ACQUIRED BRAIN INJURY IRELAND

The Benefits of Data Analysis in Acquired Brain Injury Ireland Service Development

20th May 2022

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Situation at the Beginning

- Data collected but underutilised
- Referral database
- Nonsystematic use of outcome measures
- CARF (Commission on Accreditation of Rehabilitation Facilities) Recommendations
- Management need to monitor trends and organisational needs

Clinical Programme Goals relating to Data Analysis

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Goal: To evidence the needs of brain injury survivors and demonstrate the outcomes of neuro-rehabilitation by...

- Analysing Referral trends
- Profiling Existing services
- Profiling Existing Clients
- Analysing Rehabilitation Outcome

ABI Ireland Strategic Priorities

- Capacity
- Equal Access
- Public Policy

How we got here

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2015-2018
Decision to use MPAI-4 outcome measurement as per CARF recommendation.
Pilot data analysis

Q2 2018
MPAI-4 measurement embedded into the Initial Assessments & quarterly Clinical Team Meetings

Q4 2018
Research Officer Role (Part Time) Commenced collation of MPAI-4 data and statistical analysis

2019-2020
New electronic client record system iPlanit implemented

2021
Senior management re-structure
New roles:
Head of Service Operations
Clinical Programme Manager
Quality Safety and Practice Development Manager

Q3 2021
Temporary increase in Research Officer capacity.
Audit of established database

Q4 2021
CARF 2021

Q1 2022 (Present)
Development of Service and Demographic specific analysis methods
Emphasis on accessibility to organisation evidence and data

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Referrals & Service User Profiles

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Service Need: number of referrals received 2018-2021

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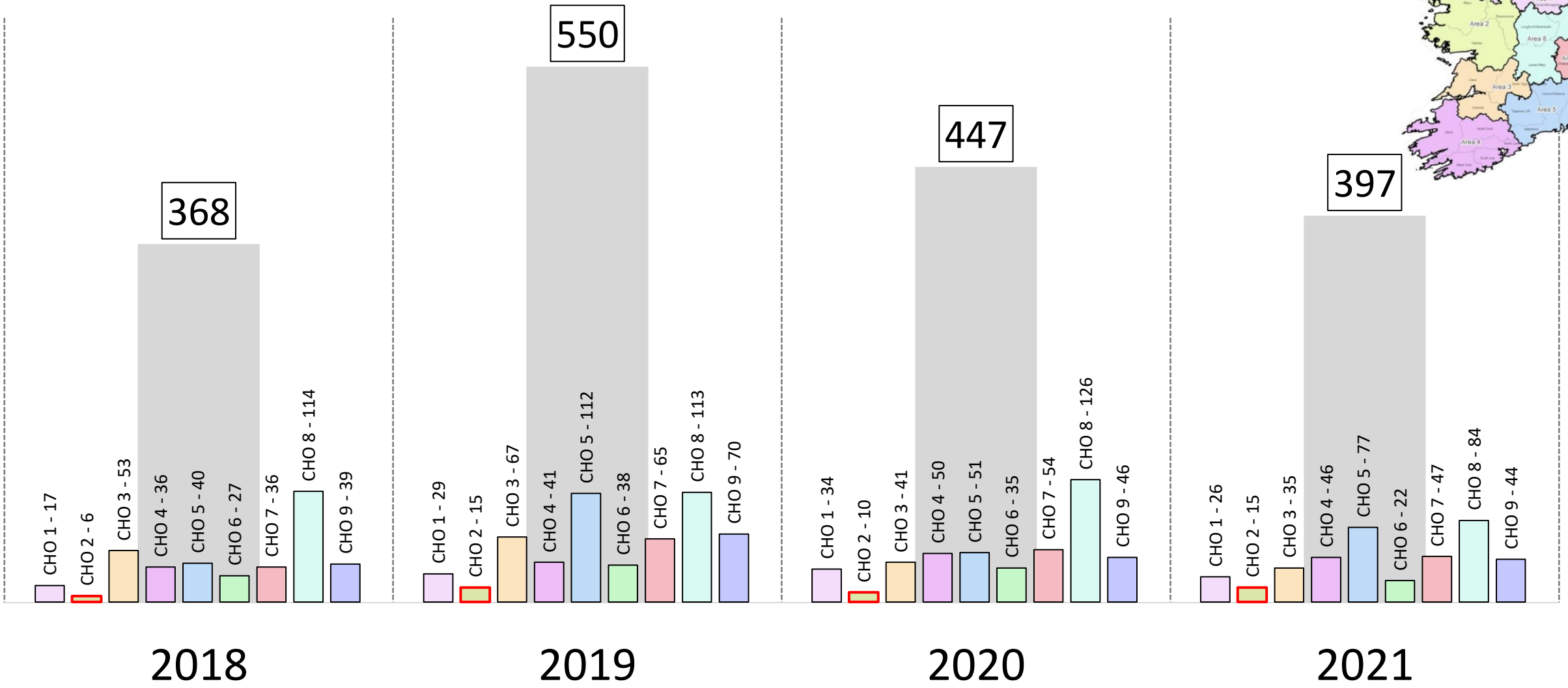

Note: there are currently no services being funded for provision by ABI Ireland in CHO area 2 – 46 referrals 2018 - 2021

Referrals per 100,000 of Population

Area	2018	2019	2020	2021
CHO 8	19.2	19.1	21.3	14.2
CHO 5	8.0	22.5	10.2	15.5
CHO 3	13.8	17.4	10.6	9.1
CHO 9	6.7	12.0	7.9	7.6
CHO 6	7.4	10.4	9.6	6.0
CHO 7	5.3	9.6	8.0	7.0
CHO 1	4.4	7.5	8.7	6.7
CHO 4	5.4	6.2	7.5	6.9
CHO 2	1.3	3.3	2.2	3.3
Nationally	**8.0**	**12.0**	**9.7**	**8.6**

Estimated number of acquired brain injuries in Ireland annually: 19,000

Status of Referrals Received in 2021

(May 2022, according to iPlanit database)

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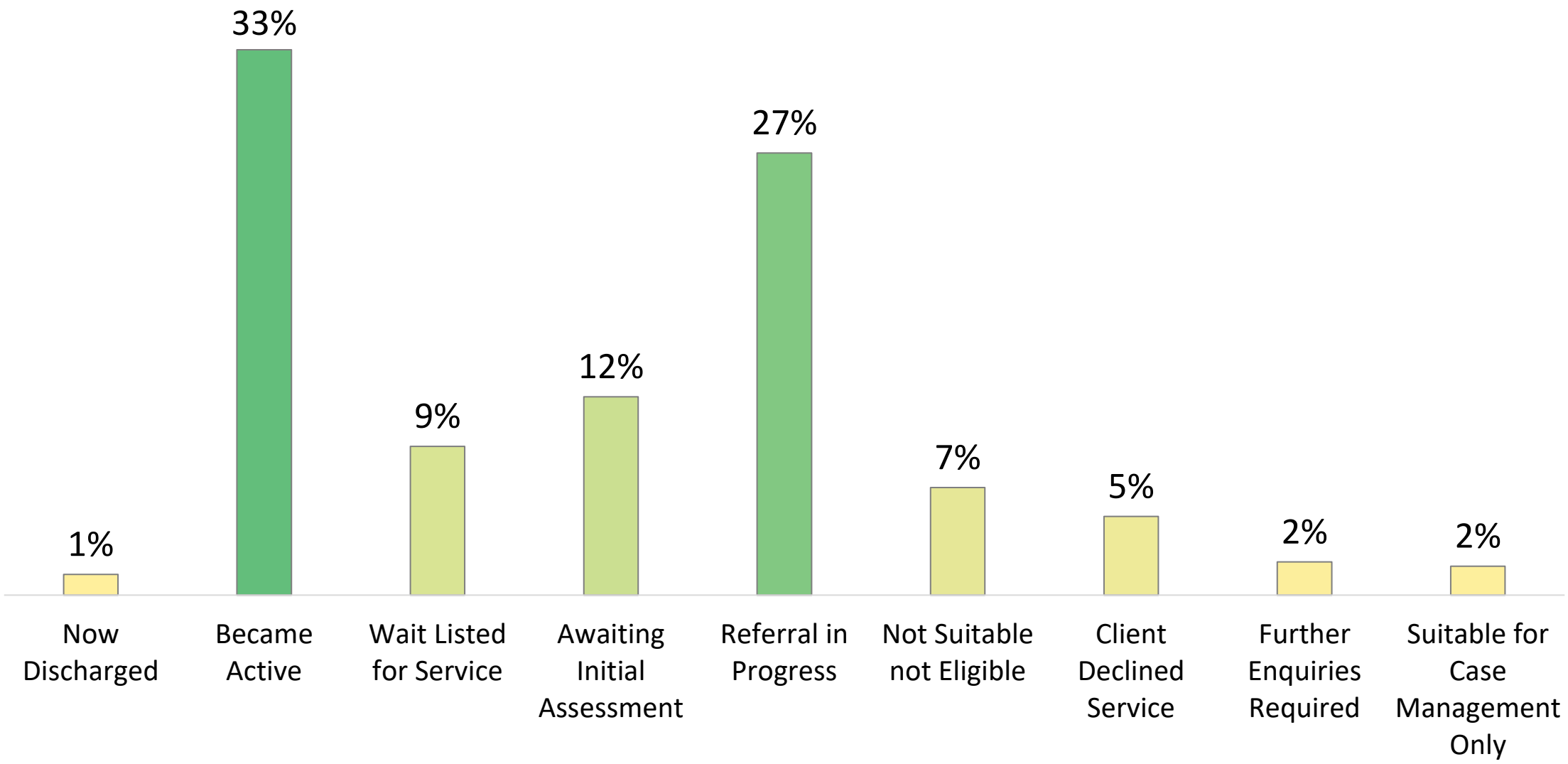

