

BRAIN INJURY AS A CHRONIC HEALTH CONDITION

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WHAT DO WE MEAN BY A “CHRONIC HEALTH CONDITION” OR “CHRONIC DISEASE”?

Require consistent attention

WHO

Non-communicable

NIH

CDC

At least 3 months

HRSA

At least 1 year

CMS

Complex

National Center for
Health Statistics

AMA

Slow progression

Wikipedia

Not curable

Use Your Words Carefully: What Is a Chronic Disease?

Stephanie Bernell^{1} and Steven W. Howard²*



“We advocate for a simpler approach...chronic is [a health condition] that is continuing or occurring again and again for a long time.”

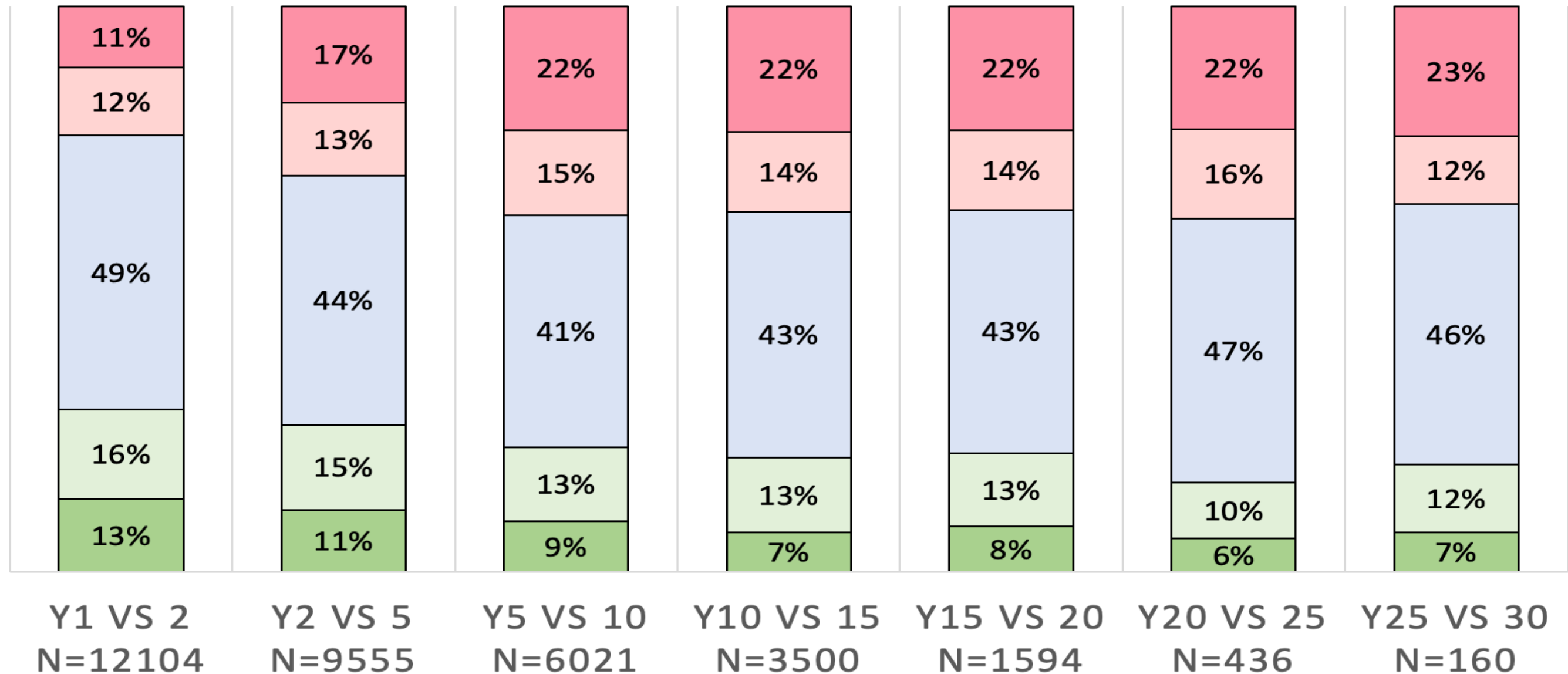
“We would exclude something like a broken leg as a chronic condition, but would include reoccurring lower back pain...”

