

Proactive Physical Therapy for People with Parkinson's disease: a Quality Improvement Study Using Implementation Frameworks

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Introduction

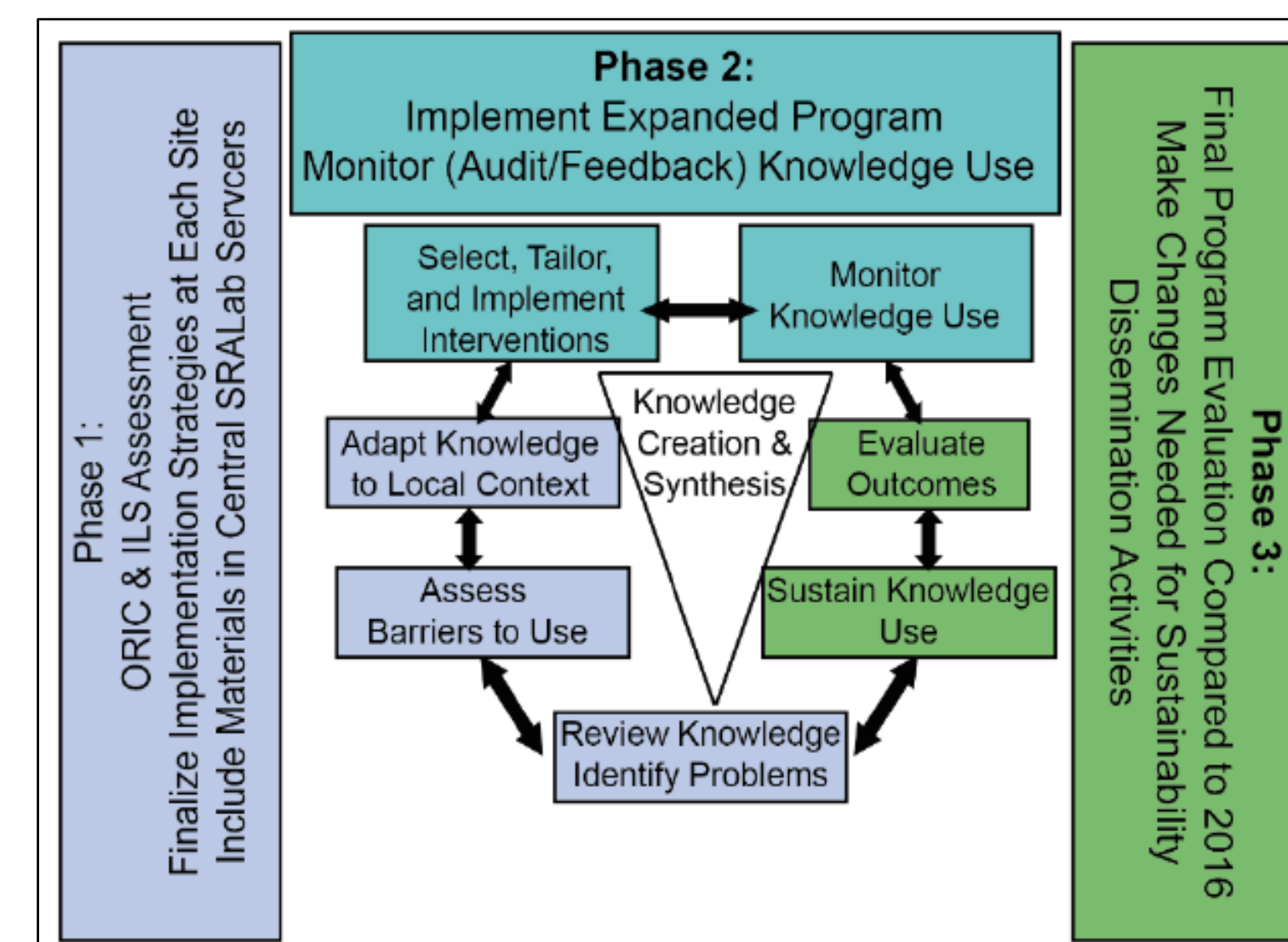
- The purpose of this quality improvement project is to apply a proactive physical therapy (PAPT) approach at one rehabilitation center using implementation frameworks to (1) help organize the implementation process, (2) understand the barriers and determinants of implementation success, and (3) to evaluate implementation.
- Background:** European clinical practice guidelines recommend physical therapy (PT) for people with Parkinson's disease (PD) soon after diagnosis to provide education, physical activity advice, and individualized interventions when needed.¹ However, PT is frequently not used until after gait and balance problems occur.
- Case Description:** The PAPT program targeted people with PD before the onset of significant mobility dysfunction. It was initiated in one outpatient neurological rehabilitation center. The program used shared decision-making to promote long-term maintenance of independent exercise.

