Disabilities associated with severe TBI and unmet needs

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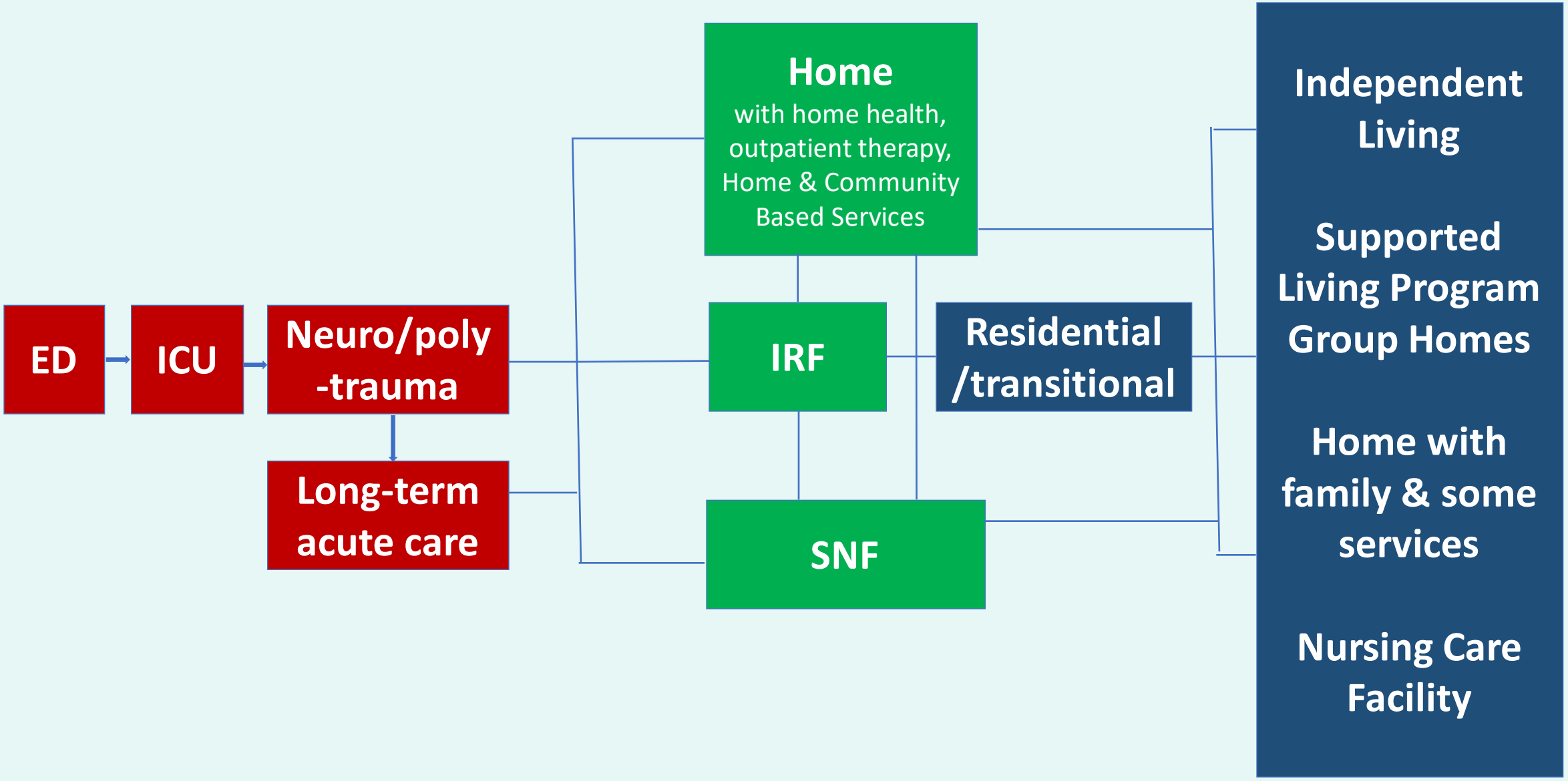
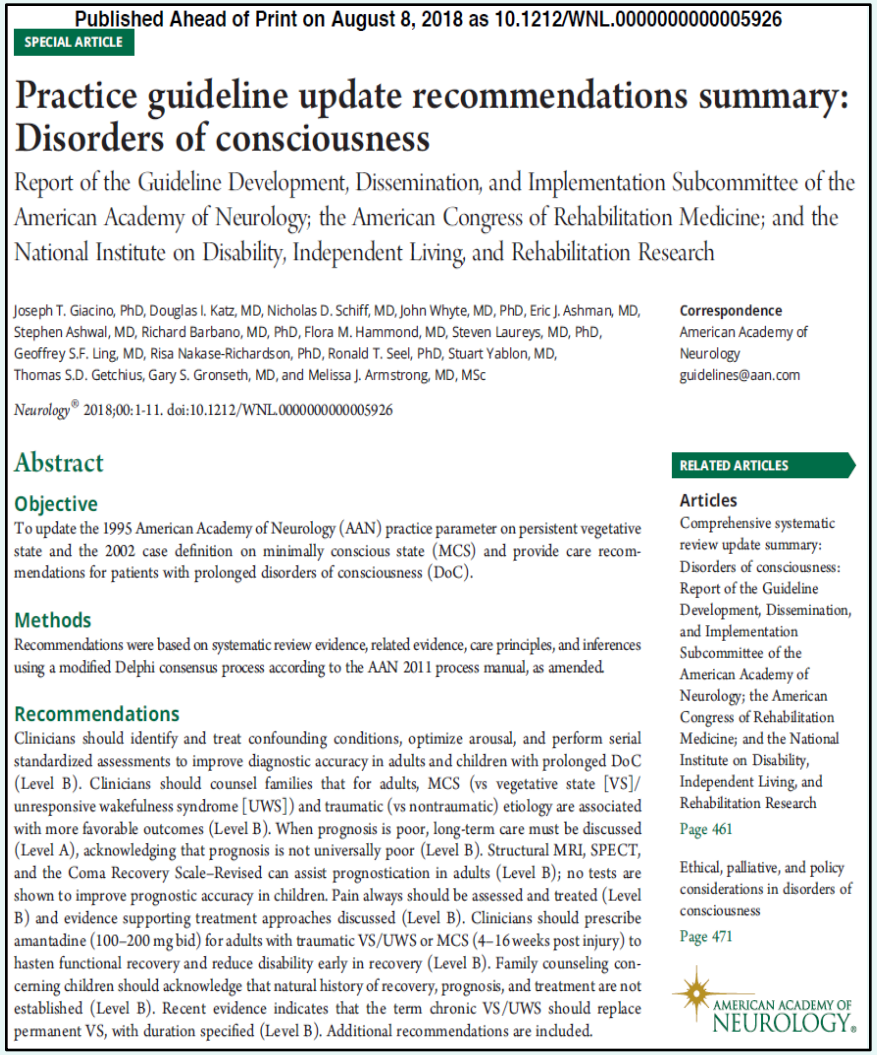
Acute to Post-acute Pathways



