as fetal alcohol syndrome, perinatal illness or perinatal hypoxia.

An acquired Brain Injury (ABI) occurs after birth. They can be caused by strokes, tumors, anoxia, hypoxia, toxins, degenerative diseases, near drowning etc

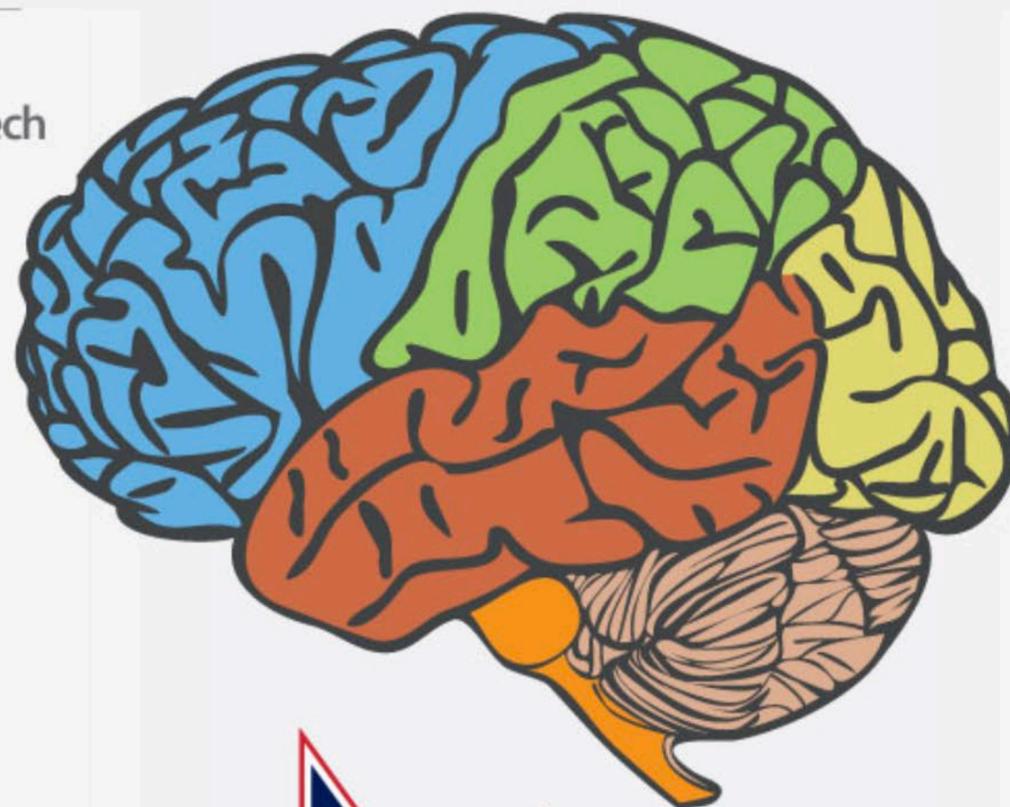
A traumatic brain injury, or TBI, is an subset of the ABI It may be caused by a: Bump, blow, or jolt to the head, or penetrating injury to the head

# Why brain injury becomes a problem

## HOW TRAUMATIC BRAIN INJURY (TBI) AFFECTS DAILY LIFE

### HEALTHY

- Frontal: Concentration, Problem Solving, Speech
- Parietal: Sense of Touch, Pain, Temperature
- Occipital: Healthy Vision
- Temporal: Memory, Organization
- Cerebellum: Balance & Coordination
- Brainstem: Breathing, Steady Heart Rate



### TBI

- Frontal: Lack of Focus, Irritability, Language Difficulty
- Parietal: Difficulty with Reading, Spatial Misperception
- Occipital: Blind Spots, Blurred Vision
- Temporal: Problems with Short- & Long-Term Memory
- Cerebellum: Difficulty Walking, Slurred Speech
- Brainstem: Changes in Breath, Difficulty Swallowing



# AMHTA Beneficiaries with brain injury

Because brain injury is a PRIMARY problem - you will find brain injury in every beneficiary group

We often just don't look for it

If we can find it and treat it, the primary problem does not have to turn into a secondary problem

Secondary problems are very expensive in term of human and economic costs

Brain injuries lead to Social Failure

# AMHTA Beneficiaries with brain injury

**Traumatic brain injury** - obviously these folks have brain injury

- TBIs are a major contributor to many social problems
- BUT we are not identifying, much less treating, these folks
- More on this later from the ANTHC folks because they do have some data!