Methods

Using Implementation Frameworks to Plan Study

- An implementation process model was used to develop the PAPT program:
 - The **Knowledge to Action Cycle framework (KTA Cycle)**,²
 - Use of this process allows a systematic approach that enables us to make our research more generalizable.
- Implementation barriers were addressed using the **Consolidated Framework for Implementation Research**.³
- The program was evaluated using the **RE-AIM** framework with mixed methods.⁴

Figure 1. The Knowledge to Action Framework (adapted from Graham et al, 2006) was used to guide study-related activities. Our program evaluation led to the planned expansion of the program, which is diagrammed in the model.



RE-AIM Evaluation Framework

- R – Reach (Providers & Patients)
- E – Effectiveness (Clinical Outcomes)
- A – Adoption (Setting & Staff)
- I – Implementation (Process Outcomes)
- M – Maintenance (Patients & Setting)

Table 1. RE-AIM Implementation Evaluation Framework was used to guide the areas of our evaluation.⁴

A Mixed Methods Approach

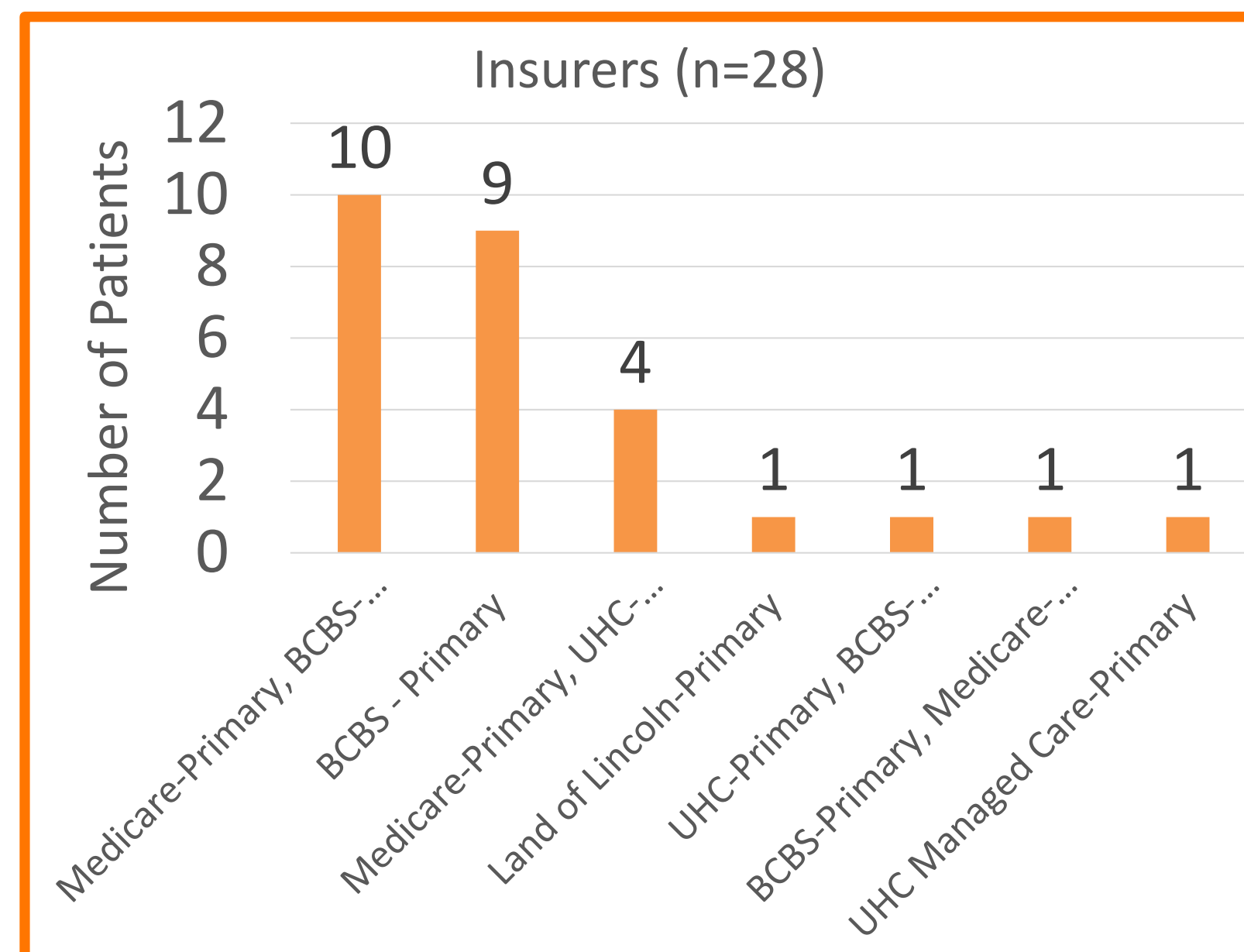
- Quantitative:** Chart review & semi-structured phone interviews. Assessing patient characteristics and clinical outcomes.
- Qualitative:** Semi-structured phone interviews. A descriptive analysis was used to assess barriers and facilitators to the program as well as successes and failures of the program.