AAN/ACRM/NIDILRR Guidelines on Treatment

AAN.com/guidelines



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SPECIAL ARTICLE

Practice guideline update recommendations summary: Disorders of consciousness

Report of the Guideline Development, Dissemination, and Implementation Subcommittee of the American Academy of Neurology; the American Congress of Rehabilitation Medicine; and the National Institute on Disability, Independent Living, and Rehabilitation Research

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Abstract

Objective

To update the 1995 American Academy of Neurology (AAN) practice parameter on persistent vegetative state and the 2002 case definition on minimally conscious state (MCS) and provide care recommendations for patients with prolonged disorders of consciousness (DoC).

Methods

Recommendations were based on systematic review evidence, related evidence, care principles, and inferences using a modified Delphi consensus process according to the AAN 2011 process manual, as amended.

Recommendations

Clinicians should identify and treat confounding conditions, optimize arousal, and perform serial standardized assessments to improve diagnostic accuracy in adults and children with prolonged DoC (Level B). Clinicians should counsel families that for adults, MCS (vs vegetative state [VS]/unresponsive wakefulness syndrome [UWS]) and traumatic (vs nontraumatic) etiology are associated with more favorable outcomes (Level B). When prognosis is poor, long-term care must be discussed (Level A), acknowledging that prognosis is not universally poor (Level B). Structural MRI, SPECT, and the Coma Recovery Scale–Revised can assist prognostication in adults (Level B); no tests are shown to improve prognostic accuracy in children. Pain always should be assessed and treated (Level B) and evidence supporting treatment approaches discussed (Level B). Clinicians should prescribe amantadine (100–200 mg bid) for adults with traumatic VS/UWS or MCS (4–16 weeks post injury) to hasten functional recovery and reduce disability early in recovery (Level B). Family counseling concerning children should acknowledge that natural history of recovery, prognosis, and treatment are not established (Level B). Recent evidence indicates that the term chronic VS/UWS should replace permanent VS, with duration specified (Level B). Additional recommendations are included.

