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Acute Inpatient Rehabilitation Essentials (AIRES)

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Background and Problem

As a tertiary hospital, TTSH manages 1,700 beds with a constant high bed occupancy of more than 90% and a high demand for acute inpatient therapy services. A significant proportion of inpatients are referred to both Occupational Therapists (OT) and Physiotherapists (PT) for functional assessments, rehabilitation interventions, and discharge-planning.

In typical acute hospital settings, OTs and PTs work in complex multi-disciplinary teams and provide profession-specific care rehabilitation care independently. Despite the professional differences between OT and PT, there are similarities in assessment and interventions provided to patients with basic rehabilitation needs. These similarities result in duplication of services, leading to unnecessary costs to patients and inefficient use of therapist manpower.

Solutions

An innovation workgroup to redesign the OT/PT rehabilitation care delivery was formed. The workgroup curated Acute Inpatient Rehabilitation Essentials (AIRES), as a transdisciplinary care model for OTs and PTs to work collaboratively in shared patient goals and rehabilitation plans.

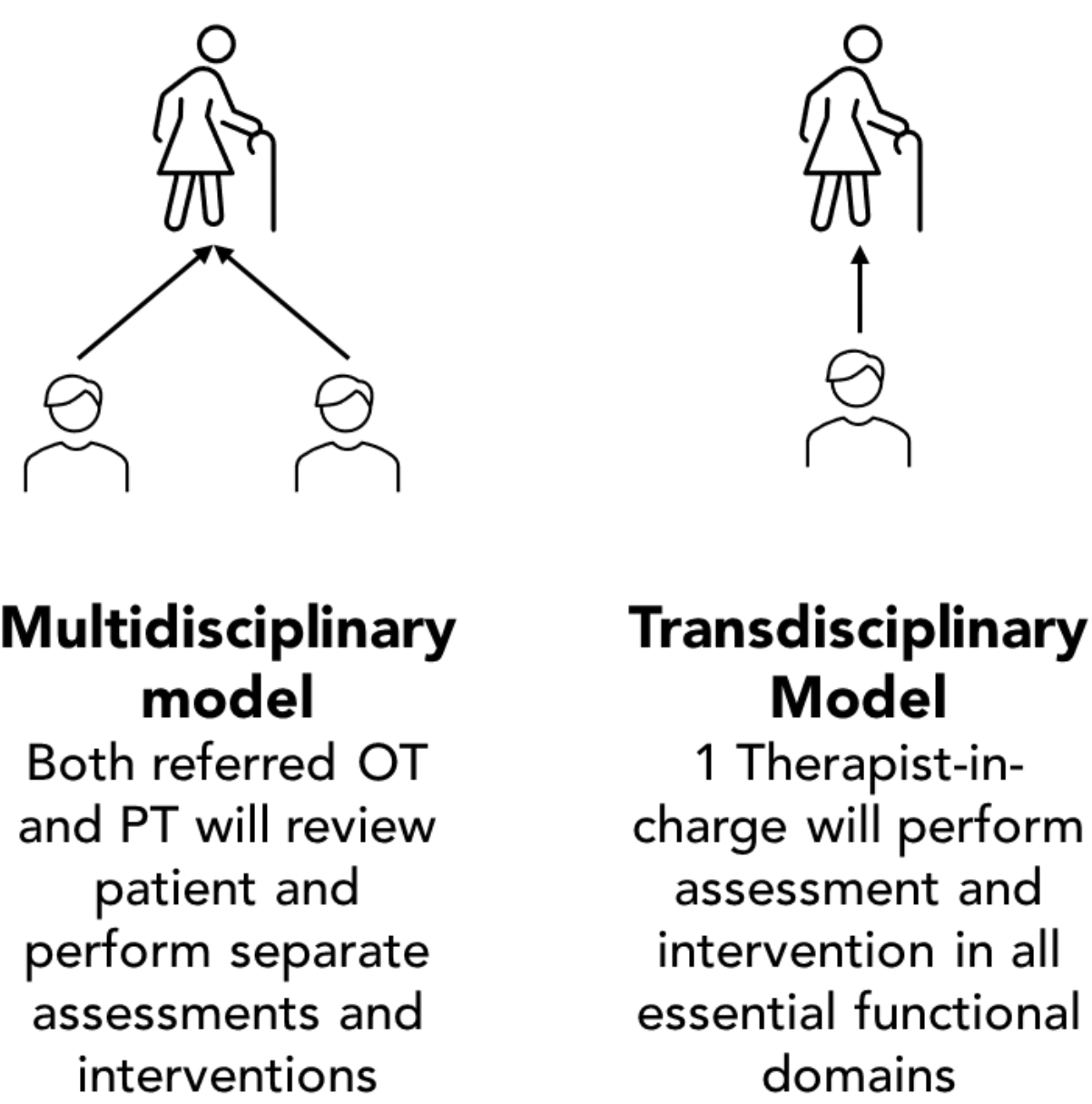


Figure 1: AIRES transdisciplinary model compared to usual multidisciplinary care model.