# AMHTA Beneficiaries with brain injury

**Alzheimer's and related dementias** - also obviously have an acquired brain injury

- Studies from Denmark and Sweden showed :
  - A single injury in one's 20's increased risk of dementia at 50 by 60%
  - 5 or more TBIs increased one's risk by 183%
  - Males with TBI were on average at a 30% increased risk compared to females at 19%
- TBI can create the same plaques found in AD, disrupt blood flow, cause inflammation and directly kill neurons
- Others have found that a single TBI can accelerate the onset of cognitive impairment by 4 years
  - Often occurs in the later years of life reducing the burden of disease (but not cost)
  - COVID will play a huge role here in the future

# AMHTA Beneficiaries with brain injury

## The Silver Tsunami

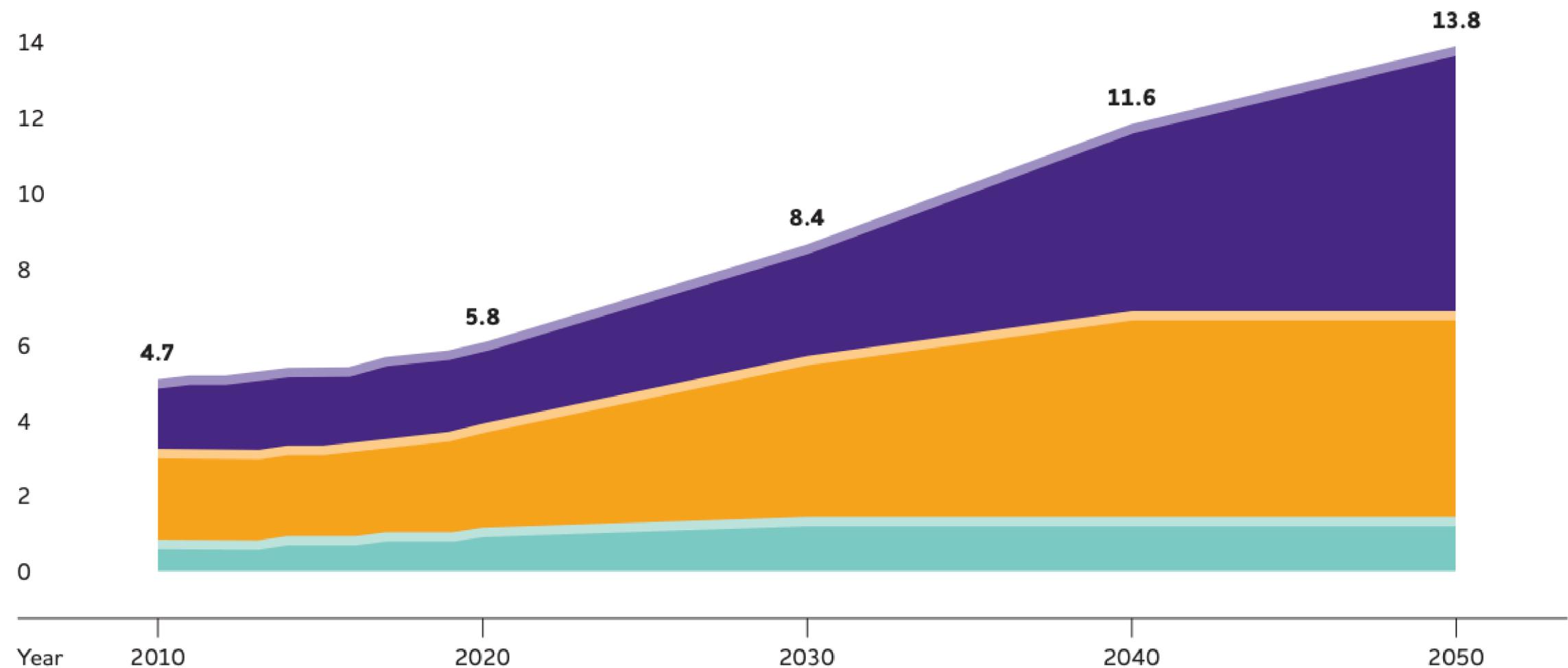
Projected Number of People Age 65 and Older (Total and by Age) in the U.S. Population with Alzheimer's Dementia, 2010 to 2050