Service need: How we analyse referrals

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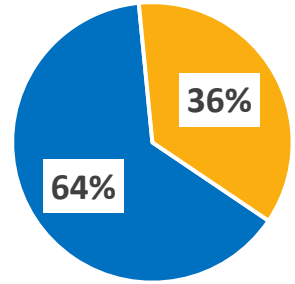
Referrals received in 2021

Gender



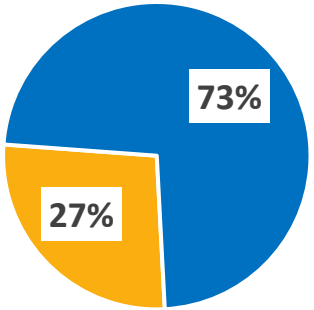
Average Age

Most common age bracket:
55-64 years

Areas

Majority from
CHO 8
(Midlands & Northeast)
CHO 5
(Southeast)

Injury Type



Traumatic Non-Traumatic

- 68% of NTBIs due to Stroke
- 39% of TBIs due to Falls, 35% due to RTAs

How do these compare to the clients we currently serve?

Picture of our active clients (Q1 2022)

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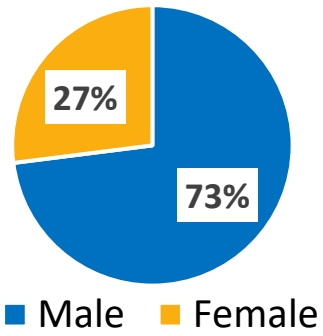
Residential

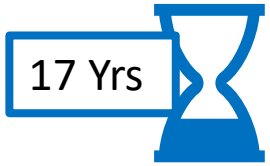
Gender



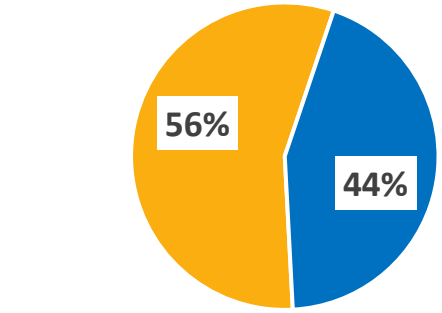
Average Age

Average Age at Injury

Average Time since Injury

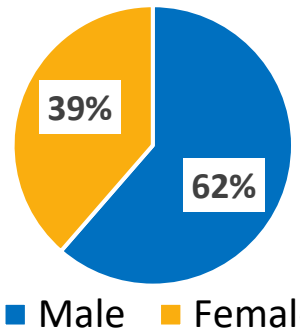


Injury Type



Community

Gender

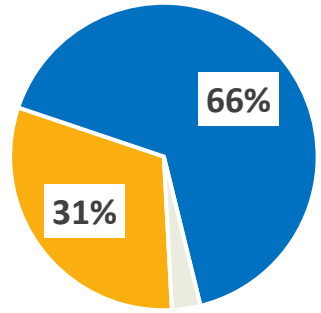


Average Age

Average Age at Injury

Average Time since Injury

Injury Type



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Outcomes

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Background

- Rehab outcomes are measured nationally using the Mayo-Portland Adaptability Inventory (MPAI)-4 rating scale. It was designed for people with ABI in the post-acute period and the evaluation of rehabilitation programmes.

- Scores are collected at IA and thereafter quarterly at Clinical Team Meetings for community & residential clients.

- Full scale 3 subscale scores: Abilities, Adjustment and Participation.

- T scores correspond to:

>60	severe limitations
50-60	moderate to severe
40-50	mild to moderate
30-40	mild limitations
<30	relatively good outcomes

Where we were at for CARF **2018**: (MPAI4 **Residential** Outcomes – CHO 6, 7 & 9)

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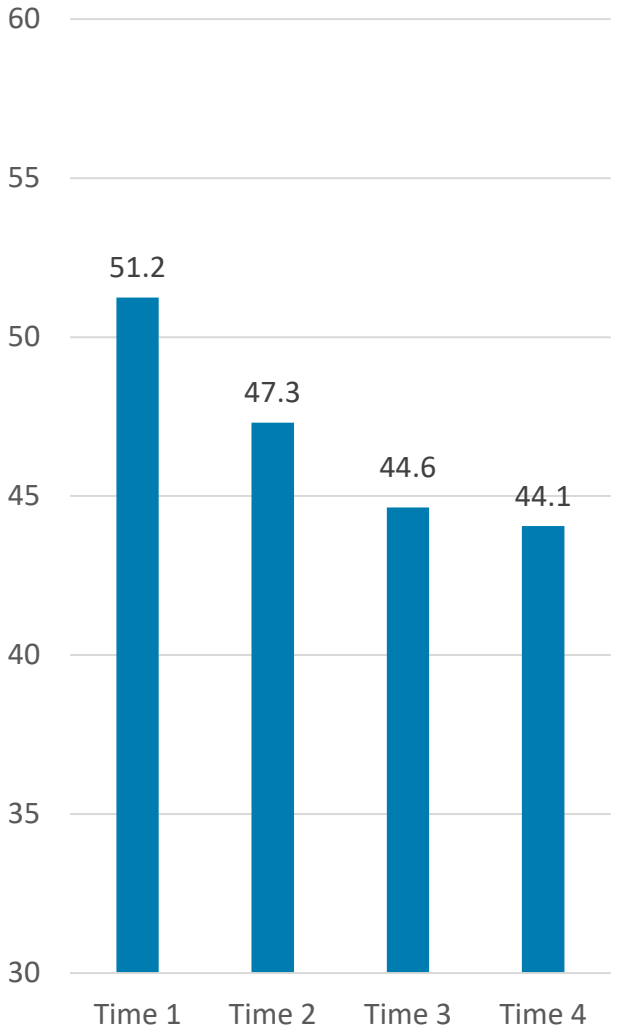
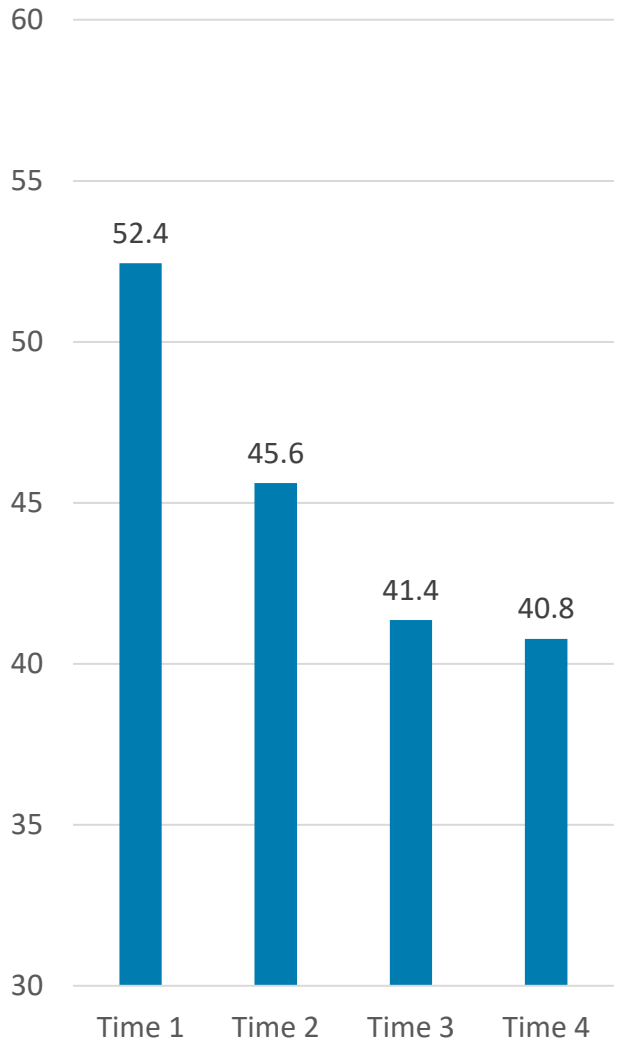
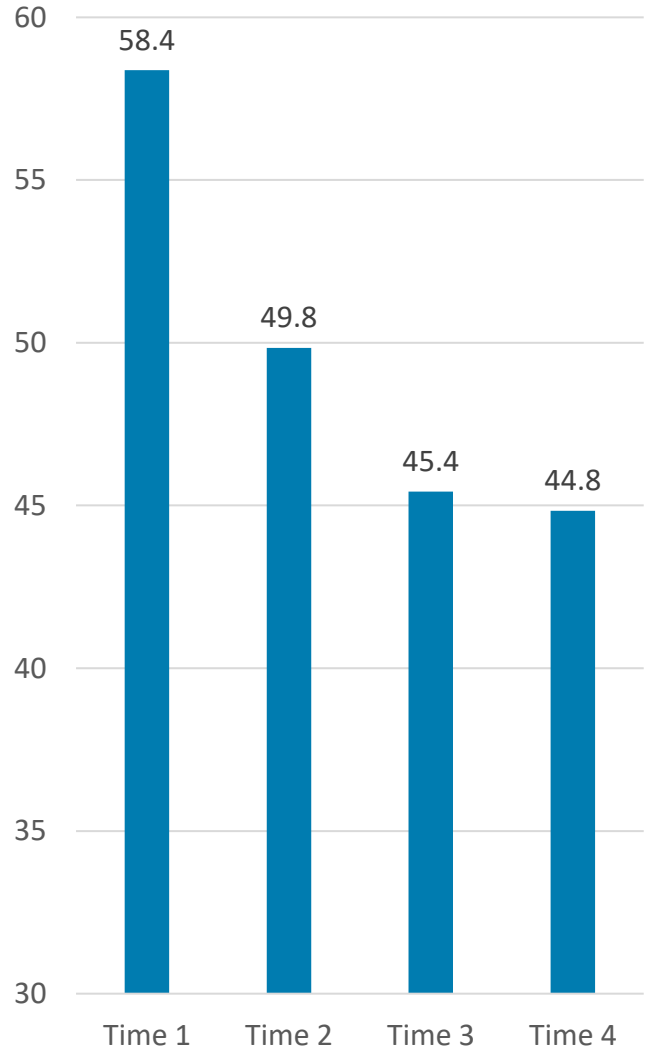
MPAI4 Abilities Standard Scores across time (residential n~19)