Mixed Methods Results (RE-AIM)

Reach

- 3 Referring Physicians
- 38 Patients were referred to the program
- 28 Patients were scheduled and evaluated
- 20 Patients participated in follow-up phone interviews 6-12 months later

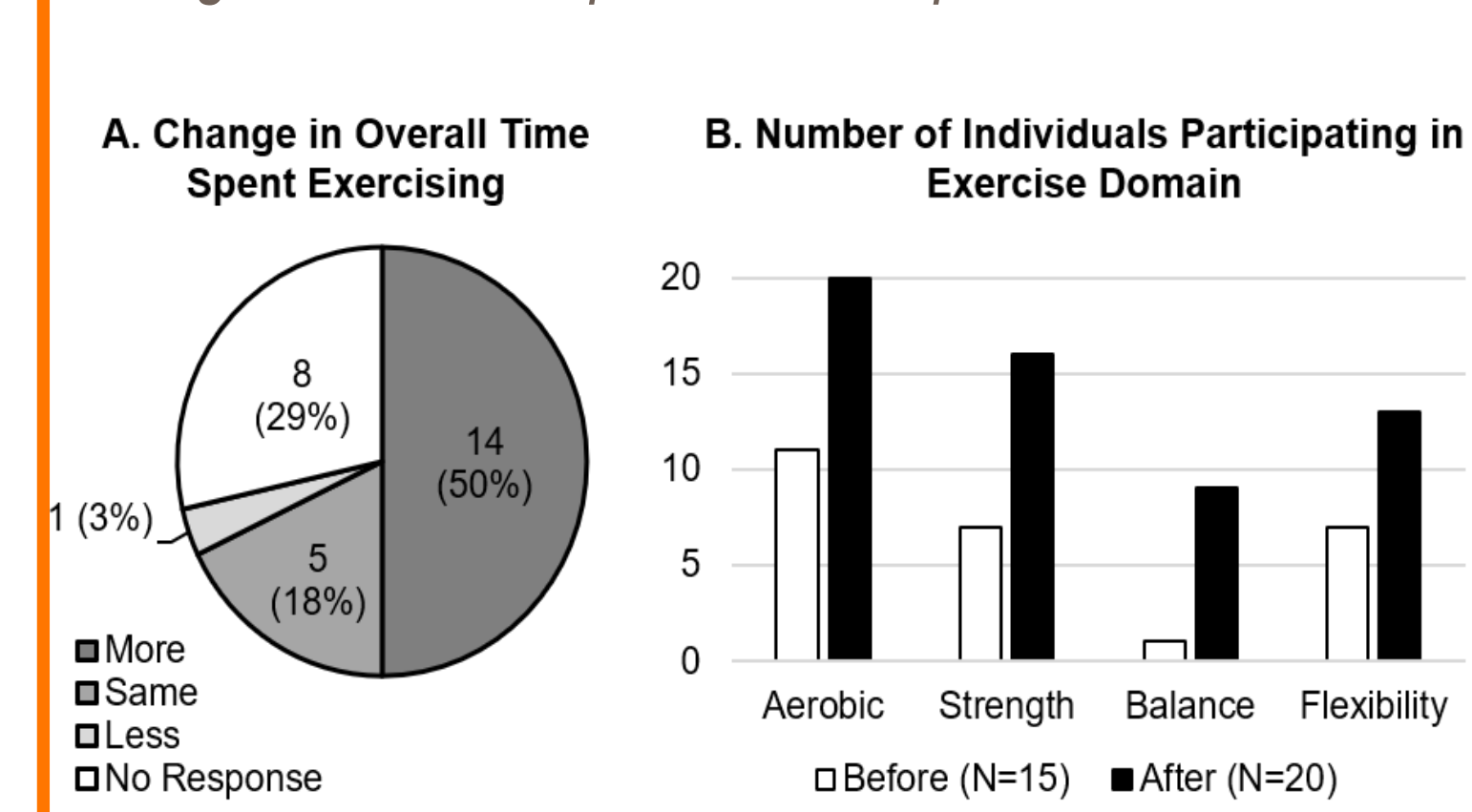
Figure 2: Insurers for Participating Patients.



