A **multi-component implementation plan** that **targeted barriers** resulted in **successful implementation** of High-Intensity Gait Training.

Use of Implementation Science Frameworks to Successfully Translate Research Evidence into Stroke Rehabilitation Clinical Practice.

INTRO

- High-Intensity Gait Training (HIT) is a recommended intervention for stroke rehabilitation.
- Evidence suggests HIT is not routinely used by physical therapists (PTs).
- Multi-component intervention strategies and use of implementation frameworks may increase success of implementation efforts.

METHODS

- Two Norwegian inpatient rehabilitation (n = 9 PTs)
- Quasi-experimental pre-post design: usual care (n=56 patients) and implementation (n=54 patients; see Fig. Timeline)
- Knowledge-to-action cycle (KTA) guided the implementation plan.
- Consolidated Framework for Implementation Research (CFIR) categorized barriers and guided selection of implementation strategies.
- Outcomes assessed:
   a) Clinician perceptions, attitudes, perceived and actual adherence (survey, interviews, and step counts)
   b) Patient perceptions: survey (n=23)
   c) Patient outcomes: Clinical measures of balance, gait speed, and walking distance

RESULTS

- 26 implementation strategies used to overcome barriers (Table 1)
- Clinician outcomes:
   a) Improved perceptions, attitudes, perceived adherence (Table 2)
   b) Actual adherence: average steps/day (5777±2784) were significantly > than usual care (3917±2656; P<0.001)
- Patient perceptions: 100% agreed they were satisfied and benefitted from treatment
- Patient outcomes:
   a) Significantly improved balance, gait speed, and walking distance outcomes in comparison to usual care (See published article)

DISCUSSION

- Multi-component intervention that used the KTA and CFIR to guide implementation processes and strategies results in successful changes in practice that positively impacted patient outcomes.
- Organizational readiness, culture, and previous practice patterns may have contributed to the successful outcomes.

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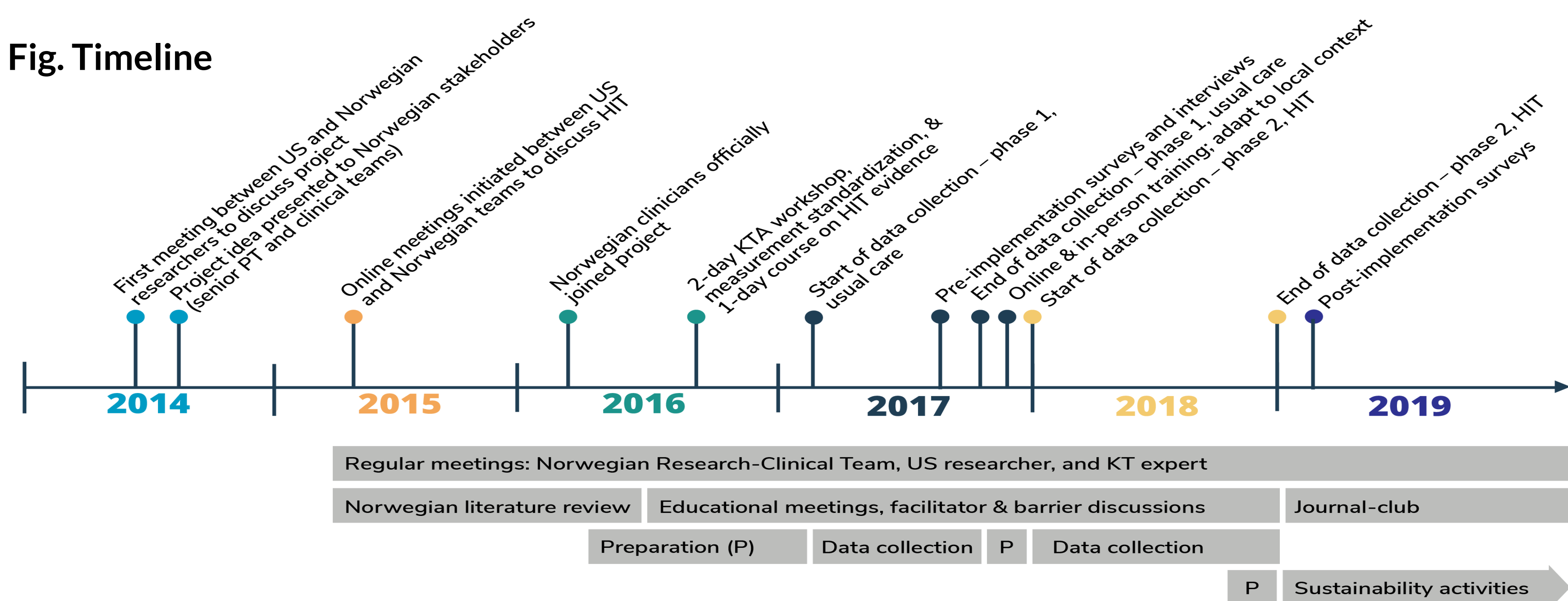
Fig. Timeline

