

Advances in Acute Stroke Rehabilitation

Heather M. Ma, MD MS
Brain Injury Medicine Rehabilitation
Assistant Professor
Physical Medicine and Rehabilitation

I have no disclosures.

Overview

- Where we Were
- Where we Are
- Where we are Going

THE PAST

1925: Strong Memorial Hospital started as a 250-bed acute care facility



The UR medical school opened its doors in 1925, and less than a year later, Strong Memorial Hospital followed suit.

THE PRESENT

2019: Strong Memorial Hospital, 846 inpatient beds

Annually, SMH has over 39,000 admissions

Level One regional trauma and burn center



UR Medicine Comprehensive Stroke Center

5-1200:
20-bed acute
inpatient
rehabilitation
facility



What is Stroke/TIA?

A stroke (otherwise known as a “brain attack”) occurs when brain cells die due to disruption of blood flow to the brain. Stroke can be caused by either a blocked blood vessel (“ischemic stroke”) or a leaky blood vessel (“hemorrhagic stroke”) in the brain.

[Learn More](#)



Why Choose Us?

UR Medicine's Comprehensive Stroke Center offers world-class treatment and prevention of stroke, is the region's only [Comprehensive Stroke Center](#) and has the area's only dedicated [Neuromedicine Intensive Care Unit](#).

[Learn More](#)



Rapid Access TIA Clinic

Our goal at UR Medicine's Rapid Access TIA clinic and Neurovascular Laboratory is to swiftly address these events, while providing patients with a positive outpatient experience without the need for an Emergency visit or overnight stay.

[Learn More](#)



Our Team

Our stroke team is comprised of fellowship-trained vascular neurologists, neurosurgeons, neuroradiologists and neurocritical care specialists. They have



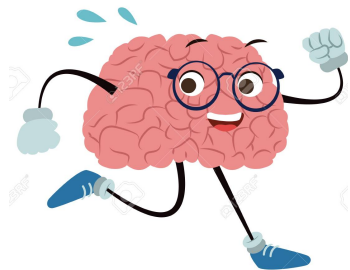
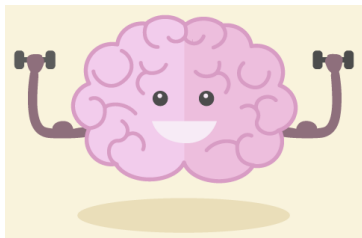
STAR-NY

The [Stroke Treatment Alliance of Rochester of New York](#), a University of Rochester Medical Center (URMC) led community-wide initiative was formed to decrease the

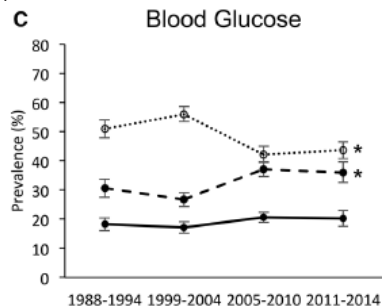
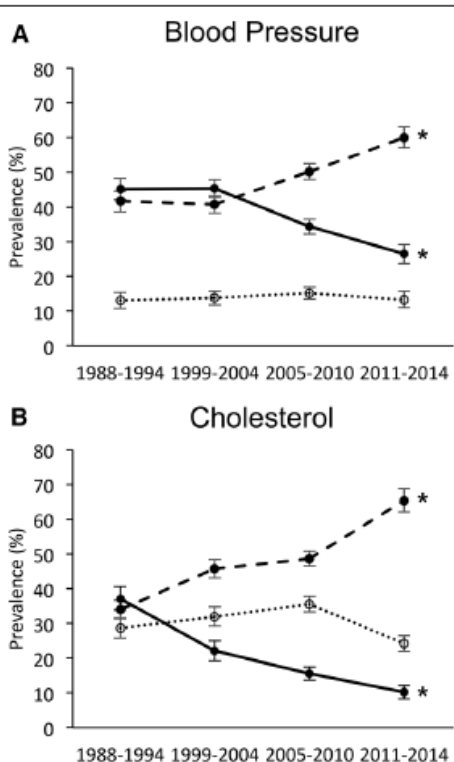