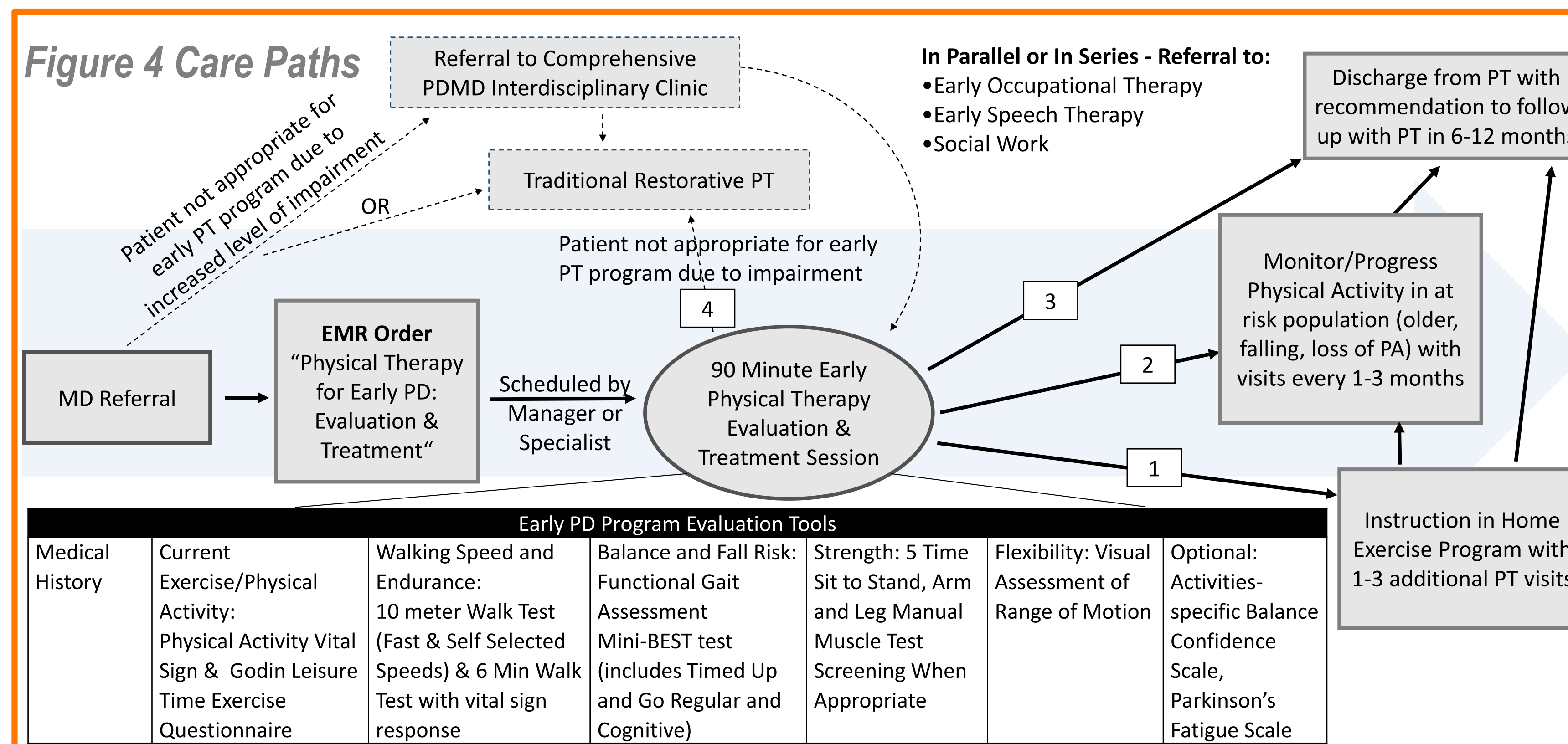
Clinical Effectiveness

Most participants increased physical activity and diversified the types of exercise that they performed regularly.