Is chronic TBI stable or dynamic or both?

Change in Glasgow Outcome Scale (GOS-E)

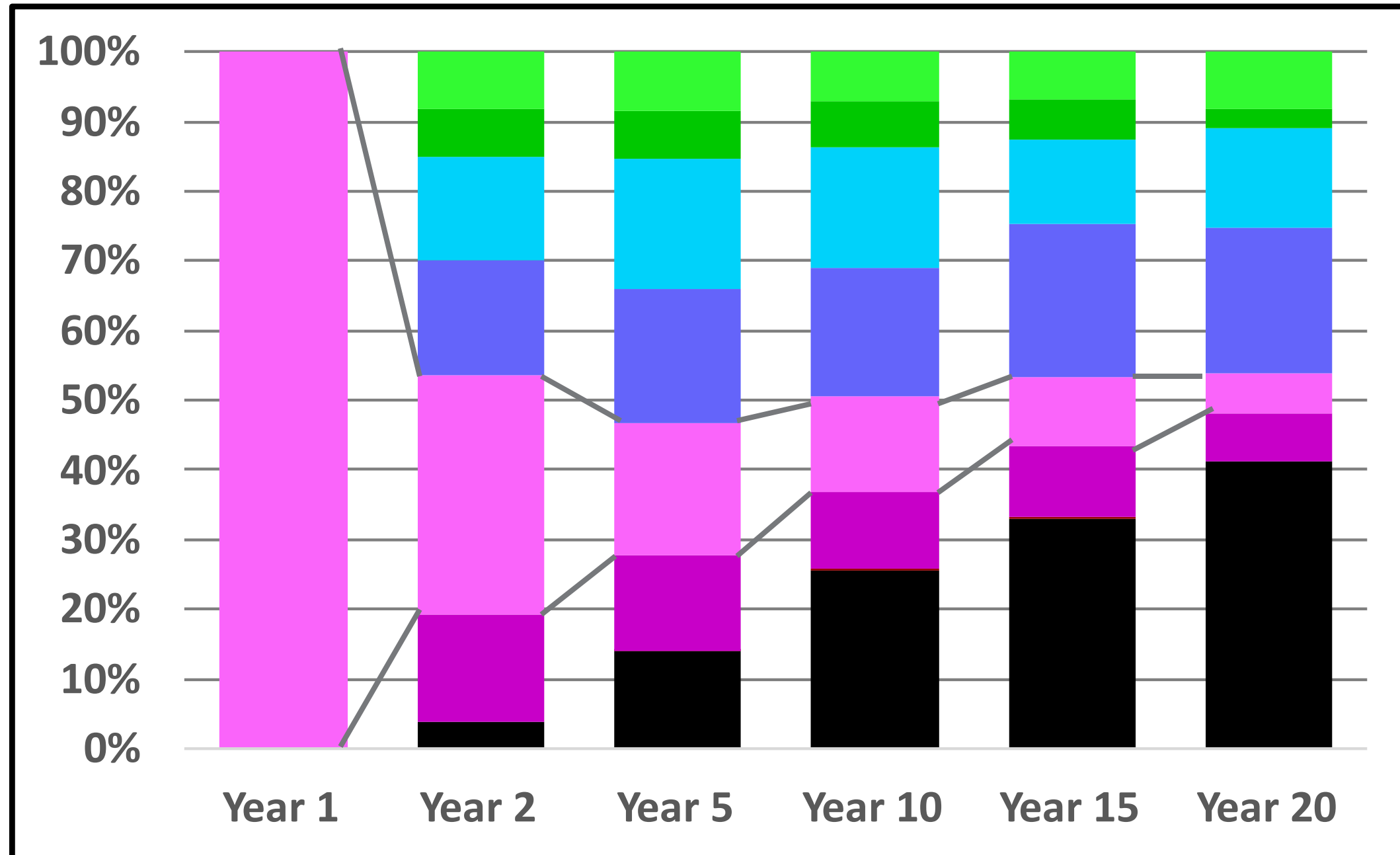
Corrigan et al. Arch Phys Med Rehabil 2024

