

VIEWING POSTACUTE NEUROREHABILITATION  
THROUGH THE LENS OF A PANDEMIC:  
EXPERIENCE AND OUTCOMES OF  
FOUNDATION TO ADVANCE BRAIN  
REHABILITATION (FABR) ORGANIZATIONS

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*1. Methods to Ensure Safety of Persons  
Served, Families, and Staff*

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### SPECIAL COMMUNICATION

## Response to the COVID-19 Pandemic Among Posthospital Brain Injury Rehabilitation Providers

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# FABR Founding Members



IN PARTNERSHIP WITH



**ON WITH LIFE**  
BRAIN INJURY + STROKE + NEURO



Progressive Rehabilitation  
Associates



Shepherd Center



# Challenges of COVID-19 Pandemic in Postacute Neurorehabilitation

- Objective of managing the spread while carrying out critically needed rehabilitation services
- Required new innovations to care delivery
- Managing unplanned budgetary issues
- Increased vulnerability of ABI individuals required precautions beyond those offered to the general public
- Sudden impact required fast response
- Variable guidance across state and federal agencies
- Political divide

**Despite these challenges, considerable consistency and consensus emerged across FABR organizations**

## Assuring Safety for Persons Served and Families

- Suspend outpatient and day treatment services
- Transition to telehealth-based therapies
- Update and distribute staff policies and guidelines for isolation procedures, transportation, cleaning, exposure control, and infection control specifically targeting droplet exposure
- Serial training and competency checks on these above procedures based on updated information regarding best practices

## Assuring Safety for Persons Served and Families

- Vigilantly implement recommended protections for staff (e.g., personal protective equipment; PPE) and persons served
- Discontinue community activities outside of the residential facility, group home, or participant's home
- In the absence of community outings, enhance and expand in-house leisure and recreation programs
- Restrict outside visitation to facilities
- Conduct daily symptom screening and temperature checks of those required to enter the facility (e.g., staff, vendors)



## Assuring Safety for Persons Served and Families

- To reduce the possibility of cross-contamination, assign therapists who in the past served multiple facilities or group homes to a single setting and, as possible, to a small cohort of persons to treat
- Increase frequency of facility cleaning routines with special attention to thorough and frequent cleaning of shared surfaces and equipment
- For services in the participant's home, provide and reinforce education on infection control and prevention (for example, frequent hand washing, adhering to local shelter-in-place orders, social distancing, and wearing masks or face shields)
- Quarantines

## Adapting Services

- Conduct evaluations by telephone or telecommunication including limited neuropsychological testing.
- Include queries about flu and coronavirus symptoms, possible exposure, and travel history for the potential participant and others with whom they have been in contact
- As allowed by state regulation and availability, obtain COVID testing prior to admission if evaluation suggests that an appropriate rehabilitation candidate is at high risk for infection
- Administer COVID symptom checklist to person served and other household members at the onset of services and at least weekly thereafter

# Intervention Specific To Ensuring the Health and Safety of Staff

- Give staff option of working from home or, as possible, alternative assignment, or temporary furlough—particularly those identified as at high risk
- Organization managers maintain regular telephone contact with furloughed staff to support their eventual re-engagement
- Assist furloughed staff to access organization's Employee Assistance Program and resources for financial assistance and other supports, e.g., continuing education and coping videos
- Assure flexibility in work schedules for employees with childcare, elder care and other COVID-related family challenges
- Implement supportive adjustments in pay, paid-time-off, and leave-without-pay to recognize the increased risk and effort during the pandemic
- Provide greater pay increases for those volunteering to provide service to COVID positive or symptomatic participants

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*II. Telerehabilitation and Other Service  
Innovations*

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# Telehealth Goes Mainstream

- ❖ Rapid implementation of telehealth (TH) across health care sectors & recent trends of use<sup>1,2</sup>
- ❖ The equity dilemma and social vulnerability<sup>3</sup>: access for low-income groups, minority populations, older populations & in rural areas

# Telehealth Going Forward

## ❖ Ongoing advocacy needs:

- Policy changes to increase access to reliable internet
- Reimbursement of audio-only services to lessen impact on groups who can't/won't use video-based platforms.
- Allow patient's home to remain an originating site for reimbursement



# Telehealth & Post-Acute Brain Injury Rehabilitation (PABIR)

- ❖ Impact of decline in brain injury care during the pandemic as beds allocated to COVID care<sup>4</sup>.
- ❖ Patient and clinician satisfaction with telehealth modality of care mirroring pre-pandemic research<sup>4-7</sup>.