MPAI4 Adjustment Scores across time (residential n~19)



MPAI4 Participation Standard Scores across time (residential sample n~19)



Where we were at for CARF **2018:**
CARF 2018 (MPAI4 **Community** Outcomes - CHO 6, 7 & 9)

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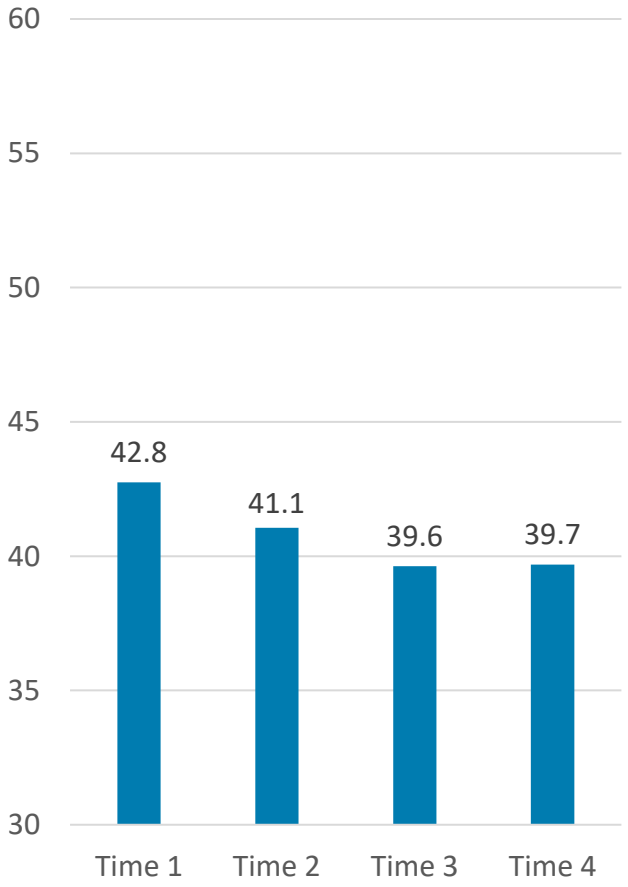
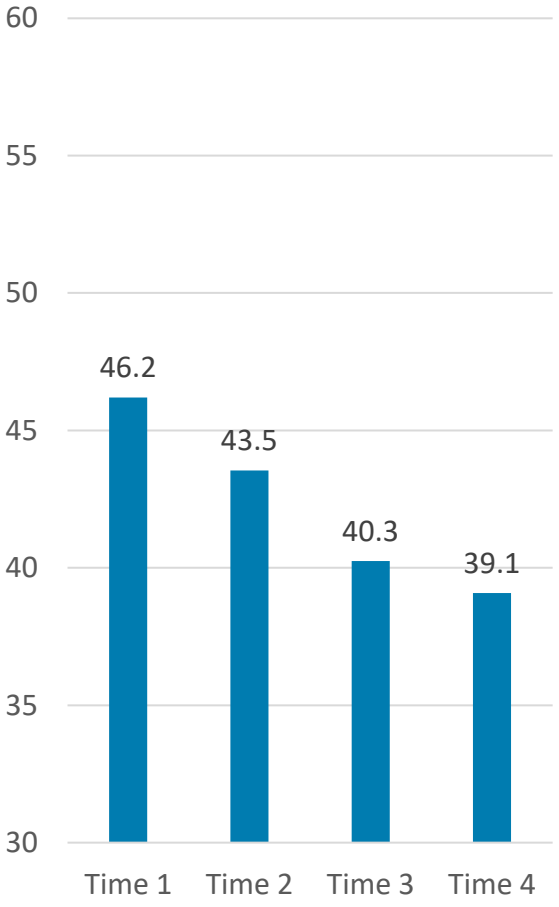
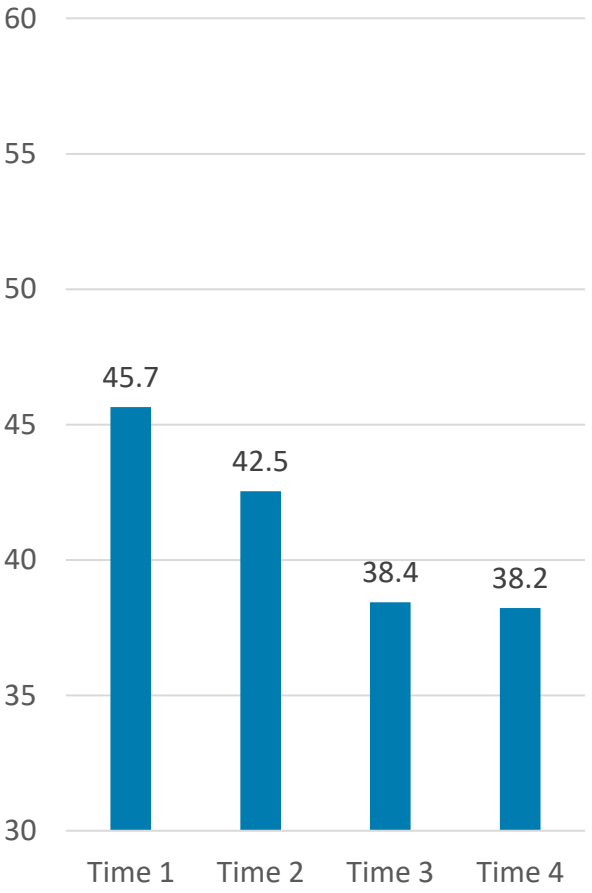
MPAI4 Abilities Standard Scores across time (community n~41)



MPAI4 Adjustment Scores across time (community n~41)



MPAI4 Participation Standard Scores across time (community n~41)



Initial Attempt to display MPAI4 scores in October 2021

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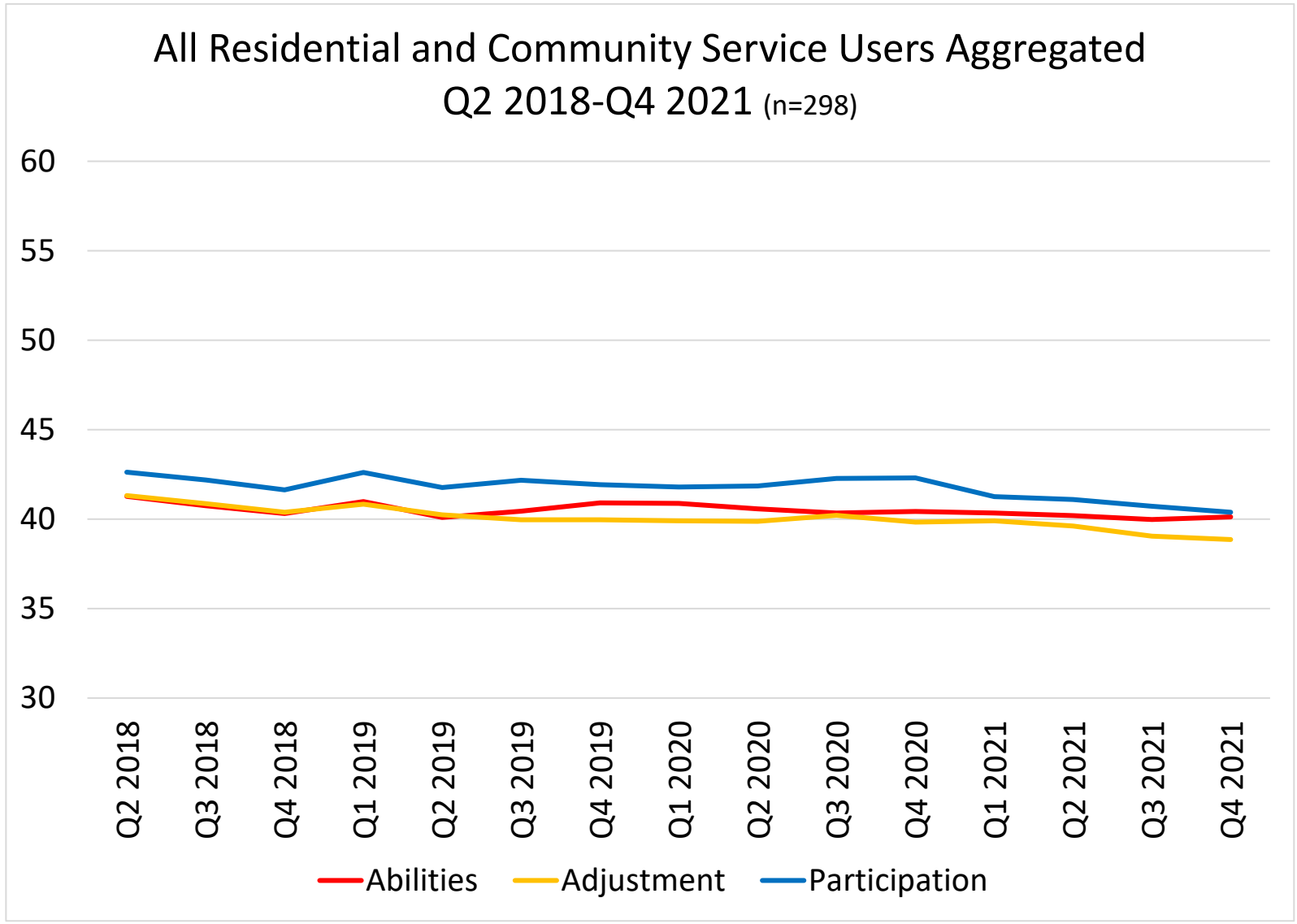
>60	severe limitations
50-60	moderate to severe
40-50	mild to moderate
30-40	mild limitations
<30	relatively good outcomes