■ % 2+ category improved ■ % 1 category improved ■ % no category change
■ % 1 category decline ■ % 2+ category decline



GOS-E Distribution by Time Postinjury

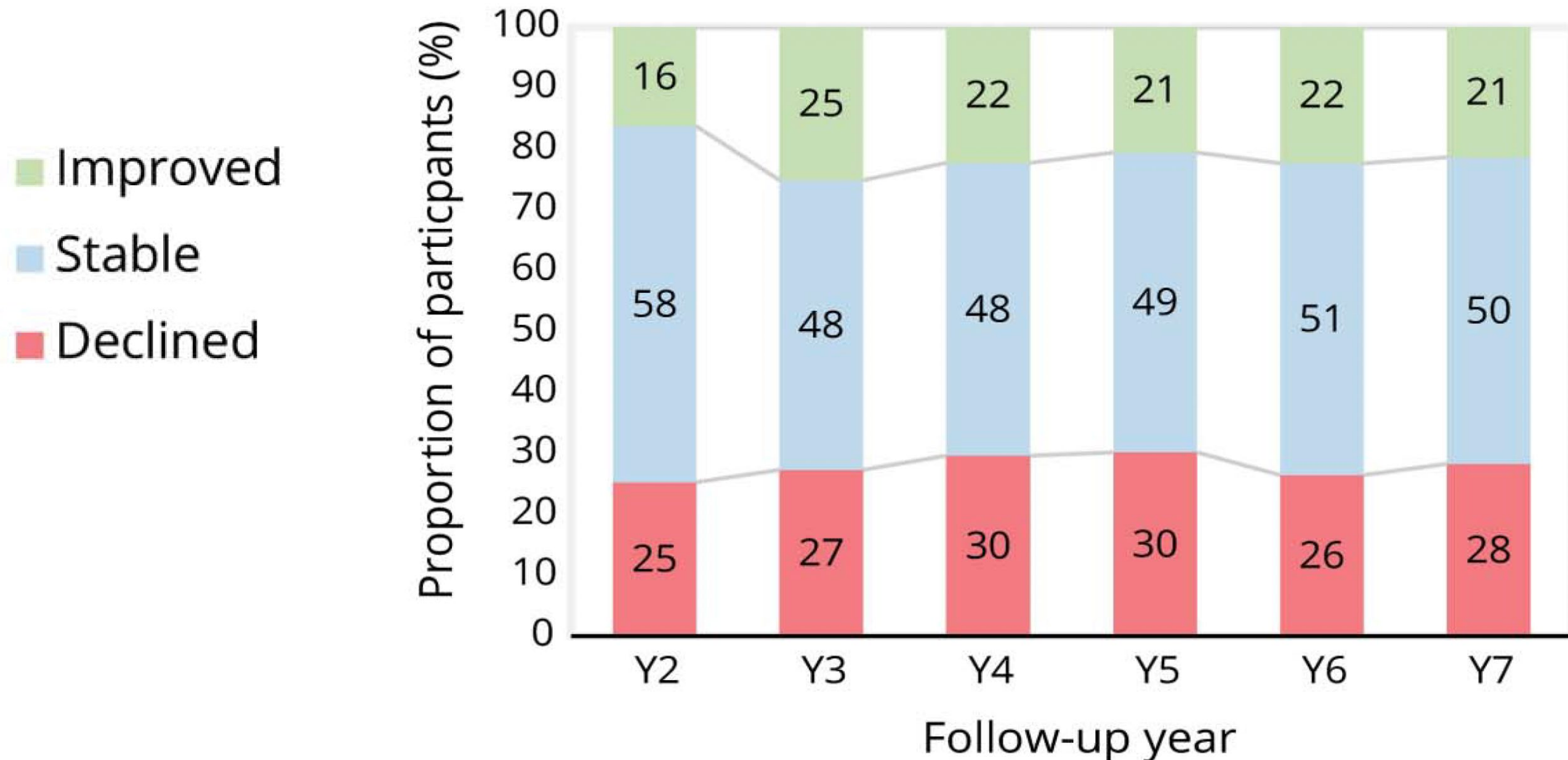
Stratified by Year 1 Upper Severe Disability



