



Angela Hein Ciccia, Ph.D., CCC-SLP
Communication Sciences Program, Dept. of Psychological Sciences
Case Western Reserve University

BEST PRACTICES FOR INPATIENT & OUTPATIENT REHABILITATION FOR ADOLESCENTS & ADULTS WITH ACQUIRED TBI

LEARNER OUTCOMES

- ✘ Identify current best practices for clinical service provision for adolescent and adults with TBI (acute, inpatient)
- ✘ Identify current best practices for clinical service provision for adolescent and adults with TBI (sub-acute, chronic, outpatient)
- ✘ Identify current best practices specifically for social language deficits in adolescent and adult TBI survivors



INTRODUCTION

What are your experiences?

What are your frustrations?

What constitutes best-practice in your work setting?

WHAT WAS THE STATE OF THE SCIENCE 10 YEARS AGO?

- × The past 20 years focused on
 - × Characterization of the injury, secondary mechanisms, natural course of recovery, and consideration of outcome
- × By the early 2000's
 - × Much had been quantified about who gets injured, factors that impact recovery, and measurement of behavior after brain injury
 - × Little work specifically focused on intervention, maximizing effectiveness and functional outcome
- × Things are starting to change.....

WHAT'S BEEN DONE IN THE LAST 10 YEARS?

× PubMed search

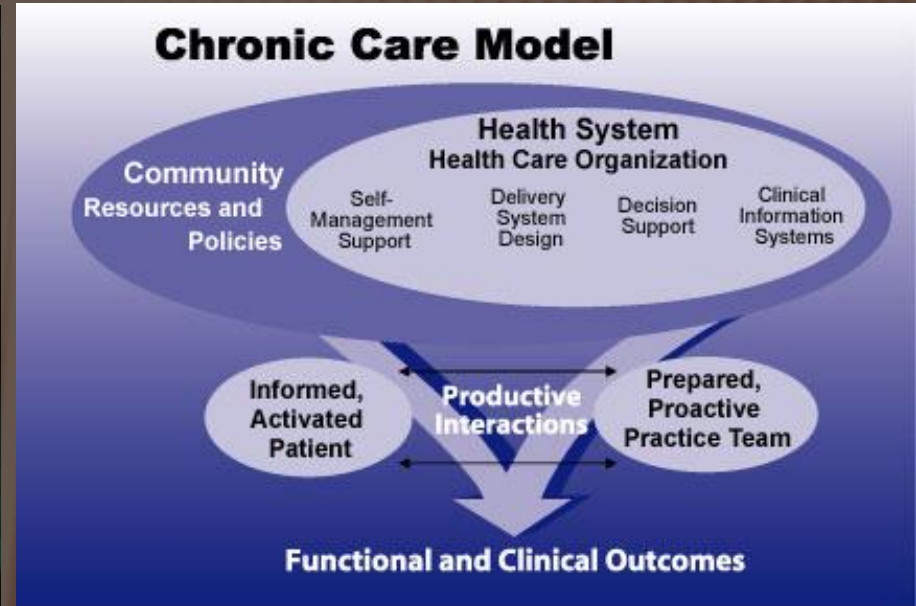
- + Search term: traumatic brain injury – 25,702 citations
- + Search terms: TBI and rehabilitation – 4,111 citations
- + Search terms: TBI and assessment – 3,034 citations
- + Search terms: TBI and cognition – 2,296 citations
- + Search terms: TBI and language – 676 citations

× Google Scholar

- + Search term: traumatic brain injury – 192,000 citations
- + Search terms: TBI and rehabilitation – 21,100 citations
- + Search terms: TBI and assessment – 52,100 citations
- + Search terms: TBI and cognition – 19,100 citations