Developing more Appropriate Ways to Categorise and Aggregate Clients' Data

- **TrueTime1:**
  - Clients can be categorised by TT1 or Non-TT1 based on whether or not we have their **first assessment score**.
  - Since mid-2018, all new clients have a TT1 score.
  - Feedback from clinicians recommended using MPAI-4 data only when TT1 scores are available.

The Effect of Excluding Non-True Time 1 Clients in Analysis

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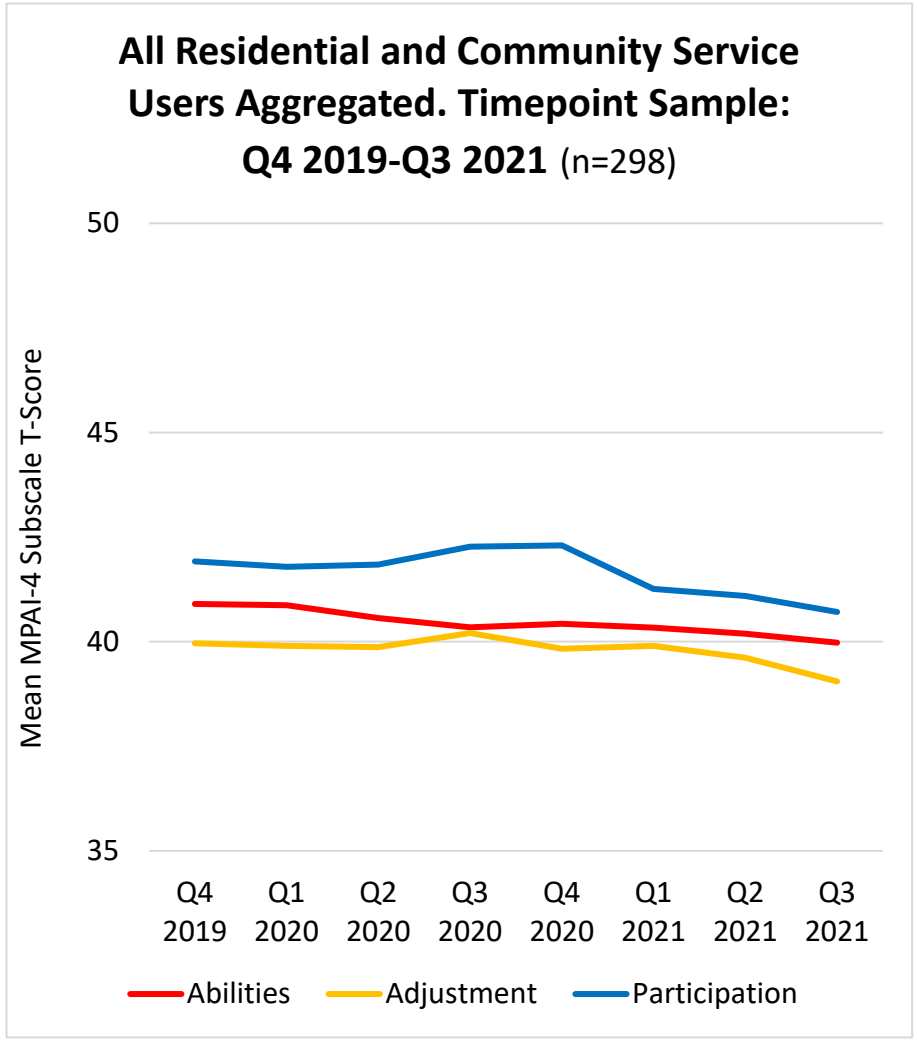

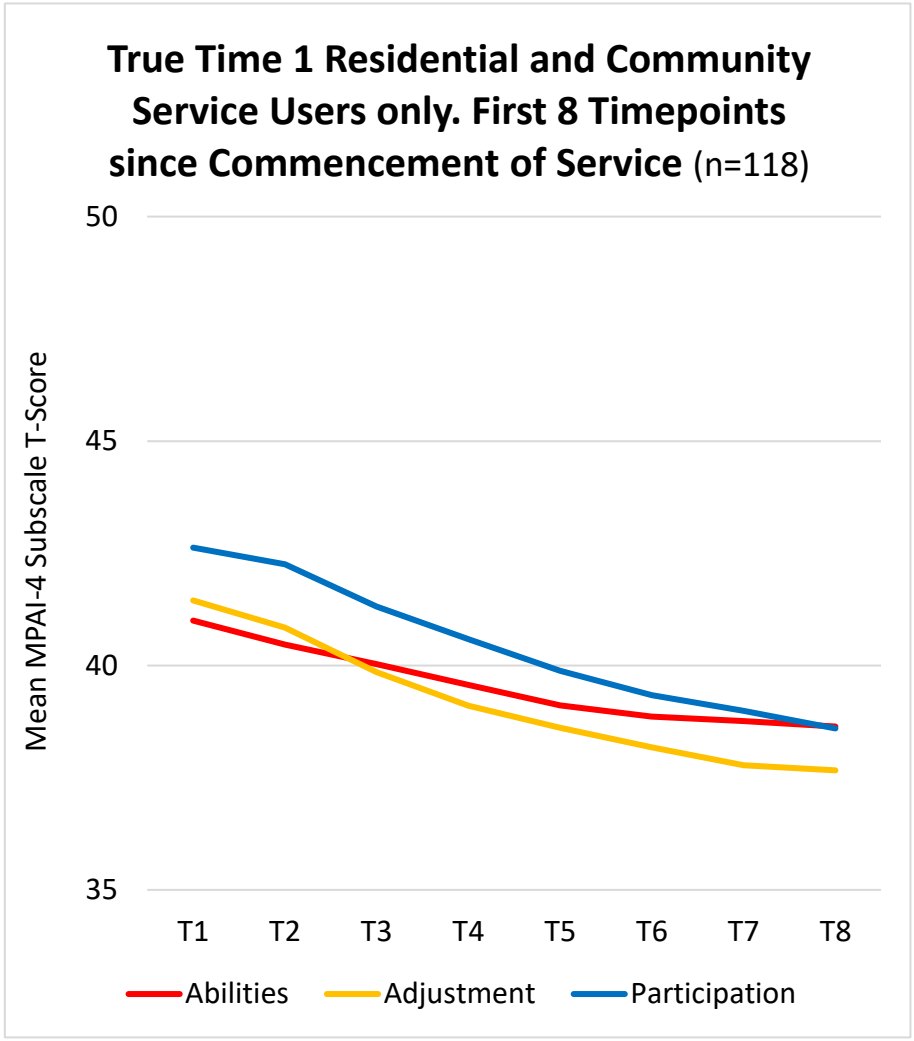

Other variables to consider: preliminary analysis

Investigating the Correlation between overall improvement and differences in demographics

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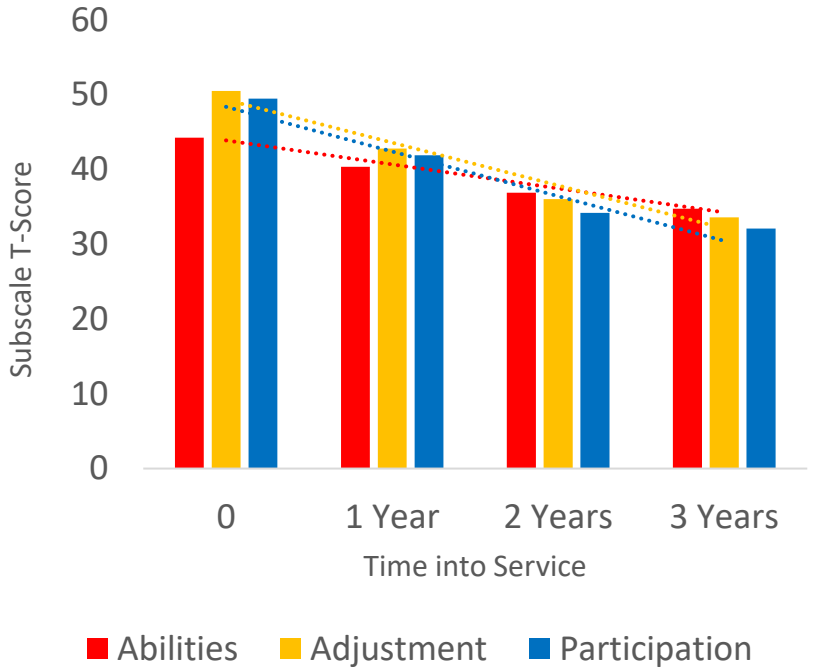
Sample of clients with >20 point in raw MPAI-4 Score Improvement (n=19 (16% of TT1 clients))