Millions of people

Ages 65-74

Ages 75-84

Ages 85+



Created from data from Hebert et al.<sup>A9,62</sup>

# AMHTA Beneficiaries with brain injury

## Chronic alcohol or drug addictions

- History of substance abuse is a risk factor for TBI. 1/3-4/5 of hospitalized TBI patient report substance misuse - ETOH is the most common drug of abuse.
- Alcohol use at time of injury is a common occurrence with TBI. Nearly 3/4 of patients with TBI have ETOH in their blood on admission and 1/3-1/2 of them are intoxicated.
- 21-37% of TBI survivors report use of illegal drugs compared to 15% of non-TBI survivors
- Prior TBI is common among individuals in substance abuse treatment. Among those seeking drug treatment 38-69% report a prior TBI.
- TBI's and addiction cannot be separate and must be treated together

# AMHTA Beneficiaries with brain injury

## Developmental disabilities

- Children with TBI are at increased risk for social failure as they grow up
- TBI in children is associated with below average academic performance and problem behaviors.
- A 2004 study estimated that 130,000 U.S. children need special education classes because of TBI, but that only 11 percent are currently enrolled.
- The US Department of Education (2008) reported that 24,000 school children were identified with a TBI, but that there should be 500,000, indicating that less than 5 percent have been identified.
- TBI in Childhood doubles likelihood of psychiatric disorder by early adulthood

# AMHTA Beneficiaries with brain injury

## Mental Illness

- Within days to weeks 40-50% of those with mild TBI will experience disabling conditions known collectively as post concussive syndrome
- Headache, dizziness, vertigo, memory problems, trouble concentrating, sleeping problems, restlessness, irritability, apathy, depression, anxiety
- Some are left with long term cognitive, expressive, emotional/behavior disabilities
- Moderate to severe TBI's are less common and have worse outcomes and higher rates of disability BUT mild TBIs contribute much more to the overall burden of disability because of their large numbers

# AMHTA Beneficiaries with brain injury

## Mental Illness

- Psychiatric problems: depression, apathy, anxiety, irritability, anger, paranoia, confusion, frustration, agitation, insomnia or other sleep problems, and mood swings.
- Problem behaviors: aggression and violence, impulsivity, disinhibition, acting out, noncompliance, social inappropriateness, emotional outbursts, childish behavior, impaired self-control, impaired self awareness, inability to take responsibility or accept criticism, egocentrism, inappropriate sexual activity, and alcohol or drug abuse/addiction.
- Social problems such as homelessness are highly linked with TBI
  - 22 studies showed an average of 53% of homeless reported a TBI and up to 80% of those occurred predated homelessness

# The revolving door of Traumatic Brain Injury

- A single TBI makes an individual 2x as likely to experience a second TBI, and a second TBI makes an individual 8x as likely to sustain a third TBI
- The consequences of multiple injuries can be severe as even multiple mild TBIs can have the same negative side-effects as a single severe TBI
- If several mild TBIs are sustained within a short time frame (e.g., a matter of weeks), the individual can even die as a result