Fig. Timeline

Table 1. Highest priority barriers and implementation strategies according to CFIR domain and construct

CFIR construct	Barrier description	Implementation strategy
CFIR domain - INTERVENTION CHARACTERISTICS		
Adaptability	Clinicians' concerns about feasibility (e.g., related to safety, patient capacity to participate, pain, aphasia and/or poor understanding of Norwegian language)	Promote adaptability; Identification of barriers and facilitators; Tailor strategies; Conduct educational meetings; Visit other sites
Cost	Equipment cost	Access new funding
CFIR domain - INNER SETTING		
Available resources	Poor accessibility to equipment; Equipment for safety monitoring (alarm, blood pressure and heart rate monitors) and orthoses	Change physical structure and equipment; Access new funding; Change physical structure and equipment
Compatibility	Distribution of patient needs/care among the interdisciplinary team. (less upper extremity training if increase focus on walking)	Promote adaptability; Revise professional roles; Conduct local consensus discussions
Culture	Changing long established habits/beliefs/experiences related to practice	Create a learning collaborative; Conduct educational meetings; Conduct local consensus discussions
CFIR domain - CHARACTERISTICS OF INDIVIDUALS		
Knowledge & Beliefs about the Intervention	Little knowledge of how to provide HIT to patients (PTs)	Build a coalition (RKR, City of Oslo, OUS); Use an implementation adviser; Organize clinician implementation team meetings; Conduct ongoing training; Provide clinical supervision; Develop educational materials; Distribute educational materials; Facilitation

Table 2. Interventions provide before and after implementation of HIT

Out of 5 patients, please rate the number of patients in which you provide each of the following interventions to improve a patient's ability to walk.

Patients who require 50% - 100% assistance to ambulate	2017 Median (IQR)	2019 Median (IQR)	p-Value
Weight shifting or pre-gait activities in standing	4.0 (3.75-5.0)	1.0 (0.0-1.75)	0.011*
Sitting balance activities	3.5 (1.0-5.0)	0.5 (0.0-1.75)	0.041*
Standing balance activities	4.0 (2.5-5.0)	0.5 (0.0-1.0)	0.016*
Therapeutic exercises for strengthening	5.0 (3.0-5.0)	0.5 (0.0-1.0)	0.017*
Patients who require 25% - 49% assistance to ambulate	**2017 Median (IQR)**	**2019 Median (IQR)**	**p-Value**
Weight shifting or pre-gait activities in standing	4.0 (3.0-5.0)	0.0 (0.0-1.0)	0.011*
Standing balance activities	4.0 (4.0-5.0)	0.0 (0.0-0.75)	0.015*
Therapeutic exercises for strengthening	5.0 (4.75-5.0)	0.0 (0.0-0.75)	0.003*
Patients who require < 25% assistance to ambulate	**2017 Median (IQR)**	**2019 Median (IQR)**	**p-Value**
Weight shifting or pre-gait activities in standing	3.0 (1.75-4.25)	0.0 (0.0-0.0)	0.071
Standing balance activities	5.0 (2.75-5.0)	0.0 (0.0-0.75)	0.004*
Therapeutic exercises for strengthening	5.0 (4.75-5.0)	0.0 (0.0-0.75)	0.001*

*indicates significant

References available upon request, please email jmoore@knowledgetranslation.org

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