Mobile Stroke Unit

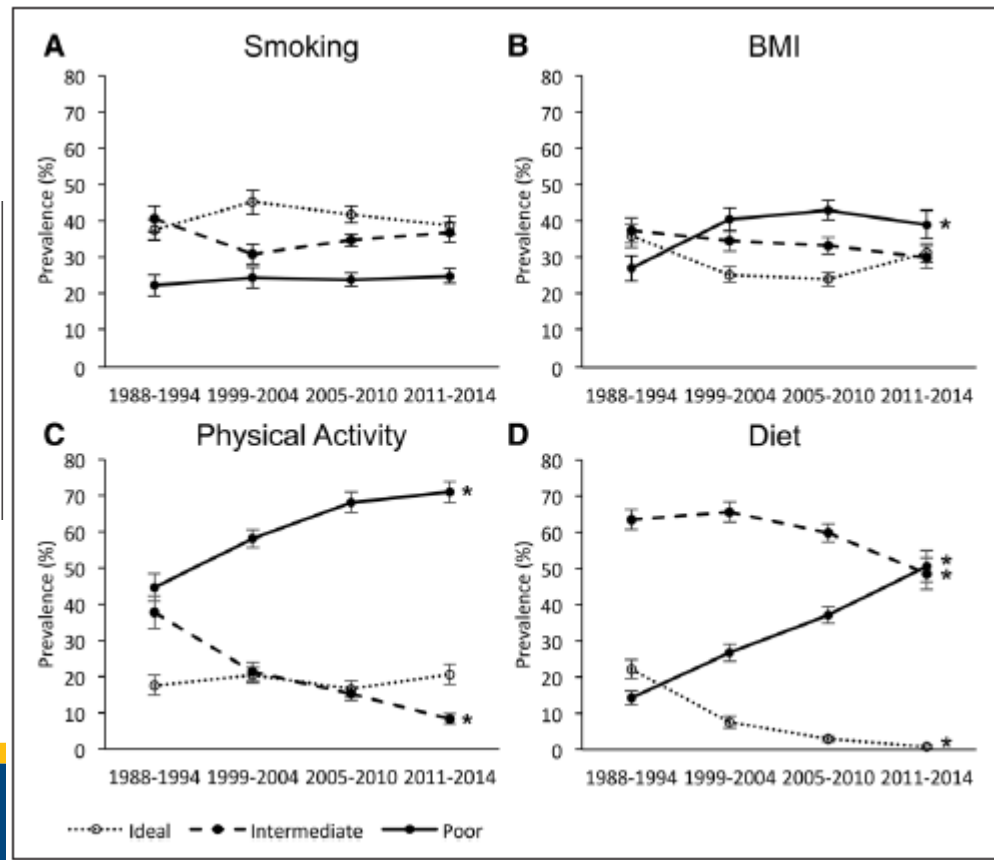
UR Medicine, in partnership with American Medical Response, has launched Upstate and Central New York's *FIRST* Mobile Stroke Unit - the 13th in the nation. The unit



Long-Term Outcome Trends



AM Lin et al.2019



Return to Work After Stroke

- Ischemic stroke in young adults [K Aarnio et al. Neurology 2018 Nov 13]
 - Helsinki Young Stroke Registry
 - 769 patients with ischemic stroke
 - 1 year: 62%, 2 years 58%, 5 years 53%
 - Factors associated with not returning to work at 1 year
 - Large anterior strokes
 - Caused by large artery atherosclerosis
 - Caused by high-risk sources of cardioembolism
- Meta-analysis [P Duong et al. Arch Phys Med Rehabil 2018 Oct 24]
 - 55 English or French manuscripts
 - 1 year: 56%, 2 years 67%

What is a Physiatrist?



American Academy of
Physical Medicine and Rehabilitation

- Physical Medicine and Rehabilitation (PM&R) physicians, also known as physiatrists, treat a wide variety of medical conditions affecting the brain, spinal cord, nerves, bones, joints, ligaments, muscles, and tendons.
- We may be subspecialty certified in Brain Injury Medicine, Hospice and Palliative Medicine, Neuromuscular Medicine, Pain Medicine, Pediatric Rehabilitation Medicine, Spinal Cord Injury Medicine, and/or Sports Medicine.