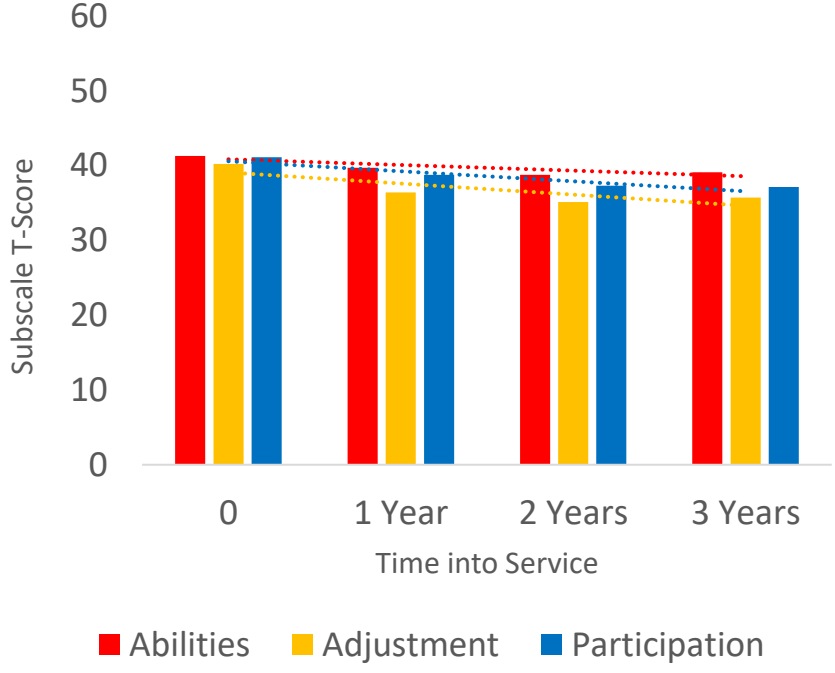
Gender: 58% Male

Age at injury: **34.6 years**

Injury Type: ~3/10 TBI

Time between injury and service commencement: **2.6 years**

Sample of clients with 0-10 point raw MPAI-4 Score Improvement (n=36 (30.5% of TT1 clients))



Gender: 53% Male

Age at injury: **44.3 years**

Injury type: ~1/10 TBI

Time between injury and service commencement: **3.6 years**

Martini, Angelita & Jackson, Hayley & Williams, Elly & Wagland, Janet & Turner-Stokes, Lynne. (2020). Time between acquired brain injury and admission to community-based rehabilitation: differences in cognitive and functional gains.

Digging deeper:

Time between Injury and Commencement of Service and Degree of Improvement

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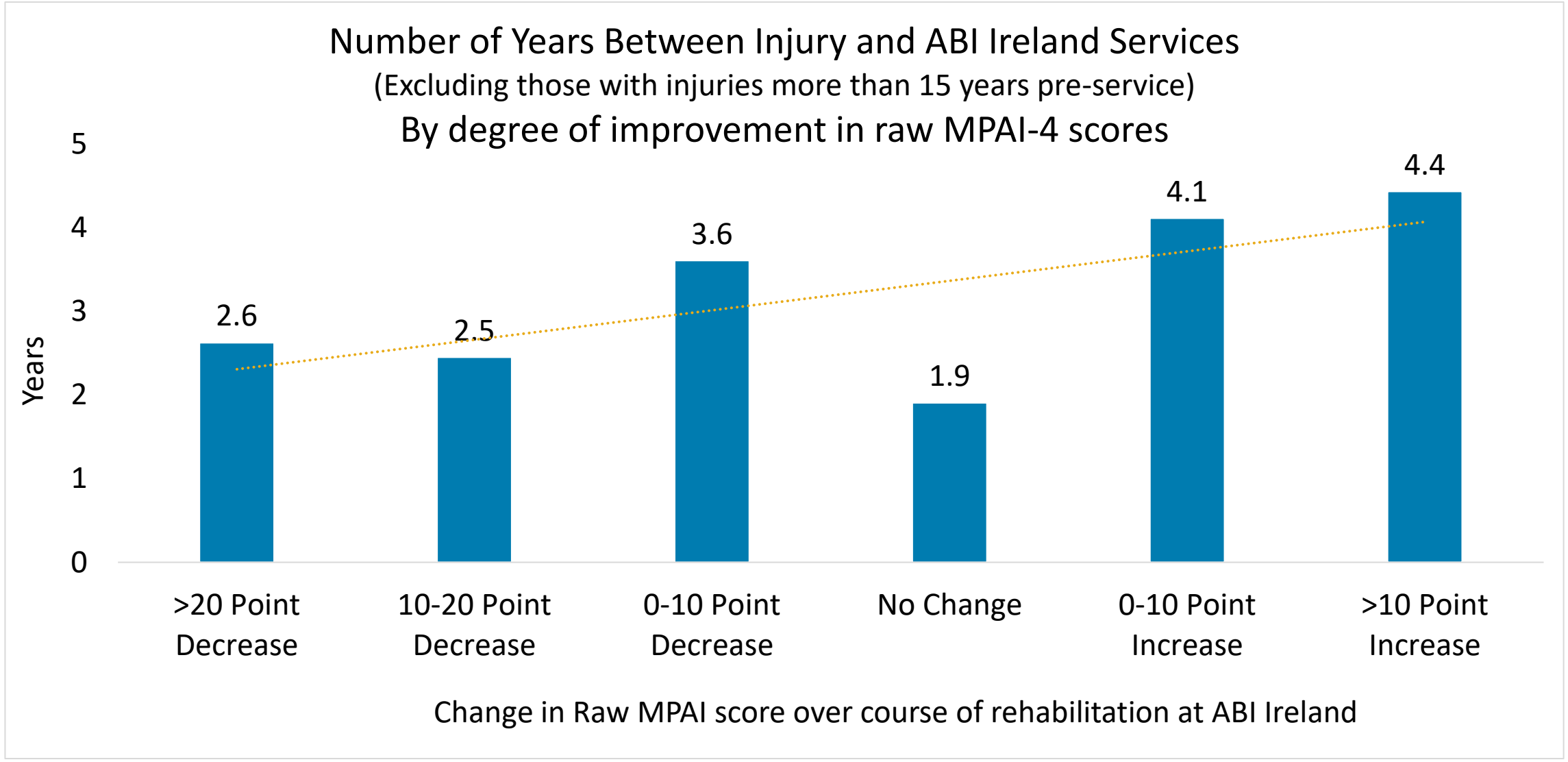

Trajectory of Recovery Depending on Time Between Injury and Commencement of ABI Ireland Services

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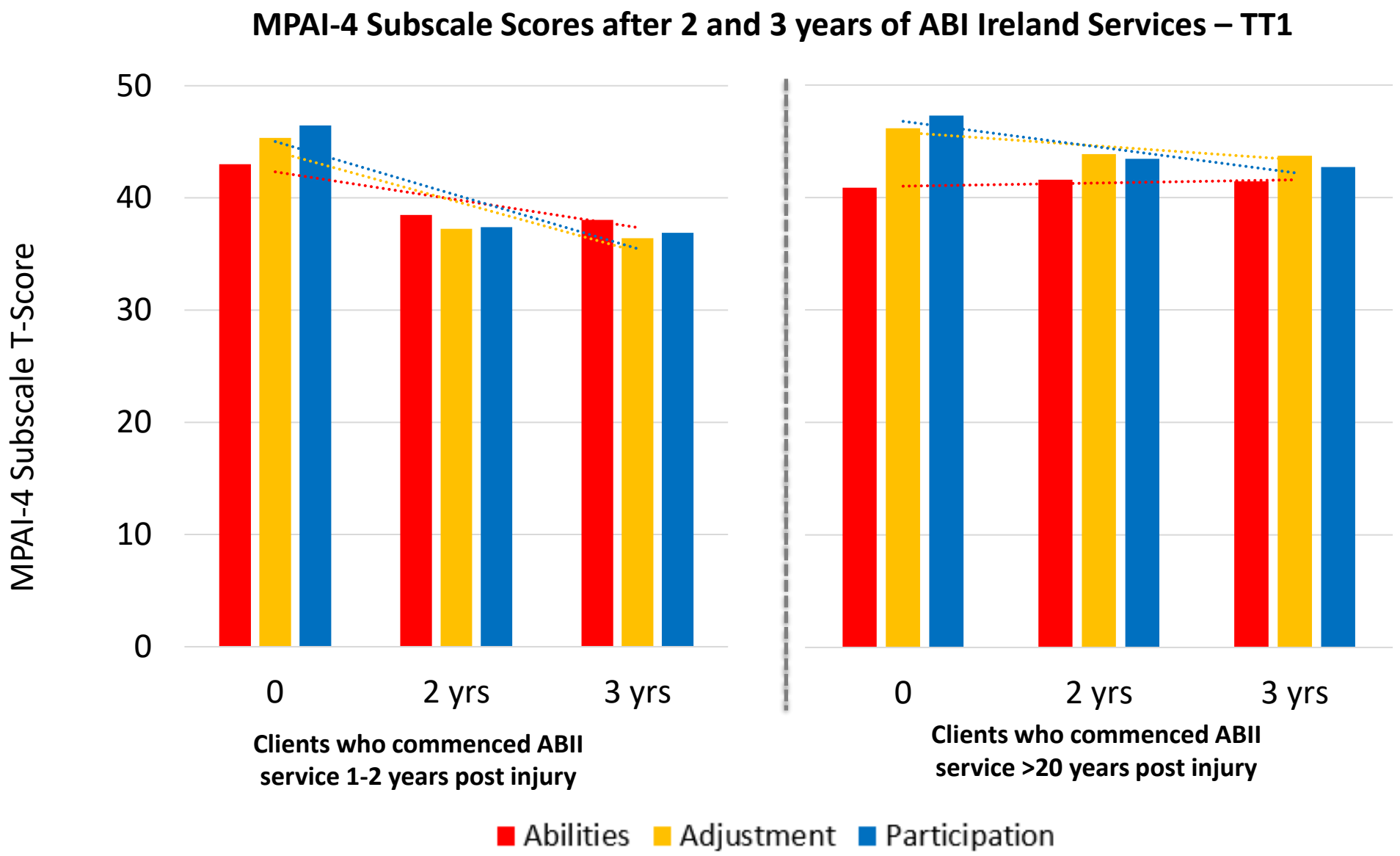