TRACK-TBI Prevalence of Change: Mild TBI only

Brett et al. 2023; Braun 2023

A. GOSE scores in mild TBI



Pros & Cons of TBI being Considered a Chronic Condition

Pros

- Awareness by healthcare professionals
- Public education and surveillance resources

Public Education

National Center for Chronic Disease Prevention and Health Promotion (NCCDPHP)

CDC > National Center for Chronic Disease Prevention and Health Promotion > About Chronic Diseases

🏠 National Center for
Chronic Disease
Prevention and
Health Promotion

About Chronic
Diseases

About Chronic
Diseases

Health and
Economic Costs of
Chronic Diseases

How You Can
Prevent Chronic

About Chronic Diseases

[Print](#)

Six in ten adults in the US have
a chronic disease and **four in
ten adults** have two or more.



HEART
DISEASE



CANCER



CHRONIC LUNG
DISEASE



STROKE



ALZHEIMER'S
DISEASE



DIABETES



CHRONIC
KIDNEY DISEASE



Chronic diseases are defined broadly as conditions that last 1 year or more and require ongoing medical attention or limit activities of daily living or both.

Chronic diseases such as heart disease, cancer,



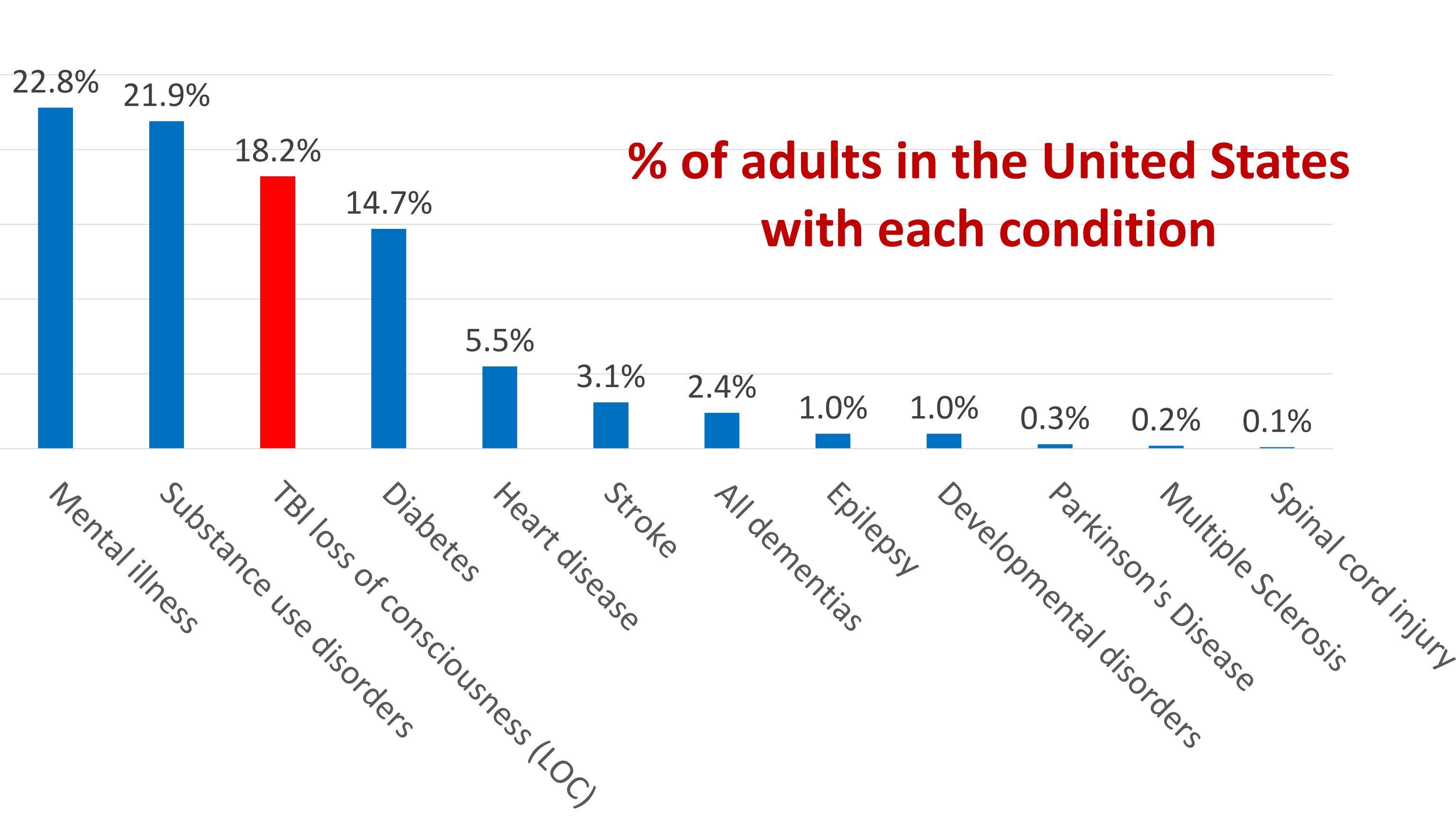
How You Can

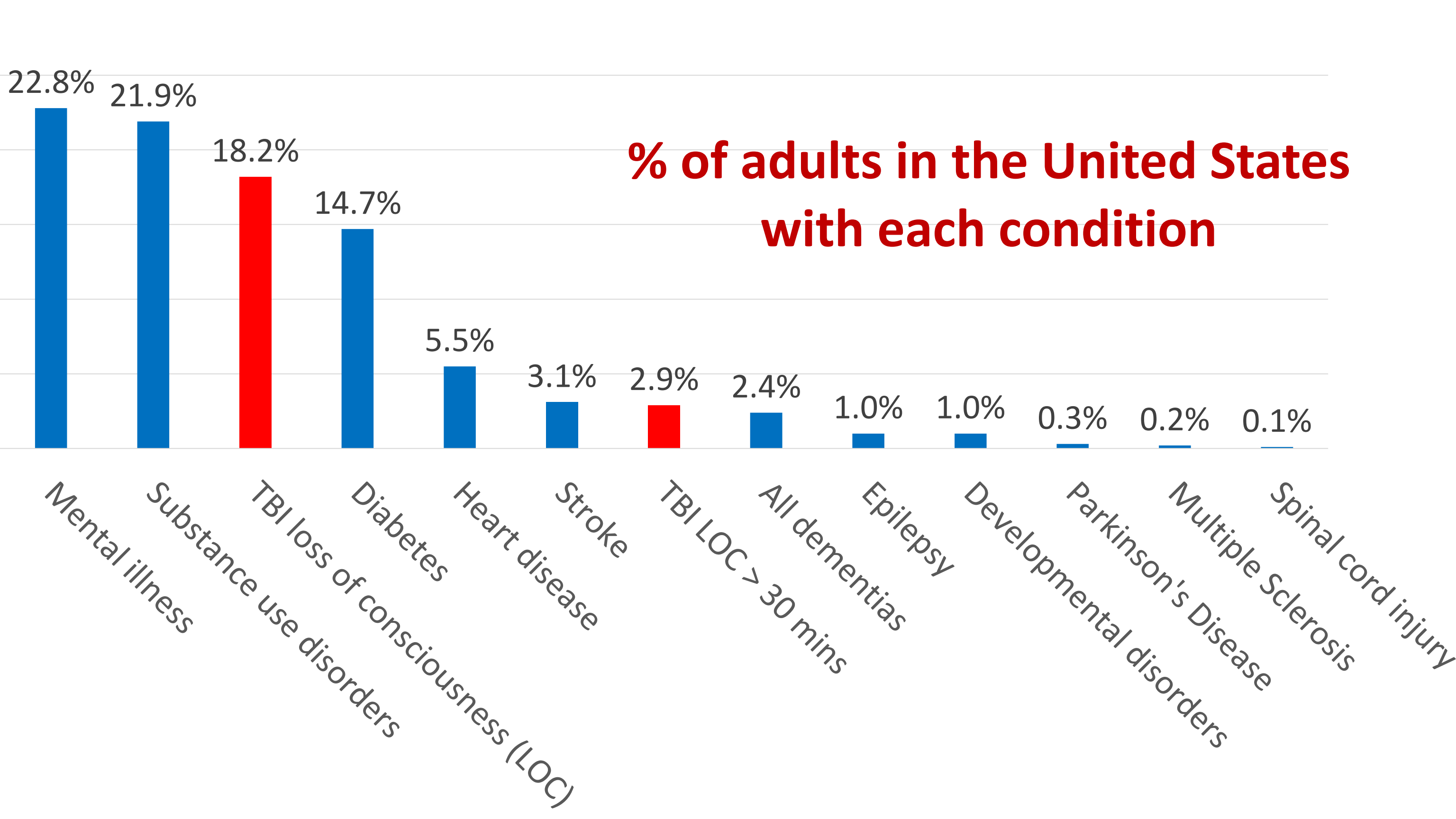