RELATED ARTICLES

Articles

Comprehensive systematic review update summary: Disorders of consciousness: Report of the Guideline Development, Dissemination, and Implementation Subcommittee of the American Academy of Neurology; the American Congress of Rehabilitation Medicine; and the National Institute on Disability, Independent Living, and Rehabilitation Research

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Ethical, palliative, and policy considerations in disorders of consciousness

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AMERICAN ACADEMY OF NEUROLOGY

Clinicians should refer patients with DoC who have achieved medical stability to settings staffed by multidisciplinary rehabilitation teams with specialized training to optimize diagnostic evaluation, prognostication, and subsequent management, including medical monitoring and rehabilitative care.

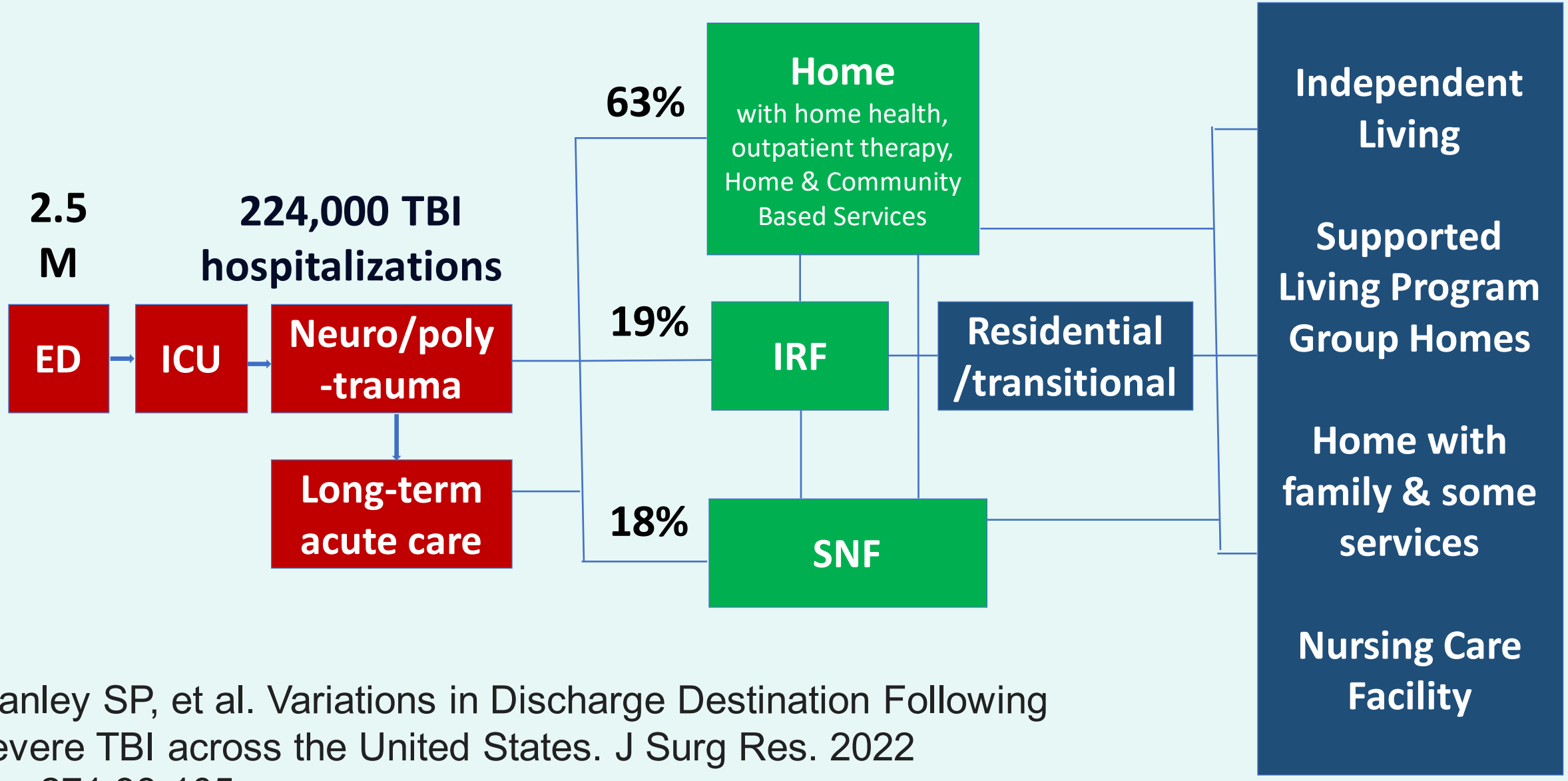
(Level B = should)

Why is specialized rehabilitation needed?