# How Can Pandemic Data Inform Us?

- ❖ Currently in the process of analyzing data from a cohort of patient who had disrupted PABIR care in 2020
  - Sample of ABI patients (<100 days from date of injury/events) who received no PABIR services for ~5 weeks during pandemic
  - Sample of ABI patients who received telehealth only during the same time
  - Matched comparison groups from our 2019 data

# Preliminary Trends in Data

	No Telehealth (Control)			Telehealth Patients		
	N= 41			N= 47		
	Average Admission Score	Average Discharge Score	Average Change Score	Average Admission Score	Average Discharge Score	Average Change Score
General Functional Independence (MPAI4 T Score)	56	48	8	54	40	14
Minimum	39	0		30	0	
Maximum	84	79		97	65	
Range	45	79		67	65	
Social Reintegration (Participation T Score)	58	53	5	56	46	10
Minimum	40	29		40	15	
Maximum	78	78		78	67	
Range	38	49		38	52	
Functional Abilities (Ability T Score)	58	51	7	56	44	12
Minimum	41	1		33	15	
Maximum	93	80		96	67	
Range	52	79		63	52	
Adjustment (Adjustment T Score)	50	44	6	48	39	9
Minimum	32	13		30	4	
Maximum	65	69		81	64	
Range	33	56		51	60	

# How Can Pandemic Data Inform Us?

## ❖ Preliminary findings:

- Demographic trends impacting participation in telehealth
- Diagnosis specific trends
- Links between MPAI-4 scores & key independence outcomes

# Pandemically Inspired Service Modifications

❖ Beyond telehealth, the pandemic sparked innovation and flexibility:

- Contingency modeling & modified treatment options
- Increased collaboration with family/support person & integration of technology in the home setting
- Increased staff cross-training and flexible scheduling
- Hybrid work-home offices

# References

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*III. Outcomes: Infection Rates, Financial Impact, and Functional Outcomes for Persons Served*

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***Effectiveness of Interventions:  
Initial Rates of Infection, Hospitalization, and Death***

# Effectiveness of Interventions across 7 Posthospital Rehabilitation Organizations

(FABR: Learning Services/ReMed, On With Life, Pate Rehabilitation, Progressive Rehabilitation Associates, Shepherd Center; and Rehab Without Walls)

Adapted from: Malec JF, Salisbury DB, Anders D, Dennis L, Groff AR et al. Arch Phys Med Rehabil 2021;102:549-55.

	Persons Served	Staff
COVID Positive	20 (1.1%)	42 (2.1%)
Hospitalizations	3 (.2%)	4 (.2%)
ICU	3 (.2%)	4 (.2%)
Deaths	0	0
Quarantined (tested positive)	18 (1.0%)	36 (1.8%)
Quarantined (symptomatic-no test)	14 (.8%)	26 (1.3%)
Quarantined (precautionary due to possible exposure including new admissions)	105 (5.8%)	127 (6.3%)
Total Numbers of Persons Served or Staff	1820	2027