Surveillance

Chronic Disease Interactive Data Applications

Interactive data applications offer detailed data, maps, charts and methodology on NCCDPHP's full range of chronic disease topics.

- [Alcohol and Public Health: Alcohol-Related Disease Impact \(ARDI\)](#)
- [Behavioral Risk Factor Surveillance System \(BRFSS\) Prevalence & Trends Data](#)
- [Chronic Disease Indicators](#)
- [Chronic Kidney Disease Surveillance System](#)
- [Diabetes Atlas](#)
- [Global Tobacco Surveillance System Data \(GTSSData\)](#)
- [Healthy Aging Data Portal](#)
- [Heart Disease and Stroke Prevention Data Trends & Maps](#)
- [Interactive Atlas of Heart Disease and Stroke](#)
- [PLACES: Local Data for Better Health](#)
- [Nutrition, Physical Activity, and Obesity: Data, Trends and Maps](#)
- [Office on Smoking and Health's Interactive Data Dissemination Tool: OSHData](#)
- [Oral Health Data](#)
- [State Tobacco Activities Tracking and Evaluation \(STATE\) System](#)
- [U.S. Cancer Statistics Data Visualizations Tool](#)
- [Vision & Eye Health Data & Maps](#)
- [Youth Risk Behavior Surveillance System \(YRBSS\) Data Portal](#)





Pros & Cons of TBI being Considered a Chronic Condition

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- Additional health insurance benefits

CMS LIST OF CHRONIC DISEASES



Code of Federal Regulations

A point in time eCFR system



 Title 42

1. Chronic alcohol and other substance use disorders;
2. Autoimmune disorders:
3. Cancer;
4. Cardiovascular disorders:
5. Chronic heart failure;
6. Dementia;
7. Diabetes mellitus;
8. Overweight, Obesity, and Metabolic Syndrome;
9. Chronic gastrointestinal disease:
10. Chronic kidney disease (CKD):
11. Severe hematologic disorders:
12. HIV/AIDS;
13. Chronic lung disorders:
14. Chronic and disabling mental health conditions:
15. Neurologic disorders:
16. Stroke;
17. Post-organ transplantation care;
18. Immunodeficiency and Immunosuppressive disorders;
19. Conditions that may cause cognitive impairment:
 - Alzheimer's disease,
 - Intellectual and developmental disabilities,
 - **Traumatic brain injuries,**
 - Mental illness associated with cognitive impairment, and
 - Mild cognitive impairment;
20. Conditions that may cause similar functional challenges
21. Conditions that impair vision, hearing, taste, touch, and smell;
22. Conditions that require therapy to maintain or retain functioning