- **Systematic evaluation** for diagnosis & reversible causes
  - Infection, neuroendocrine, pain, hydrocephalus, occult seizure, medications, damage to visual or auditory tracts
- **Identify & prevent** secondary complications & treat emerging issues
  - Control spasticity, prevent contractures & skin breakdown, …
- **Increase arousal and awareness & improve behavior**
  - Promote responsiveness through structured system of intervention with observation of responses to medication changes & sensory stimuli
- **Restore function** (cognitive, behavioral, & physical)
- **Educate & train family**
- **Provide prognostic information**
- **Establish a long-term rehabilitation connection & follow up plan**

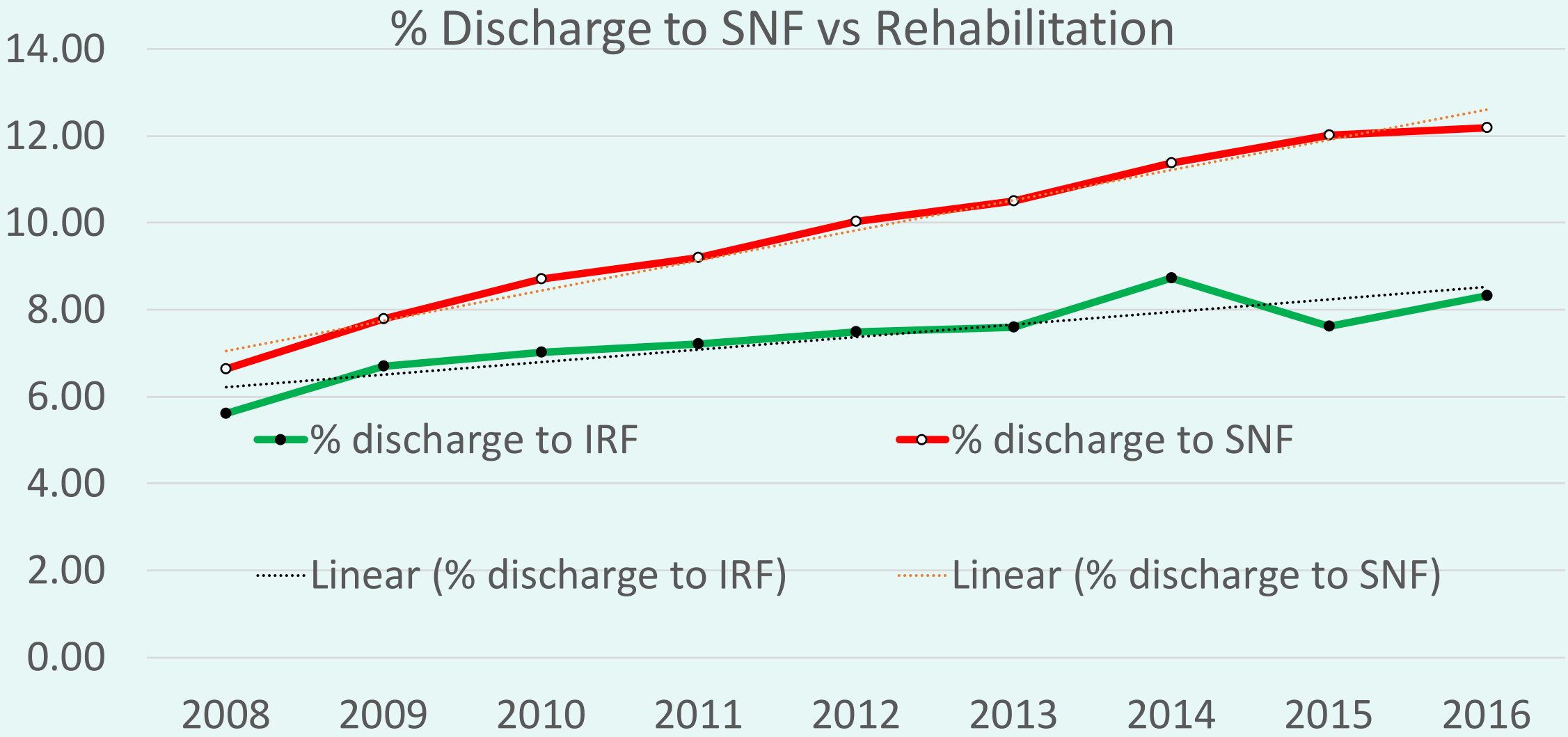
Are current health service delivery trends in step with clinical guidelines?