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No MPAI4 Improvement = No Improvement?

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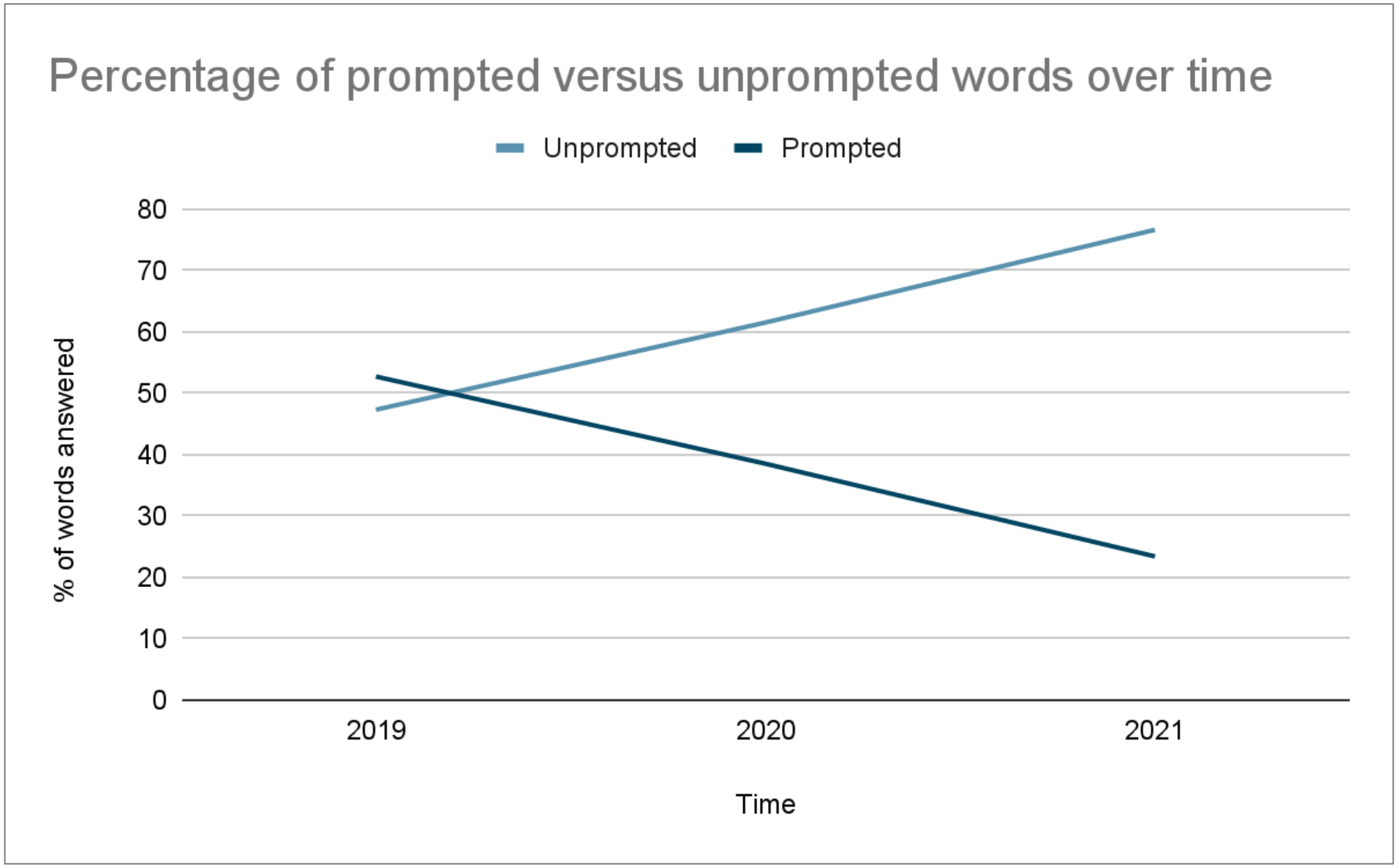
Example of Non-MPAI-4 related Outcomes:

PBSP + Errorless Learning – Client with Aphasia



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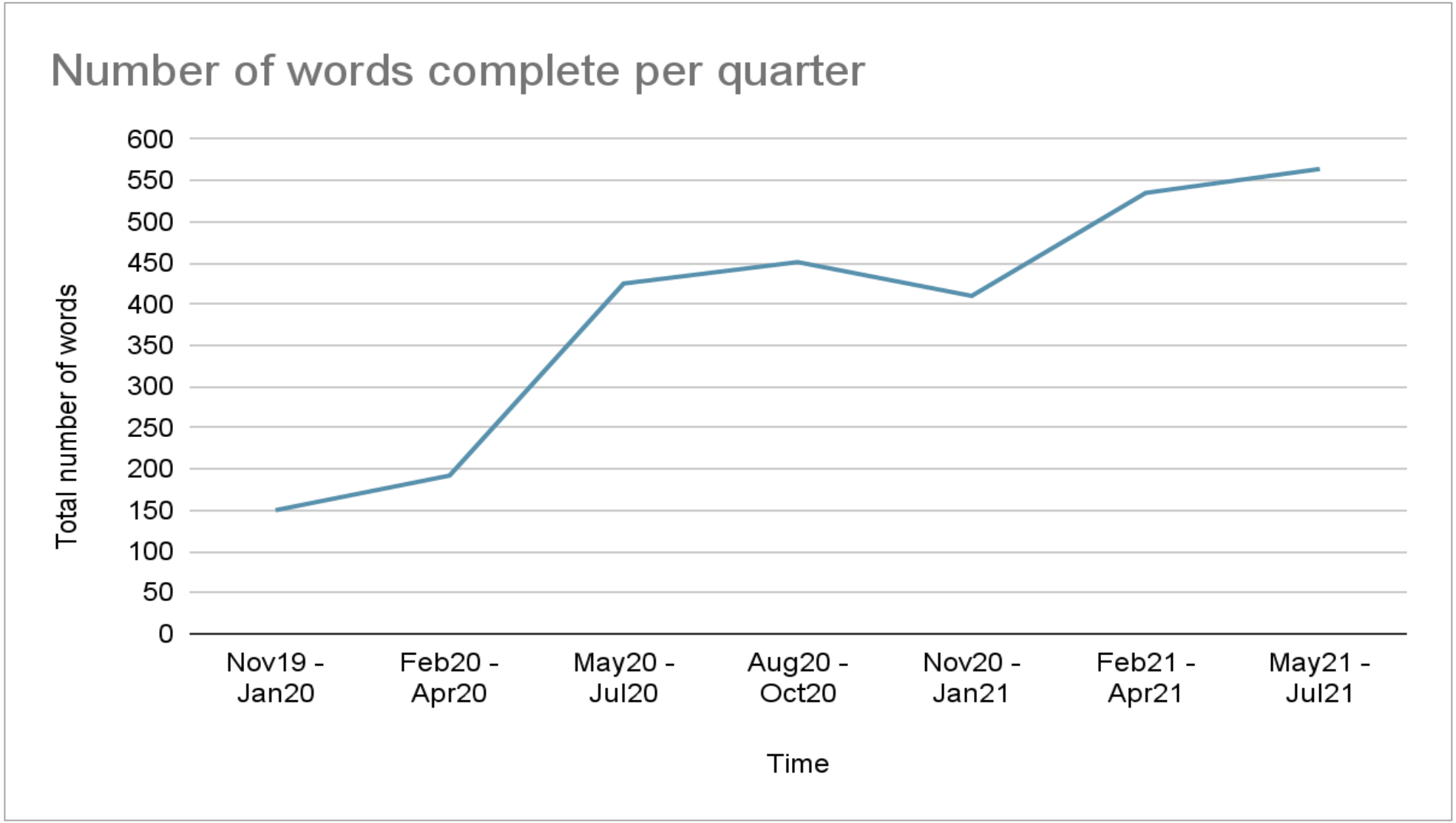