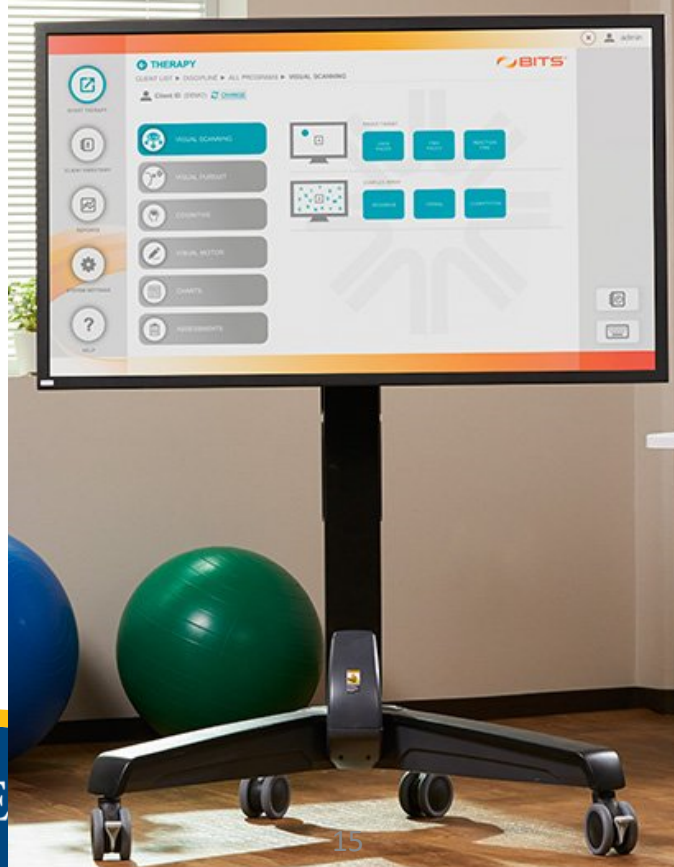
5-1200

ACUTE INPATIENT REHABILITATION

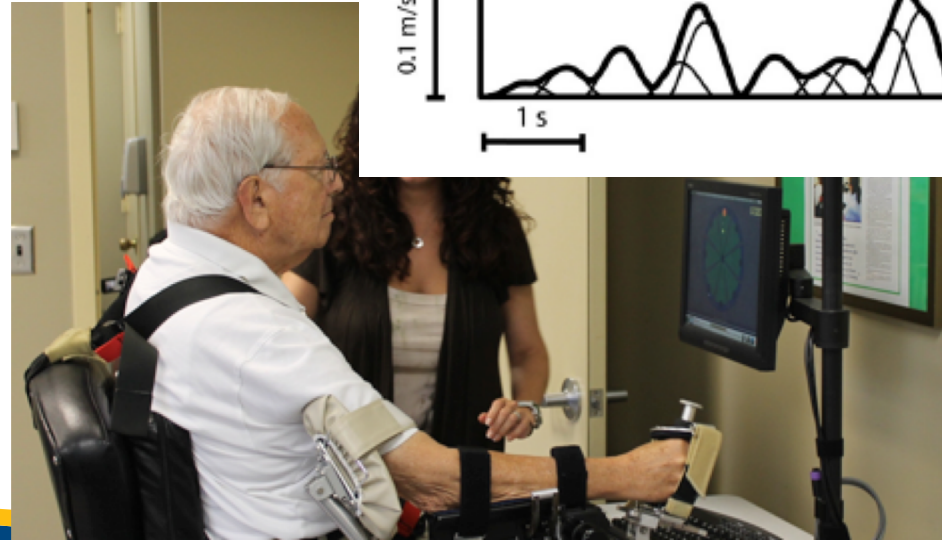
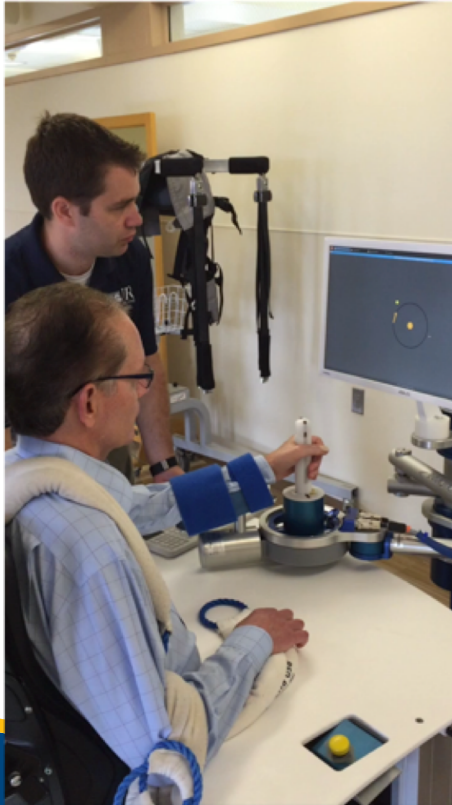
Safe Gait