For Example: Medicaid Managed Care Plans

- Almost 75% of all Medicaid beneficiaries receive their care through comprehensive risk-based Managed Care Organizations (MCOs)
- Each state develops the contracts that MCOs compete for
- Contracts routinely require additional services, coverage and protections for recipients with chronic conditions
- Having a chronic brain injury should be one of those conditions that qualify for this additional coverage

Pros & Cons of TBI being Considered a Chronic Condition

Pros

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Cons

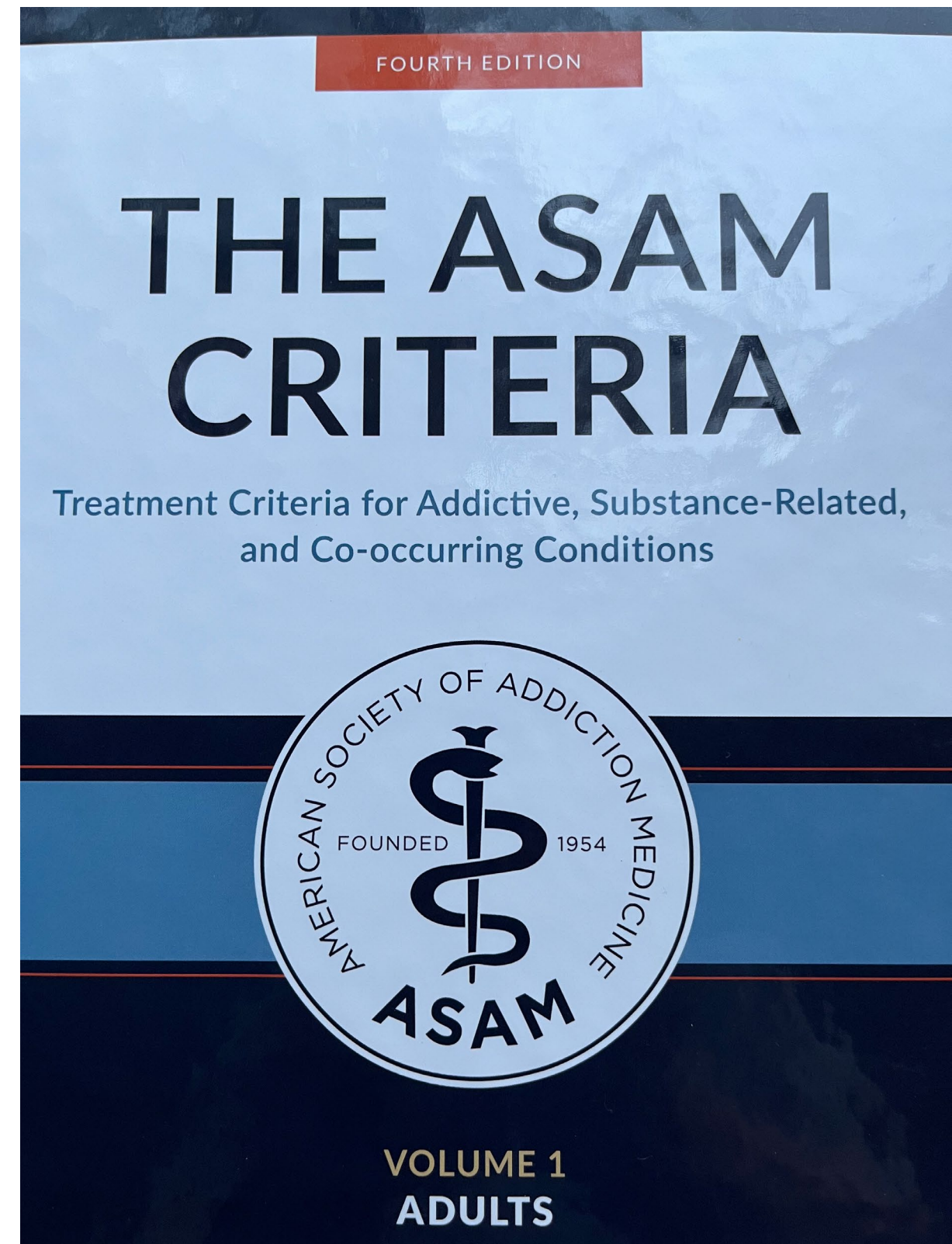
- Not all the long-term problems are due to TBI