***Discharges and Outcomes  
During the First 14 Months of the Pandemic***

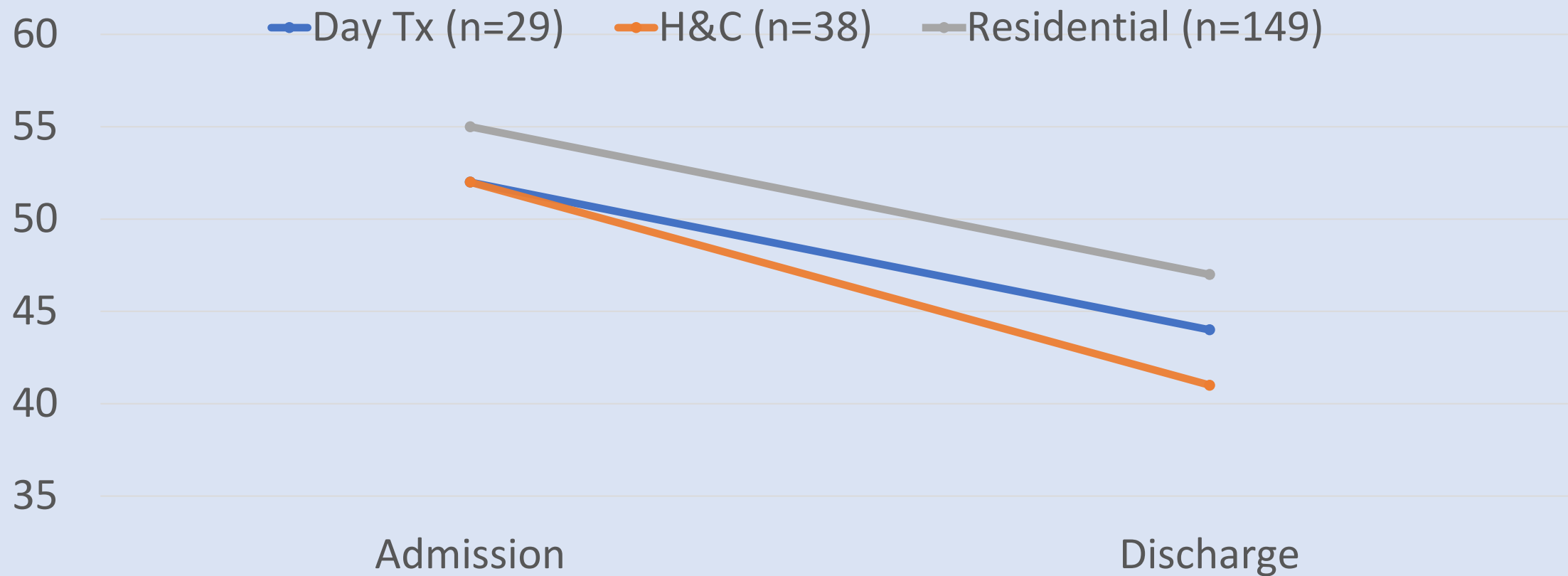
# FABR Discharges

3/15/20-4/30/21

- Pandemic practice changes in place
- Admissions tended to favor residential programs
- SRS did not vary much among more intensive rehabilitation programs
- H&C participants tended to be longer post-injury