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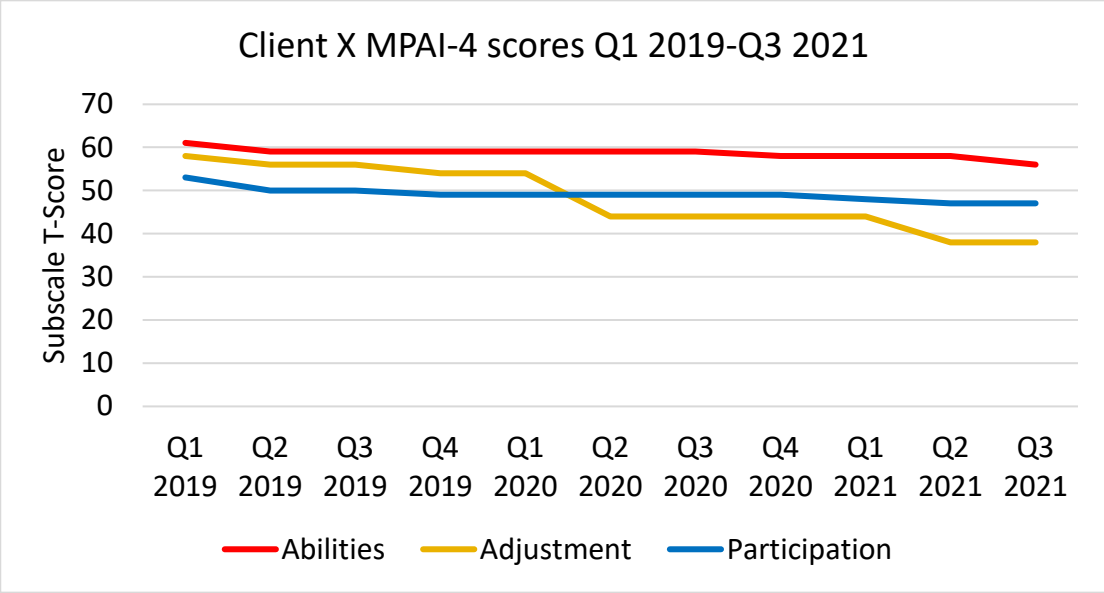

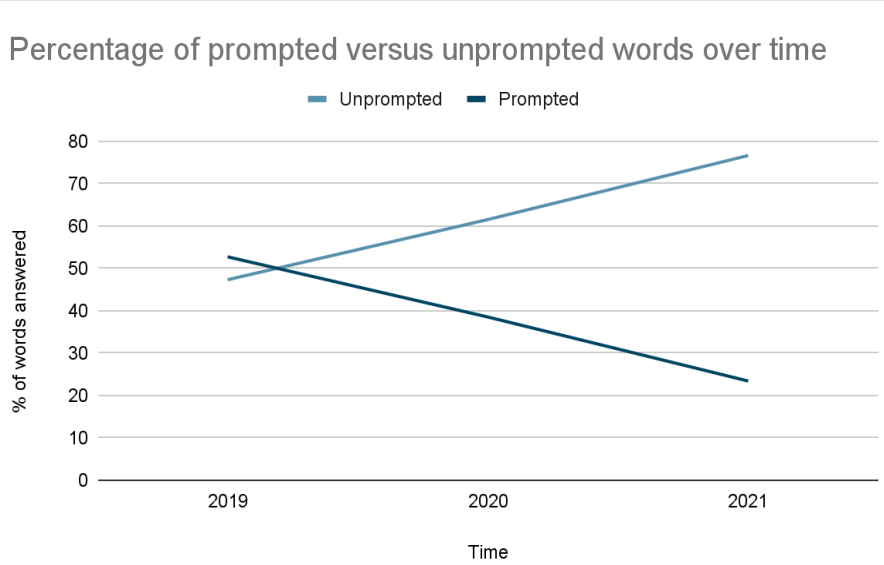

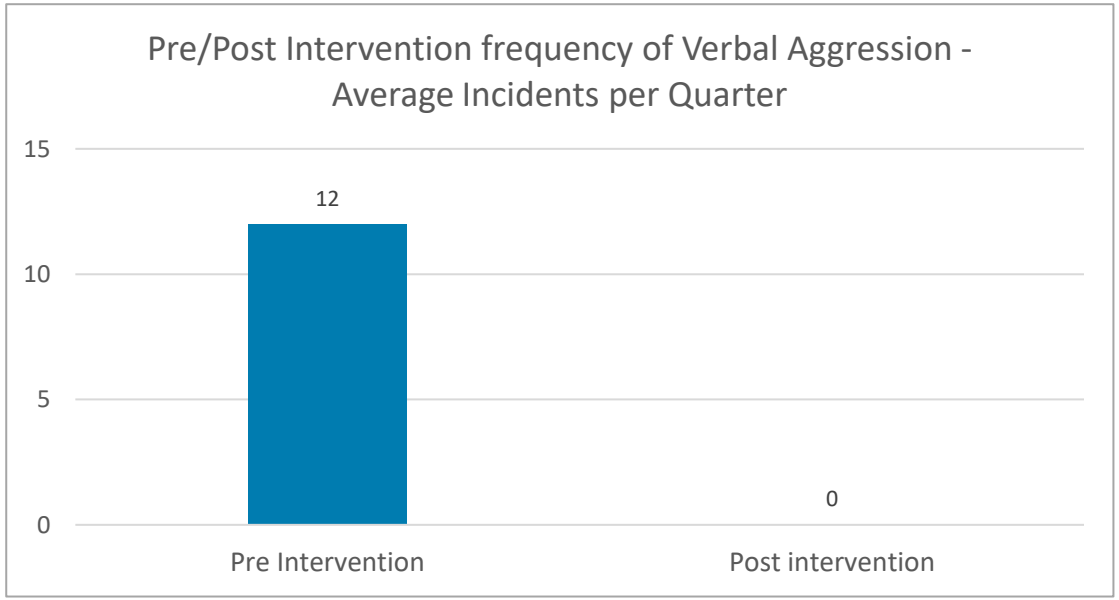

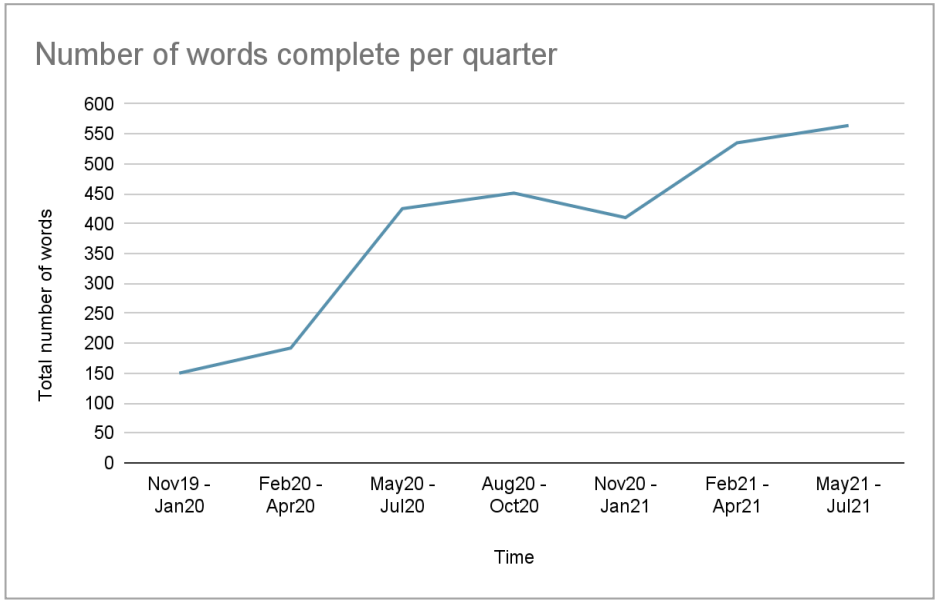

Example of Non-MPAI-4 related Outcomes:

Goals Achieved by 7 Young People in our Pilot Paediatric Program

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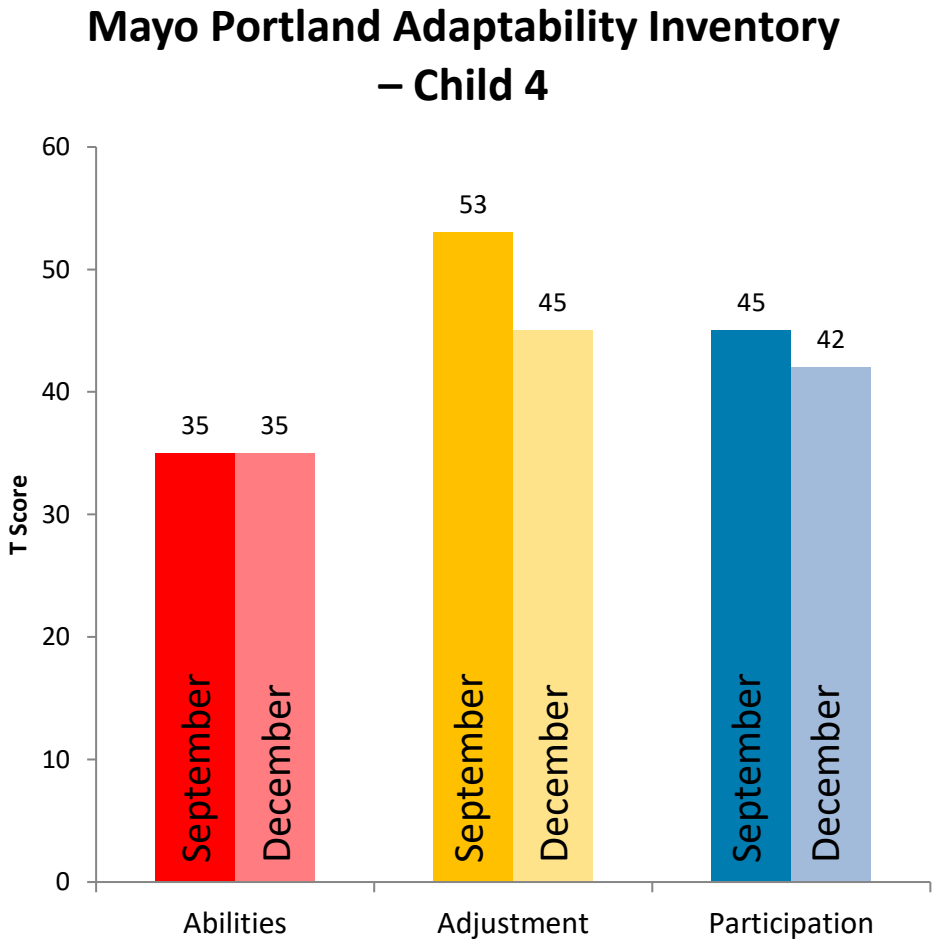