Figure 3: Self-Reported Participation in Exercise



Intervention Care Path



Early PD Program Evaluation Tools						
Medical History	Current Exercise/Physical Activity: Physical Activity Vital Sign & Godin Leisure Time Exercise Questionnaire	Walking Speed and Endurance: 10 meter Walk Test (Fast & Self Selected Speeds) & 6 Min Walk Test with vital sign response	Balance and Fall Risk: Functional Gait Assessment (includes Timed Up and Go Regular and Cognitive)	Strength: 5 Time Sit to Stand, Arm and Leg Manual Muscle Test Screening When Appropriate	Flexibility: Visual Assessment of Range of Motion	Optional: Activities-specific Balance Confidence Scale, Parkinson's Fatigue Scale

Table 2: Patient Characteristics	
Gender	43% Female
Average Age Range	65 ± 11 years
Median Time Since Diagnosis from MD	3.5 months
Median Time Since First Symptoms	2 years
Average UPDRS Scores	17
HY Stage	1: 5 (18%) 2: 23 (82%)
PD Medications	None: 43%, Carbidopa/Levodopa Only: 36%, MAOB-Inhibitor Only: 14%
Baseline Avg Functional Gait Assessment	27/30
Baseline Avg MiniBESTest Total score	25/28
Baseline Avg Self Selected Gait Speed (10mwt)	1.26 m/s
Baseline Avg 6 Minute Walk Distance	535 m

Table 3: Exercise Post-Intervention		
Exercise Type	Median Minutes	Number of Patients ≥ Cut-Off
Mod-Vigorous Aerobic	140	8 ≥ 150 min/week
Strength	50	8 ≥ 60 min/week
Balance	0	6 ≥ 30 min/week
Flexibility	30	9 ≥ 30 min/week

Adoption

- Initial implementation by 2 therapists, expanded to 4.
- Northwestern Neurologists report greater referral rates to preventive PT than national average in Parkinson's Foundation Registry.
- Increased interest in the program by Shirley Ryan AbilityLab PT's.

Implementation

- Clinician-reported Barriers to PT Delivery**
 - Lack of necessary outcome measures in Cerner (Mini BESTest, Physical Activity Measures)
 - Difficulty entering and extracting exercise participation data from Cerner (free text)
 - Physicians do not refer patients with perceived lack of interest.

Maintenance

- Clinician-reported Barriers to Maintenance:**
 - Lack of follow up scheduling procedure
 - Managerial scheduling is time intensive
 - Difficulty entering outcome measures
- Patient-reported Barriers to Continued Participation**
 - Difficulty scheduling follow ups.
 - Location (n=13), Time (n=1), Insurance Coverage (n=2)
- Maintenance Facilitators:**
 - 19/20 Patients did not find cost to be a barrier to maintenance.
 - High satisfaction from MDs, PTs, and Patients
 - Patient satisfaction averaged at a 9/10 (10 = most beneficial)
 - 20/20 Patients were likely/very likely to recommend to a friend
 - More therapist interested in delivering PT program
 - Plans to expand to suburban sites

Qualitative Themes Regarding Program

Benefits of the program are both PHYSICAL and EMOTIONAL:

- "I always thought of myself as the kind of person who really didn't like doing exercise and on those occasions when I thought I really ought to do something I did as little as possible and made excuses that I wasn't going to do anything that day but there's been a total change in my attitude about it and I think again the desire to slow the progression of the disease, but certainly [PT name] has been a great support in that and has given me a lot of information that has been helpful" – PT for Early PD Patient
- "I'm really almost in "remission" and I think it's because of the exercise [...] I do those exercises before I get out of bed in the morning [...] and I think they help me as much mentally to get myself up and going as they do physically" – PT for Early PD Patient

Discussion

- The PT for Early PD Program increased the MD referral rate to PT in early PD, increasing adherence to CPG guidelines.
- Early prescription of a home exercise plan increased physical activity and types of exercises regularly performed.
- Future Directions: Study spread and maintenance of the program.

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