Bioness Integrated Therapy System (BITS)



InMotion ArmBots



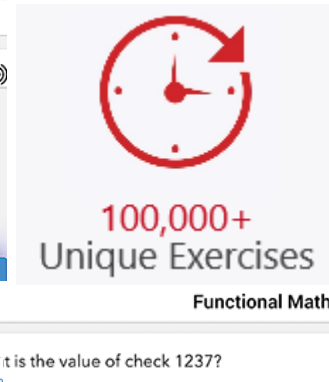
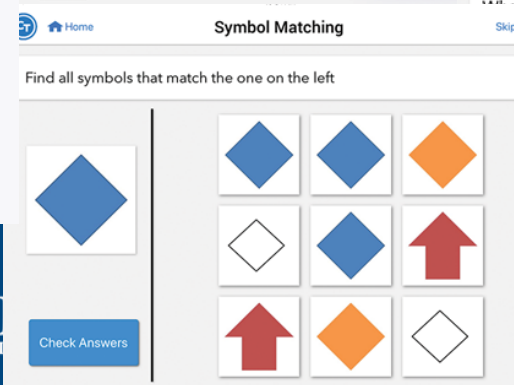
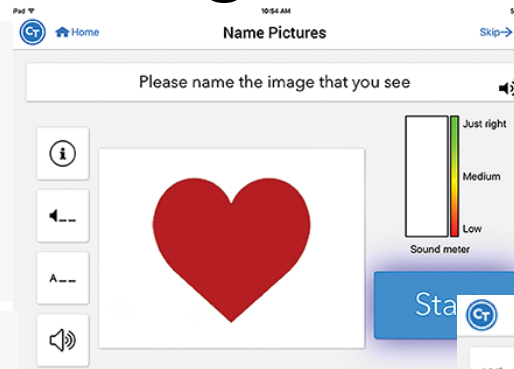
Constant Therapy: Effectiveness of an impairment-based individualized rehabilitation program using an iPad-based software platform



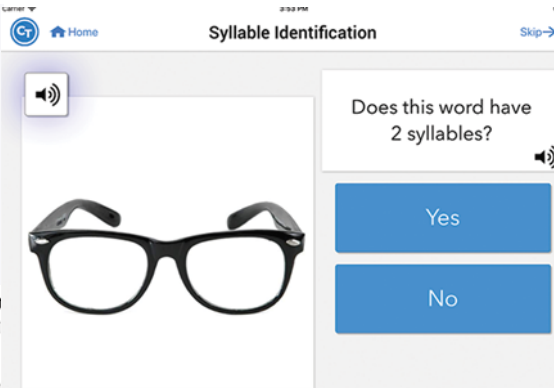
70+ Million
Exercises Completed



75 Task
Categories Available



DATE	TRANSACTION DESCRIPTION	DEBIT AMOUNT	✓	FEE	DEPOSIT AMOUNT	±	BALANCE
4/4/18	Balance Forward						500.00
5/5/18	Grocery Store	72.36					427.64
5/6/18	Shoe Store	78.64					349.00
6/6/18	Deposit Paycheck			378.85			727.85
7/7/18	Restaurant	96.96					630.89
7/7/18	Birthday Gift	?					575.13