Shared Skills	
<ul style="list-style-type: none"> Gathering detailed social history Assessment of orientation and ability to follow instructions Range of motion and strength of upper limbs Sitting balance assessment Functional mobility (bed mobility, transfers, ambulation) 	
Physiotherapy Skills	Occupational Therapy Skills
<ul style="list-style-type: none"> Assessment of range of motion and strength of lower limbs Standing balance assessment and training Gait training (only for patients whose functional status is similar to pre-morbid) Exercise prescription in a standardised manner 	<ul style="list-style-type: none"> Cognition engagement activities Assessment and practice of basic activities of daily living Wheelchair skills (only for patients who were using wheelchair mobility pre-morbidly) Scoring of Modified Barthel Index (MBI) Home safety

Table 1: Core skills identified from both OT and PT as essentials domains for assessment and intervention of patients with basic rehabilitation needs. Under the AIRES programme, all therapists will be competent to perform all essential skills.

3 Components in AIRES to support inpatient rehabilitation care redesign and workforce transformation of OTs and PTs

Clinical Guideline

- A 3E escalation scale was developed to determine:
 - the complexity of rehabilitation needs, and
 - if both therapists should be involved in providing rehabilitation.

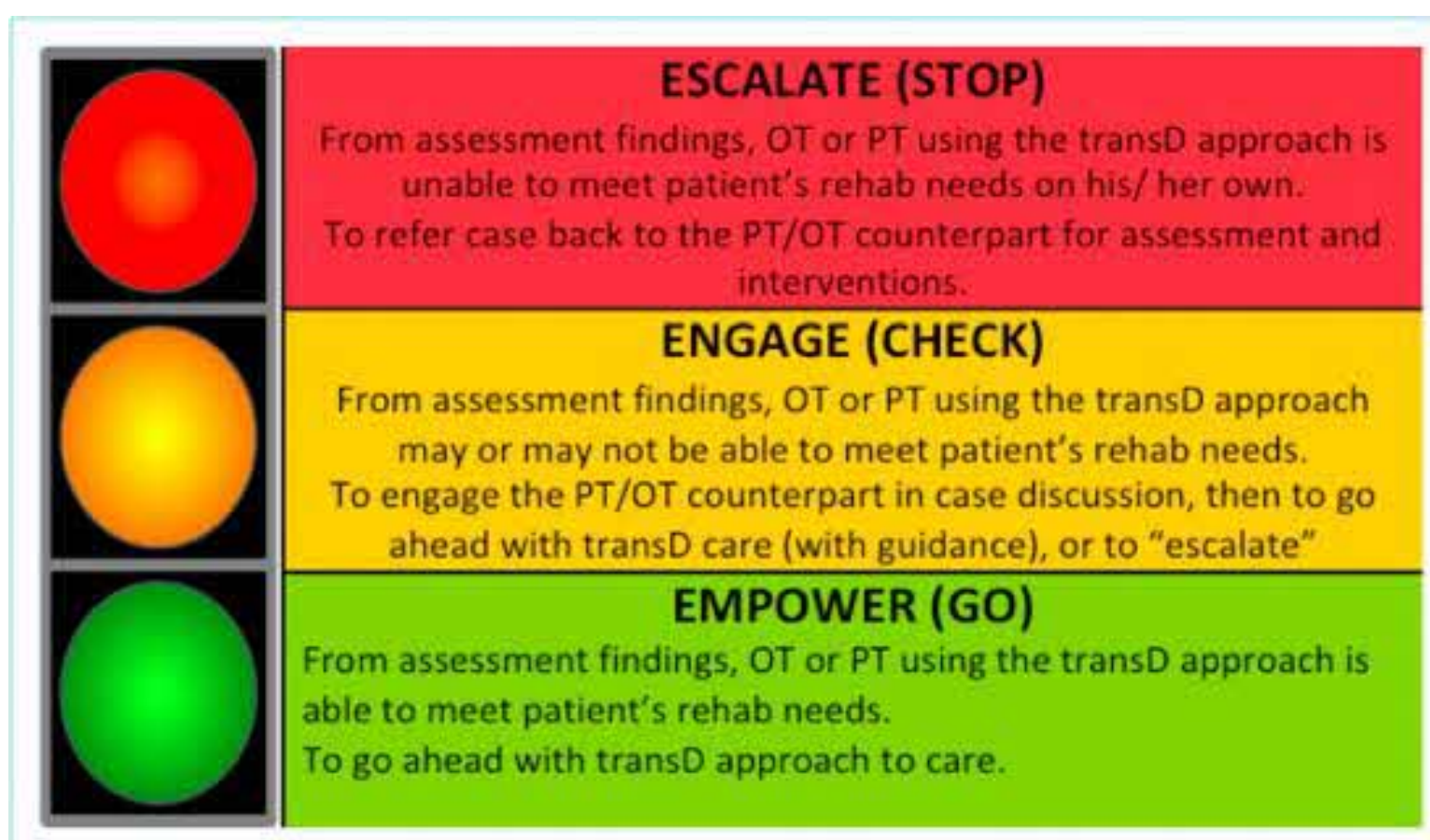


Figure 2: 3E Escalation scale.