× ASHA search

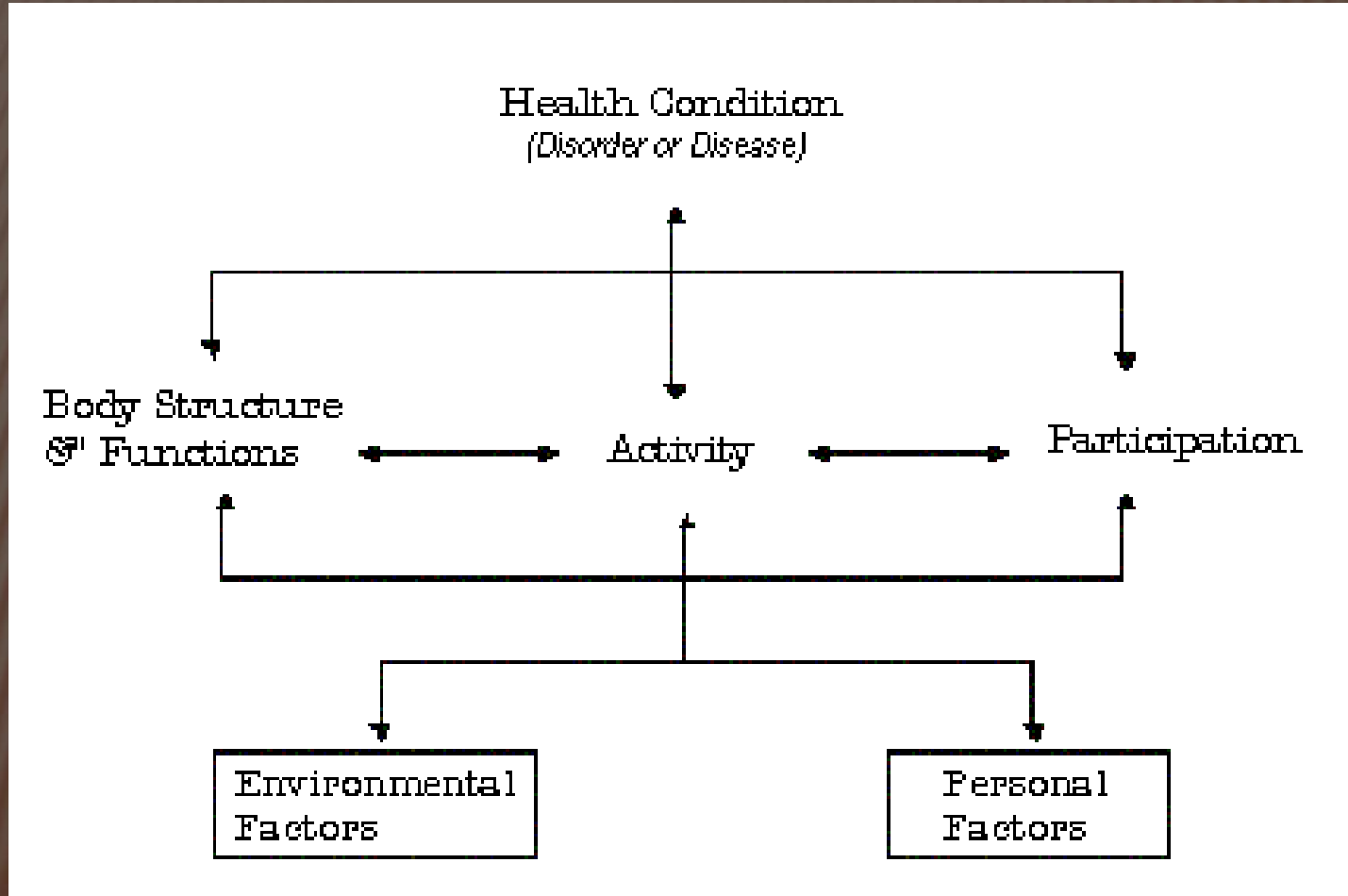
- + Search term: traumatic brain injury – 1,012 citations
- + Search terms: TBI and rehabilitation - 561



BRAIN INJURY: EVENT OR DISEASE PROCESS?

Masel, B. *Conceptualizing Brain Injury as a Chronic Disease*. Vienna, VA: Brain Injury Association of America, 2000.

ICF AS A FRAMEWORK



WHAT DO WE KNOW ABOUT ACUTE CARE?

- ✘ Stays are short
- ✘ Patients leave for rehab sicker than in past history
- ✘ Referral/recommendations for in-patient rehabilitation are complicated by many factors
 - + Insurance/reimbursement
 - + Availability
- ✘ What, then, can be accomplished?