# A Little Known Fact



The first testicular guard was used in cricket in 1874

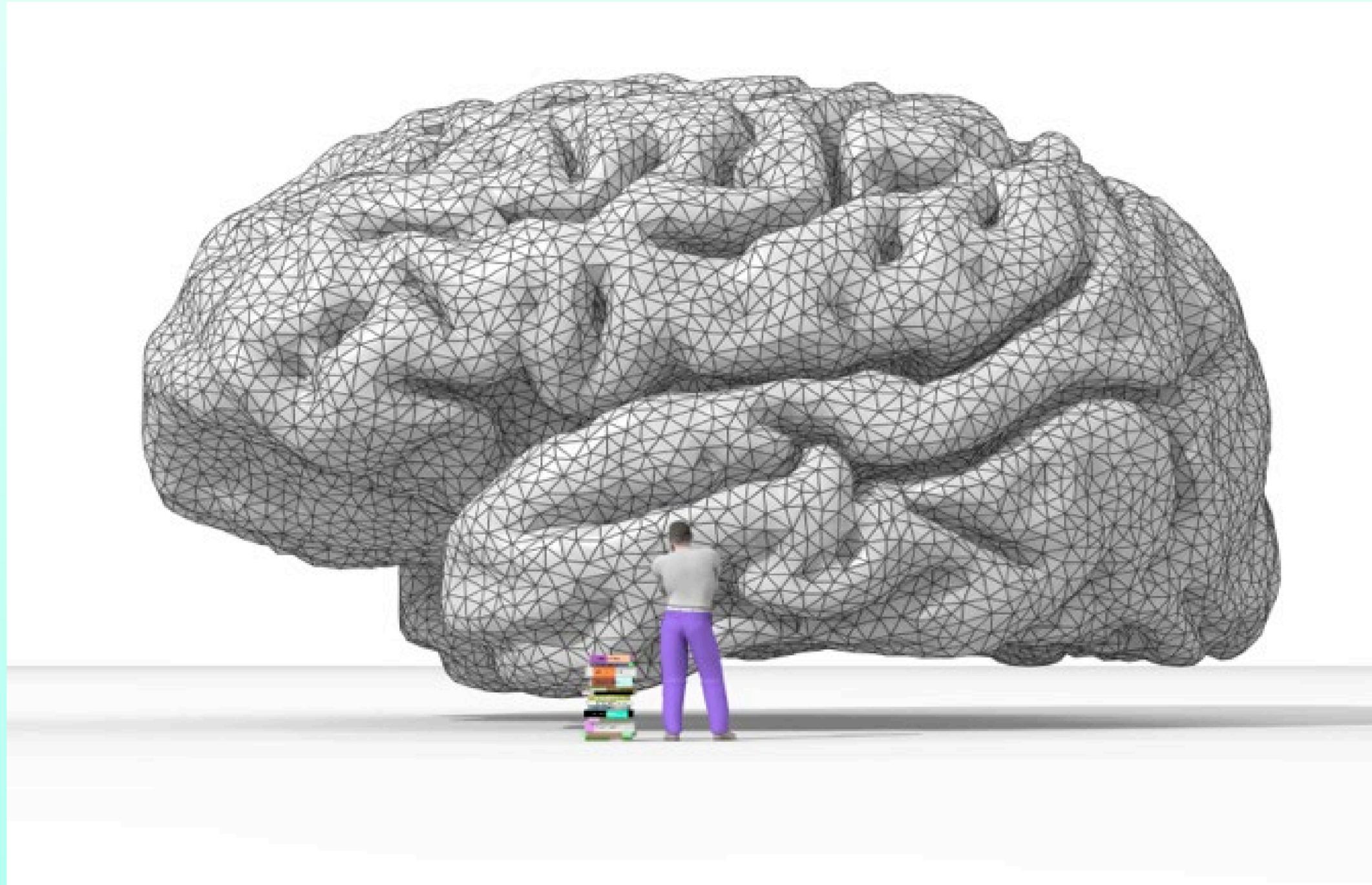


and the first helmet was used in 1974.