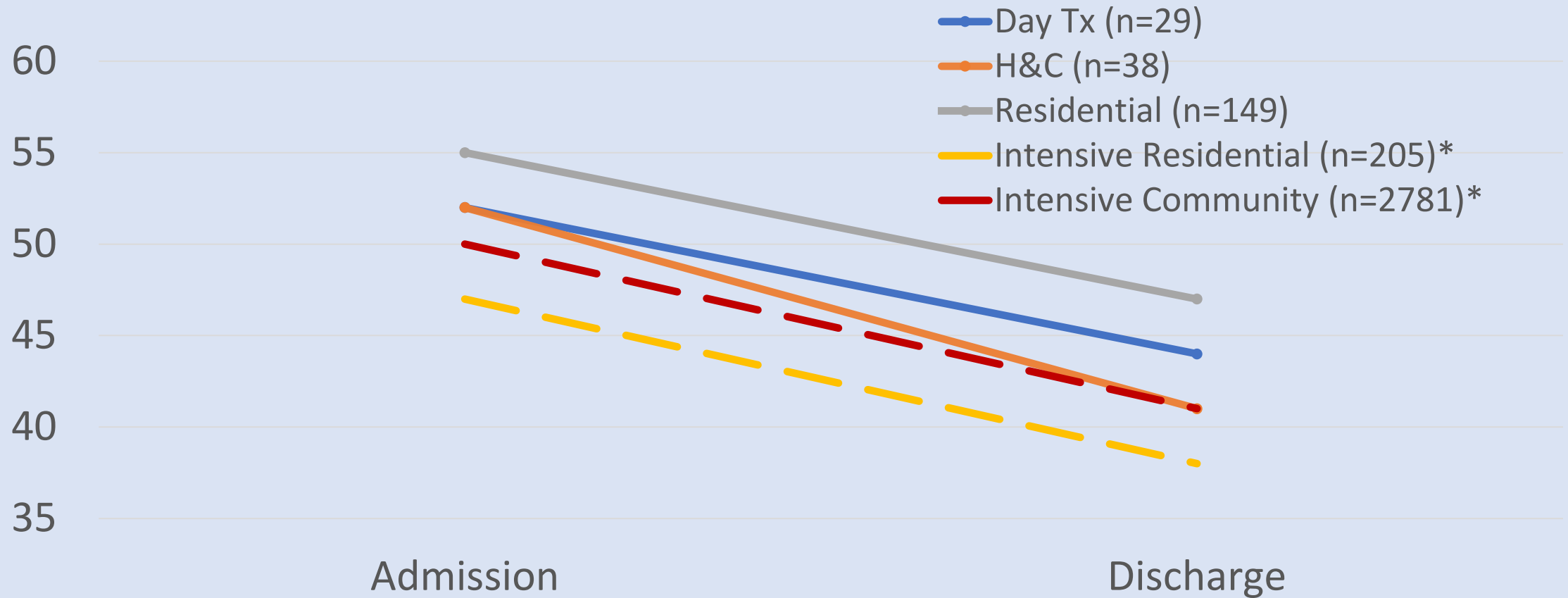
Program Type	Discharges	Median Admission Supervision Rating Scale	Mean Months Post-injury
Day Treatment	29 (12%)	8	5.4
Home & Community	38 (16%)	7	12.4
Outpatient	9 (4%)	2	>10 yrs
Behavioral Residential	7 (3%)	9	5.1
Residential Rehabilitation	149 (64%)	8	5.0
Supported Living	1 (<1%)	--	--
Total	233 (100%)	8	--

# MPAI-4 Total T-score Changes for 3 Program Types





# MPAI-4 Total T-score Changes for 3 Program Types Compared to Pre-Pandemic National OutcomeInfo Data



\*From Malec & Kean, J Neurotrauma 2016:33;1371-9

# Percent with Meaningful Change on MPAI-4 for 3 Program Types & Pre-pandemic National OutcomeInfo Data

**MPAI-4 Minimal Clinically Important Difference (MCID)**

and

**Robust Clinically Important Difference (RCID)**

Program Type	MCID= T score Change $\geq$ 5	RCID= T score change $\geq$ 9
Day Tx	62%	41%
H&C	76%	58%
Residential Rehab	65%	38%
Intensive Rehabilitation (Residential & Community)*	72%	54%

# CAVEAT

- Results presented are intended to describe the *potential* of the developing FABR database.
- However, these results are based on preliminary data collected during the COVID19 pandemic which resulted in significant practice changes for all FABR member organizations.
- Consequently, they may under-represent future processes and outcomes for FABR organizations as the pandemic remits.

# *Financial Impact*

# Unexpected Costs Were Not Adequately Offset

Costs	Offsets
<ul style="list-style-type: none"> <li>• Complete revision of staffing models, residential and treatment floor arrangement, and infrastructure enhancements</li> <li>• Marked increase in basic supplies, particularly PPE—previously a limited, fixed cost</li> <li>• More intensive facility cleaning</li> <li>• Purchasing, implementing, and managing telehealth services</li> <li>• Staff training in telehealth</li> <li>• Expanded staff support/development</li> <li>• Inconsistent and often reduced telehealth therapy reimbursement</li> <li>• Revenue reductions from suspension of outpatient services, reduction in in-person therapies, and reduced and delayed admissions</li> <li>• Pay adjustments, increased paid time off and other expanded staff benefits and services</li> </ul>	<ul style="list-style-type: none"> <li>• Staff furloughs</li> <li>• Some organizations accessed the Federal Pandemic Emergency Fund for PPE or Payment Protection Loans to offset some staff salary               <ul style="list-style-type: none"> <li>• not all organizations were able to access these programs.</li> </ul> </li> </ul>