Acute to Post-acute Pathways



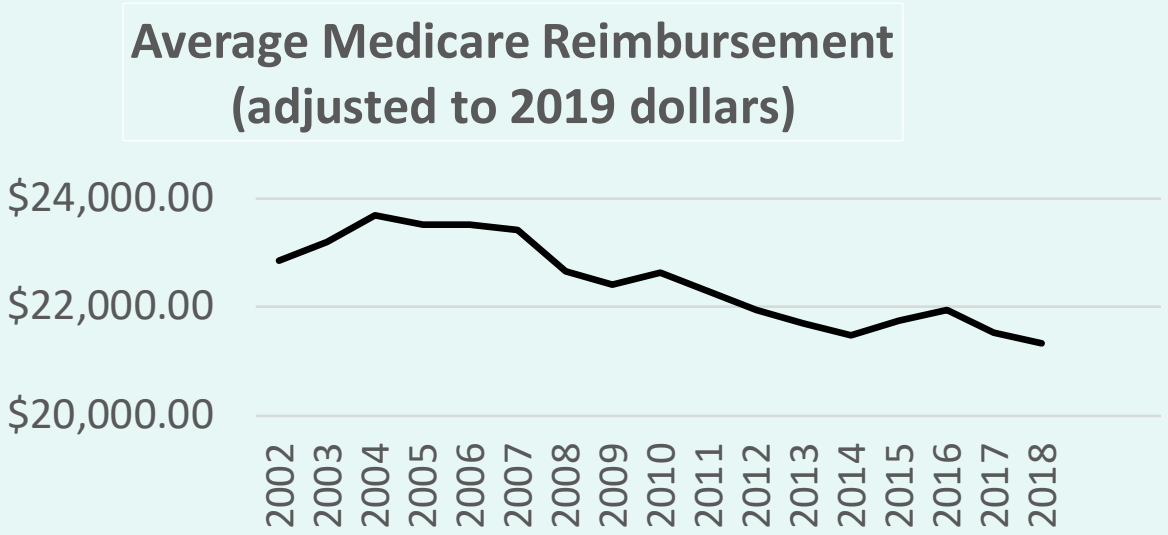
Stanley SP, et al. Variations in Discharge Destination Following Severe TBI across the United States. J Surg Res. 2022 Mar;271:98-105