Examples of Goals Achieved by Young People in our Pilot Paediatric Program

Safe discharge from long term hospital stay to their home setting

Return to school

Reduction in severe challenging behaviour

Enter Employment

Example of Non-MPAI-4 related Outcomes:

Discharge Destination for Residential Clients 2002-2021

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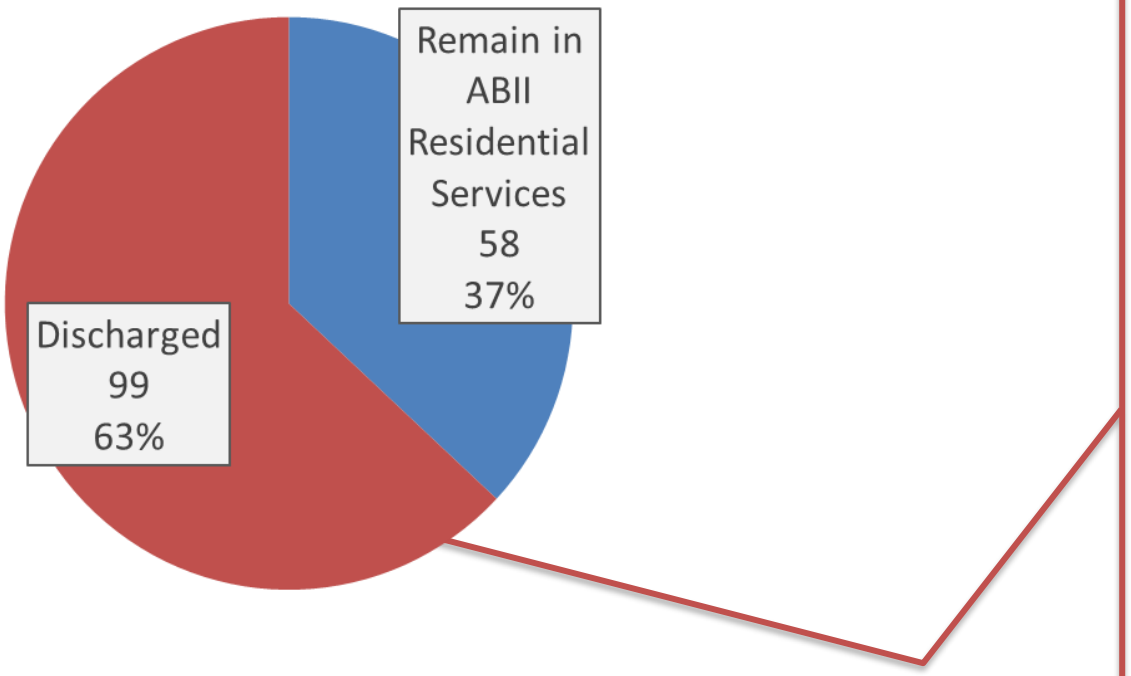

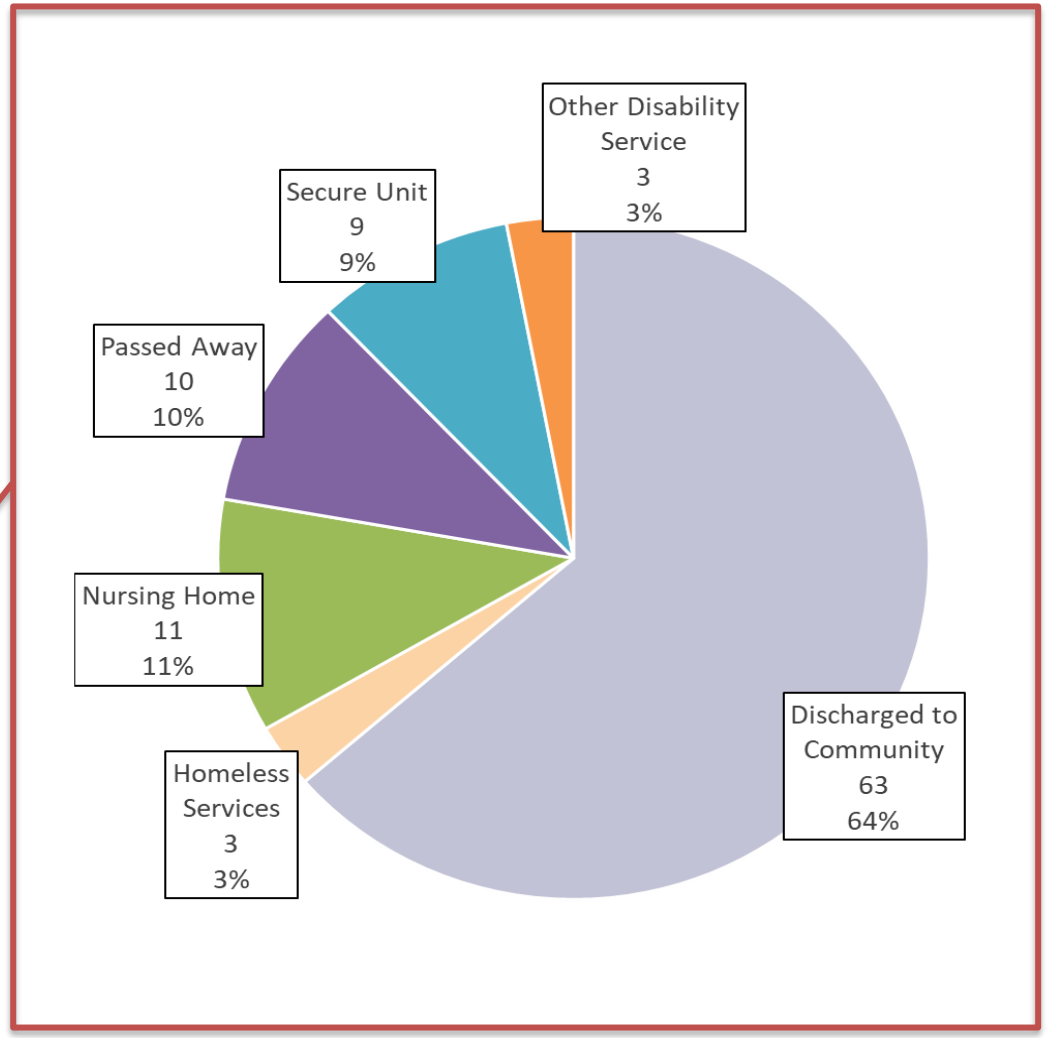

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Final Considerations and Future Directions

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How is our Organisation Benefiting from our Focus on Data Analysis?

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Referral Awareness

- Identifying referral trends and referral agents in different areas
- Anticipating rehab needs
- Keeping in mind: '*who needs us*' vs '*who we now serve*'

Clinical Impact

- Monitoring individual rehab progress from IA until discharge
- Monitoring and identifying outcome trends for each CHO area
- Feedback to local teams/Rehab Assistants
- Feedback to clients and their families

Advocacy & Business Uses

- SMT now have access to data and evidence to inform proposals for service development and advocate for resources
- Equipping ourselves for interactions with Policymakers and Politicians
- Ensuring we continue to meet the highest standards and international best practice through CARF accreditation

Greater Internal Dissemination of Information

- Service and location specific information at hand
  - Can examine locations against our national context.
  - Allows staff see information relevant to the local clients they serve
- Assists identification of challenges or staff support needs

Future Considerations and Potential

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Potential to make predictions as to how new clients may progress	Help to set goals tailored to variables within those we serve
Diversifying our outcome measures	Expanding analysis to other services we provide (e.g. case management)
Developing further ways of aggregating and stratifying our outcome data	e.g. different service types; long term residents separate to transitional residents; TBI or NTBI specific aggregations…
Expand ABI Ireland's capacity to monitor the effectiveness of our services	Potential to inform cost effectiveness analysis
Considering external factors that impact on rehab outcomes & referrals	e.g. housing, familial support, ethnic minorities, medical card, socioeconomic status
Expand our capacity to inform ABI research	Especially in area of PPI

To Sum Up……..

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"Having access to this type of data brings an increased degree of confidence and coherence to our work and to the organisation"

Grainne McGettrick,
Research and Policy Manager.
On behalf of our Senior Management Team

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Thank you

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