4TH EDITION ASAM CRITERIA

Chapter 19

Cognitive Impairment

Neurologic Informed Care



Is TBI both a primary and secondary mechanism of chronic disease?

JAMA Neurology | **Original Investigation**

Head Injury and Long-term Mortality Risk in Community-Dwelling Adults

Holly Elser, MD, PhD; Rebecca F. Gottesman, MD, PhD; Alexa E. Walter, PhD; Josef Coresh, MD, PhD;
Ramon Diaz

Original Investigation | Neurology

Association of Traumatic Brain Injury With the Risk of Developing Chronic Cardiovascular, Endocrine, Neurological, and Psychiatric Disorders

Saef Izzy, MD; Patrick M. Chen, MD; Zabreen Tahir, MD; Rachel Grashow, PhD, MS; Farid Radmanesh, MD, MPH; David J. Cote, MD, PhD; Taha Yahya, BSc;
Amar Dhand, MD, DPhil; Herm
David M. Nathan, MD; Karen K

Original Investigation | Neurology

Neuroimaging and Clinical Findings in Healthy Middle-Aged Adults With Mild Traumatic Brain Injury in the PREVENT Dementia Study

Audrey Low, PhD; Elizabeth McKiernan, MSc; Maria A. Prats-Sedano, PhD; Stephen F. Carter, PhD; James D. Stefaniak, PhD; Li Su, PhD; Maria-Eleni Dounavi, PhD;
Graciela Muniz-Terrera, PhD; Natalie Jenkins, MBPsS; Katie Bridgeman, BSc; Karen Ritchie, PhD; Brian Lawlor, MD; Lorina Naci, PhD; Paresh Malhotra, PhD;
Clare Mackay, PhD; Ivan Koychev, PhD; Tony Thayanandan, MSc; Vanessa Raymont, MSc; Craig W. Ritchie, MD; William Stewart, PhD; John T. O'Brien, DM;
for the PREVENT Dementia Investigators

Pros & Cons of TBI being Considered a Chronic Condition

Pros

- Awareness by healthcare professionals
- Public education and surveillance resources
- Additional health insurance benefits

Cons

- Not all the long-term problems are due to TBI
- Not all TBIs become chronic conditions
- Potentially iatrogenic

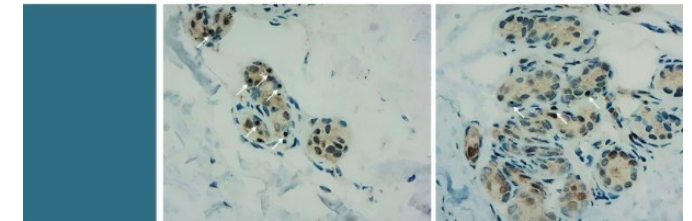
Promotion of Brain Health

Neurologists Have a Plan for Lifelong Brain Health

Orly Avitzur, MD, MBA, Natalia S. Rost, MD, MPH, and David A. Evans, MBA | [AUTHORS INFO & AFFILIATIONS](#)

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ASSOCIATION**

**Brain gain: How improving brain health
benefits the economy**



A significant portion of TBIs are dynamic, not stable, and thus should be considered a chronic condition

- Healthcare professionals need to treat TBI as a chronic condition.
- Public health resources should be focused on the lifelong effects of TBI.
- Health insurance plans should cover TBI like they do other chronic health conditions.
- A program of research should be undertaken to identify primary mechanisms of chronicity.
- Recognition of TBI as a chronic condition should be paired with public education on brain health.