Increasing % acute care discharges to SNF vs IRF

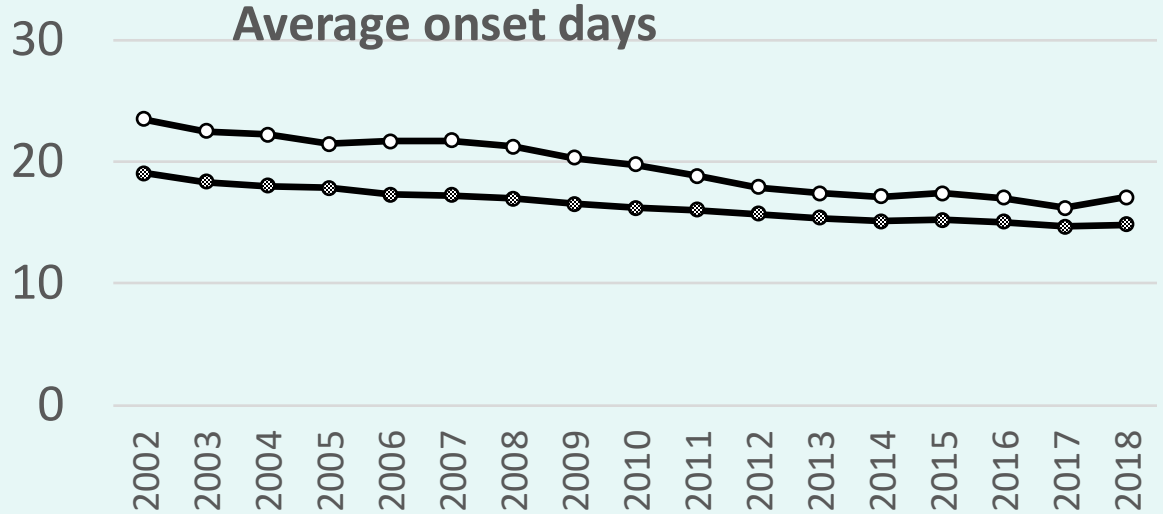


Data on Rehab Impairment Code 2 (TBI)

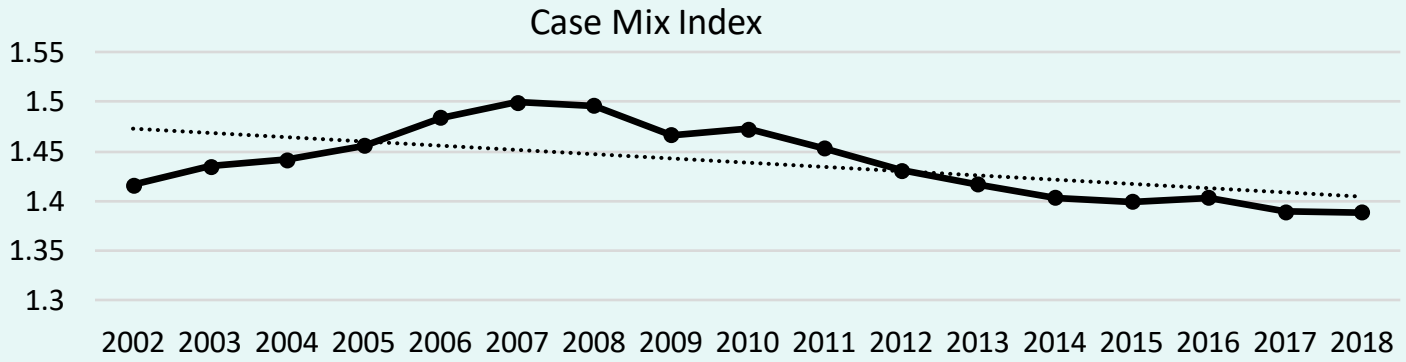
Source: Erehab 2002 – 2018 (www.erehabdata.com)



Decreasing MCRE $ on BI Rehab



Decreasing Time to Rehab & RLOS



Decreased CMI

Dangers of Not Receiving Rehabilitation: Lasting, Unmet Needs

- **Lack of structured follow up**
  - F/u uncommon if no IR
- **Lack team with expertise**
  - Misdiagnosis common due to confounding issues & inexperience
  - Medical complications common
- **Outcome**
  - Higher mortality for SNF vs IRF
    - 3-year cumulative mortality post-d/c significantly lower for those discharged to IRF/home v. SNF, after adjusting for covariates (Davidson et al, JAMA, 2011).

Co-morbidities and mortality related to age & disability **underscore importance of structured follow up**

- Higher risk of cardiovascular, endocrine, neurologic, & psychiatric disorders in both mTBI & msTBI that emerge within a median 3.5 years after TBI (Izzy 2022)
- IRF (TBIMS cohort):
  - 9-year life expectancy reduction (Harrison 2015)
  - 22% die from Year 1 -2 to 5 years (Corrigan, 2014) (2 in 10 die)
  - Associated with older age, days LOC, > disability, non-home discharge (Harrison 2012)

Co-morbidities & consequences

- Pain
- Substance use
- Social isolation
- Incarceration
- Reinjury
- Psychiatric disorders
- Neuroendocrine dysfunction
- Diabetes
- Seizure
- Stroke
- Dementia
- hypertension, myocardial infarction, cerebrovascular disease, peripheral vascular disease
- Chronic pulmonary disease
- Renal disease
- Premature mortality

Summary

- 2018 guidelines that clinicians should refer patients with severe BI/DoC to settings staffed by multidisciplinary rehabilitation teams
- Yet:
  - More going to SNF; less to IRF
  - Shorter time from injury to rehab & shorter RLOS
  - Lower case mix / higher functioning (less lower functioning)
- Risks: worse outcomes (mortality, comorbidities and other)

Thank You

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