BODY STRUCTURE/FUNCTION: ACUTE

× Imaging - Diagnosis

× Structural

- * CT

- * MRI

× Functional

- * fMRI

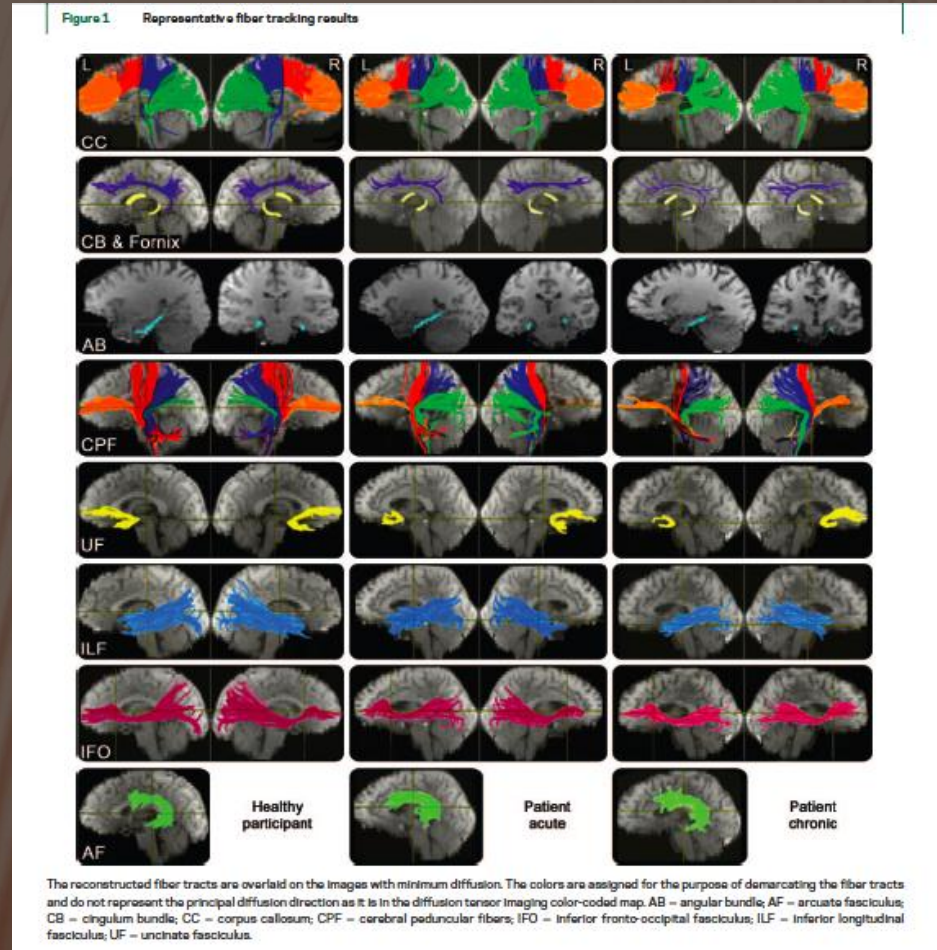
- * DTI

- * SPECT

BODY STRUCTURE/FUNCTION: ACUTE

- × Imaging: Predicting outcome
 - + Historically size, site, extent of lesion
 - + GCS, LOC, PTA
 - + Improved structural and functional imaging now moving toward trying to better tie physiologic information to cognitive outcome
 - × Changes in structure can now be shown that verifies long-term decreases in function

BODY STRUCTURE/FUNCTION



Wang, Bakhadirov, Abdi, Devous, Marquez de la Planta, Moore, et al (2011). Longitudinal changes of structural connectivity in traumatic axonal injury. *Neurology*, 77, 818-26.

ACTIVITY/PARTICIPATION: ACUTE

- ✘ Not a great deal of research has been done
 - + Limited ability to generate practice recommendations
 - + Remains focused on body structure/function given medical needs of the patient
- ✘ Patient/Family Education
- ✘ Demonstration of spontaneous recovery of functional abilities

BODY STRUCTURE/FUNCTION: CHRONIC

- ✘ Imaging: Long-term functional outcome
 - + Previously based on structural imaging only
 - + Functional imaging included for research but not yet in clinical practice
- ✘ New resources document practice guidelines and recommendations across**:
 - + Attention
 - + Memory
 - + Executive Function
 - + Social Communication
 - + Neglect

BODY STRUCTURE/FUNCTION CHRONIC

- × Executive dysfunction
 - + Practice Standard: Metacognitive strategy training
 - + Practice Standard: Problem-solving strategies
 - × *Goal, plan, do, review* model (ylvisaker & feeney)
 - + Practice Option: Group-based intervention for above

BODY STRUCTURE/FUNCTION: CHRONIC

× Memory:

- + Practice Standard: MILD TBI – memory strategy training & external compensation
- + Practice Guideline: More significant TBI – external compensations
- + Practice Option: Errorless learning paradigms for specific skills
- + Practice Option: Group intervention may be considered

BODY STRUCTURE/FUNCTION: CHRONIC

× Attention

- + Practice Standard: Direct attention training, strategy training during the POST-acute phase only
 - × APT
- + Practice Option: Computerized programs as an adjunct

BODY STRUCTURE/FUNCTION: CHRONIC

- × Social Communication:
 - + Practice Standard: Pragmatic communication skills
 - × Including social/emotion perception
 - × Likely includes other cognitive skills executive function, attention, and memory
 - + Practice Option: Group therapy