It took 100 years for men to realize that the brain is also important.

# Identifying and treating a brain injury



# Identification is critical

Identification of a TBI is actually quite difficult

- Especially when the damage is functional and not structural and most brain damage is functional
- Many victims may not know they have a brain injury - the CDC estimates that up to 75% of people with mild TBIs (Concussions) never seek care
- Symptoms may only show up weeks or years later (especially in children)
- A brain injury will look like many other things and are often mis-diagnosed
- Most doctors are not trained in identification or treating brain injury so many injuries are un-diagnosed

# Every brain Injury is treatable (and must be)

A brain can heal through a process called Neuro-plasticity

- To take advantage of this, dosing of treatment should be very high
  - The more therapy (demands on the brain to reorganize) the better
  - Different types are crucial – physical, cognitive, speech, vision etc
    - Speech therapy, for example, might be needed 8-9 hrs per week
  - Everyone with a brain injury is different
- Timing is crucial
  - Crucial window for treatment is within 3-6 months after the injury but change happens after this too
  - Identification is the key to treatment

# In Closing

- Alaskan's with brain injury need your help
  - Alaska has the highest rates of Traumatic Brain Injury (TBI) in the nation
  - We are not identifying individuals
  - We have very few resources to help people with TBI if we do identify them
  - We are not doing a good job for Alaskan's with TBI

# In Closing

We need the Trust to support

- Research - prevalence, outcomes, costs of not treating vs treating
- Broad-based screening - in schools, jails, homeless shelters, behavioral and mental health clinics, etc, etc
- We need more information for TBI survivors, families and communities and a place to centralize it
- We need long-term work force development efforts to grow trained providers

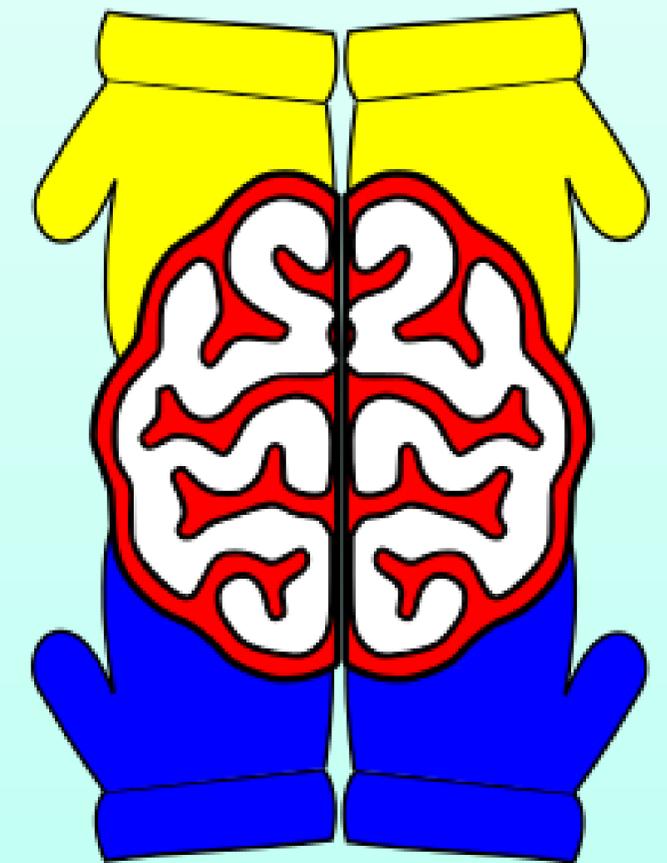
# Please contact me with ideas, questions etc



Dr. Adam Grove, ND, CBIS  
Head to Toe Holistic Healthcare

drgrove@ak.net

[AlaskaBrainBus.com](http://AlaskaBrainBus.com)



Alaska Brain  
Injury Consortium