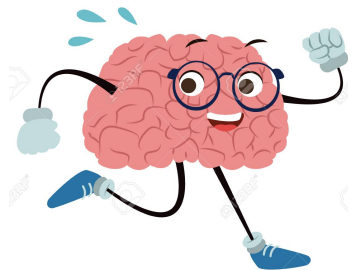
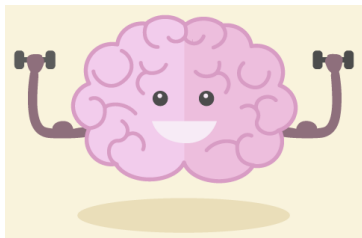
Frontiers in Human
Neuroscience. CA
DesRoches et al. 2015



Outpatient

- Physical and Occupational Therapy
- Psychiatry
- Integrative Cognitive Rehabilitation Program (ICRP)
 - comprehensive, integrative and multidisciplinary approach to help individuals develop compensatory strategies and maximize individual strengths
 - Speech Therapy, Occupational Therapy, and Neuropsychology
 - Changes in communication or word finding difficulties
 - Reduced ability to process information
 - Reduced attention or memory
 - Difficulty with planning or initiation
 - Reduced organizational abilities
 - Difficulty with multi-tasking
 - Cognitive overload

THE FUTURE



Ongoing Stroke Recovery Trials at UR

- Fluoxetine for Post-Stroke Visual Recovery (Bogac Sahin)
- Training for Post-Stroke Visual Recovery (Krystel Huxlin)
- STRONG enrollment site (The Stroke, sTress, RehabilitatiON, and Genetics Study: Steven Cramer, UC Irvine)
- Developing a program for hand/arm motor recovery (Ania Busza):
 - Natural history to follow how hemiparesis improves
 - Neurologic versus musculoskeletal fatigue
 - Intensity of rehabilitation

\$5 Million to be awarded to NeuroCuresNY on
February 17, 2019



The SMaHRT Study at Mass General

How will I recover after my stroke?

SMaHRT

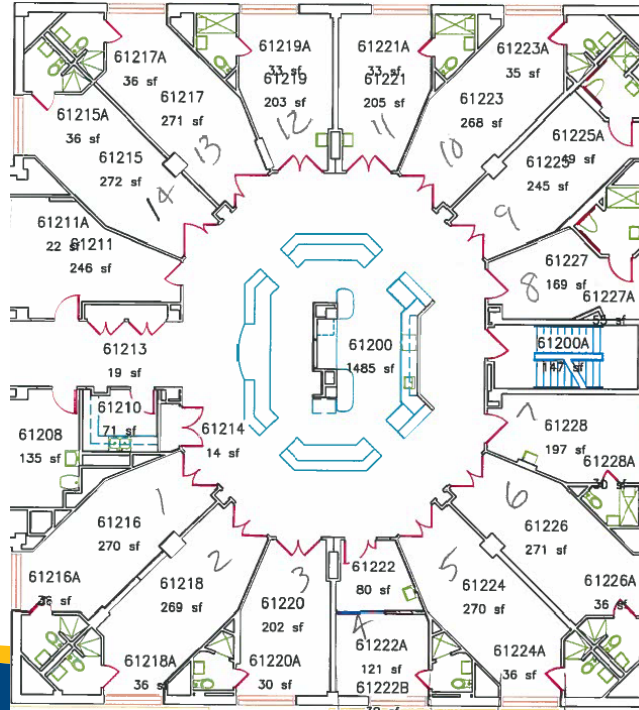
Stroke Motor Rehabilitation and Recovery Study

Capture personalized trajectories of spontaneous motor recovery after stroke

Measure movement quantity and quality (i.e. upper extremity kinematics) in patients recovering from stroke

Understand how cortical activity (i.e. eeg) relates to arm kinematics and overall recovery

Clinically...5-1200 and 6-1200



Thank you!

Heather M. Ma, MD MS
Brain Injury Medicine Rehabilitation
Assistant Professor
Physical Medicine + Rehabilitation

Heather_Ma@urmc.rochester.edu
Phone 585-275-3273
Fax 585-442-2949

University of Rochester Medical Center
601 Elmwood Ave.
Box 664
Rochester, NY 14642
Patient Referral: 585-275-3271