ACTIVITY/PARTICIPATION: CHRONIC

- ✘ Outcome driven goal selection
- ✘ Context where the target behavior will be used
- ✘ Identification of all task components
- ✘ Consideration of contextual limitations/barriers
 - + Referrals where needed to address contextual barriers
 - ✘ Psychology/counseling
 - ✘ Social Work

CONTEXTUAL VARIABLES: ACUTE

- × Location of the rehabilitation
 - + Noise, light, comfort (pain)
- × Hospital staff
 - + Understanding and assumptions about behavior after TBI
 - + Ability to communicate effectively with an individual with cognitive/language impairments
- × Family/caregiver response
 - + Coping style, stress
 - + Ability to communicate effectively with the loved one with cognitive-language impairments

CONTEXTUAL VARIABLES: CHRONIC

- ✘ Individual with the brain injury:
 - + Pain
 - + Depression
 - + Coping style
 - + Self-efficacy
 - + Beliefs/expectation about rehabilitation
- ✘ Family/caregiver
 - + Coping style
 - + Stress-level
 - + Beliefs/expectation about rehabilitation
 - + Management of the home environment
 - ✘ E.g. schedule, independence,

CONTEXTUAL VARIABLES: ADDITIONAL CONSIDERATION

- ✘ Low SES is an important factor in outcome
 - + Actual SES prior to injury and post-injury change in SES
 - + Perceived SES versus actual SES
- ✘ Despite difference in SES at the time of injury:
 - + Similar presentation at hospital discharge (cognitive & physical)
 - + BUT low SES/minority TBI survivors differ significantly on measures of functional outcome
 - ✘ Social support, social integration, community productivity

A LITTLE MORE SPECIFIC:

✗ Adolescent TBI

- + Social cognition, social function, social outcome
 - ✗ Unique developmental period
 - ✗ Intense focus on peers and peer communication
 - ✗ Functional outcome in teen TBI linked to school transition
 - ✗ School transition related to peers

SOCIAL AND COMMUNICATION CONTEXT

- ✗ Increased involvement in extracurricular activities
- ✗ Entrance into the workforce
- ✗ Increased demands in the school environment
- ✗ Change in vocabulary usage
 - + Slang, current, hip...whatever the word/phrase of the moment

SOCIAL AND COMMUNICATION CONTEXT

- ✘ Teens spend 1/10 of their talking – mostly with friends
- ✘ Girls spend 2x as much time talking compared to boys
- ✘ Emphasis on “image” as an indicator of crowd affiliation

SKILLS NEED TO BE SOCIALLY ACCEPTED

- × Sincerity
- × Loyalty
- × Perceptiveness
- × Self-knowledge
- × Perspective-taking
- × Backchanneling
- × Turn-taking
- × Memory
- × Education
- × Respect
- × Politeness
- × Assertiveness
- × Confidence
- × Flexibility
- × Respect for boundaries



ADOLESCENT TBI & SOCIAL COMMUNICATION

- ✘ Difficulties in emotional processing and social performance are common
 - + Associated with executive function difficulties
 - + Appears to have some components that are unique
- ✘ Difficult to assess with formal measure
- ✘ YET necessary to include in rehabilitation given its impact on functional outcome
- ✘ Few separate studies on the best procedures for doing this

WHAT NEEDS TO HAPPEN NEXT?

- × PARADIGM SHIFT!
- × FUNDING!
 - + Research
 - + Reimbursement

WHAT NEEDS TO HAPPEN NEXT?

- ✘ Pairing of clinicians with researchers to move intervention research forward
- ✘ Multiple institutions pairing together to work on intervention research
- ✘ Clinicians reporting evidence from their own clinical practice
 - + Local level: Grand Rounds, student training
 - + State level: Conferences (posters, presentations)
 - + National level: Conferences, journal publication
- ✘ Increased public awareness for the need for TBI resources



CONCLUSION

Did the content of this discussion change your assumptions about TBI and rehabilitation?

In what way would it be possible to include components of this discussion into your current practice?

From your position, what areas of TBI rehabilitation need to be addressed most urgently?

RESOURCES

- ✘ ASHA
 - + SIG 2
- ✘ ANCDS
 - + TBI practice guidelines publications – available on website
- ✘ ACRM
 - + Cognitive Rehabilitation Manual: Translating Evidence-Based Recommendations into Practice (2011)
 - + Training on the manual – May 20-21st, Nashville, TN
- ✘ BIA (national & state)
- ✘ Sohlberg & Turkstra (2011) Optimizing Cognitive Rehabilitation: Effective Instructional Methods.



QUESTIONS?