Triaging algorithm and operationalisation

- Defined inclusion and exclusion criteria for patients who are suitable for transdisciplinary therapy.
- Balance manpower deployment and adherence to quality standards.
- Proactive change management with key stakeholders.
- Peer support to aid transition of ward therapists in their proficiency with applying the transdisciplinary care model.

Training and competency framework

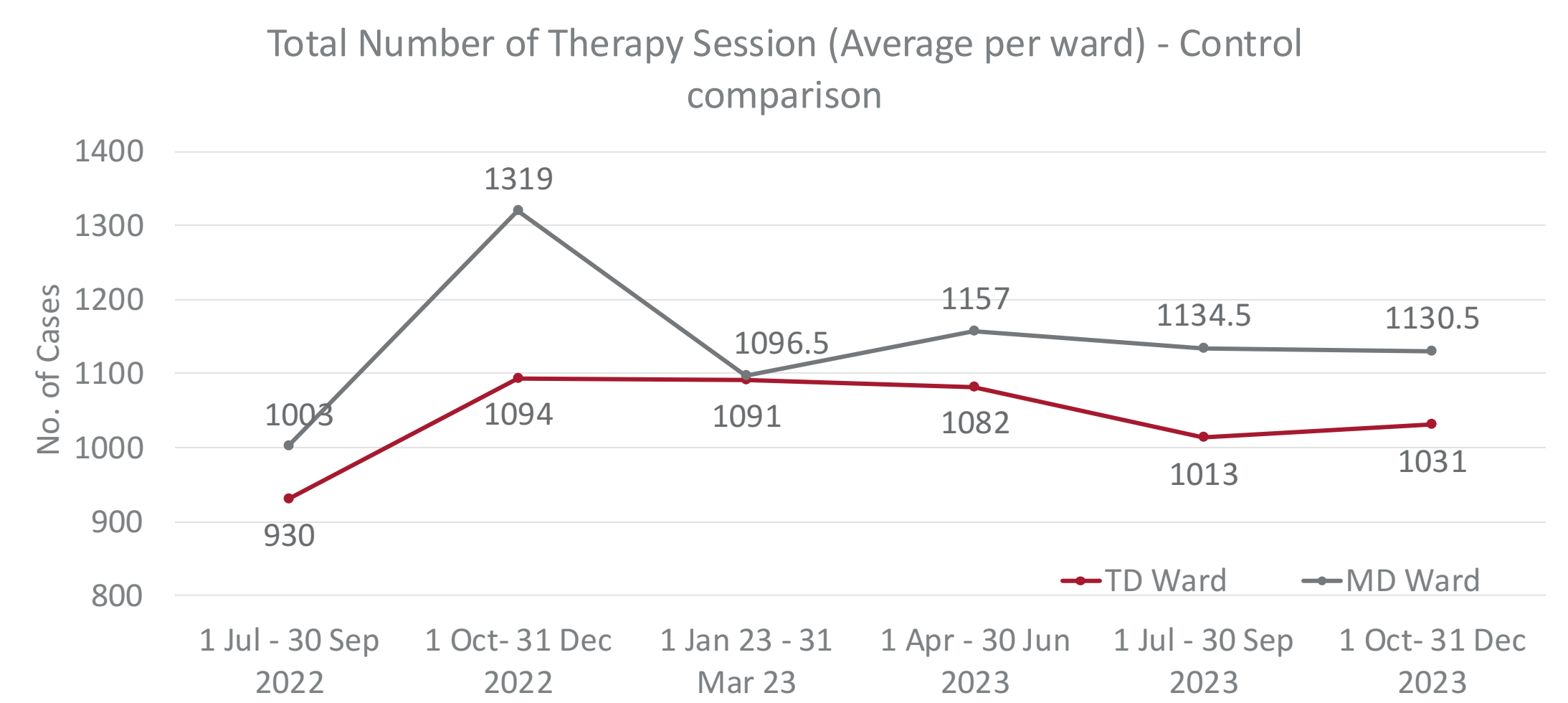
- Training programme includes self-directed learning, classroom-based learning and workplace learning.
- Includes all essential skills required for comprehensive assessment and intervention.
- Training pedagogies includes co-teaching and co-learning.
- Competency assessments as a pre-requisite to working in transdisciplinary wards.

Measurement of Improvement

As of December 2023, a total of 7 wards in TTSH has adopted AIRES. Baseline data of each ward was collected for 3 months prior to the ward adopting AIRES. A cross sectional post-implementation data was taken from 1 Oct to 31 Dec 23. Data was also gathered from standard multidisciplinary care wards as controls to compare outcomes from 1 Jul 2022 to 30 Dec 2023.

1 Number of Therapy Sessions

The average number of therapy sessions per ward at baseline was 1297. Post-implementation, this reduced to 1031 (20.5% lesser than baseline).



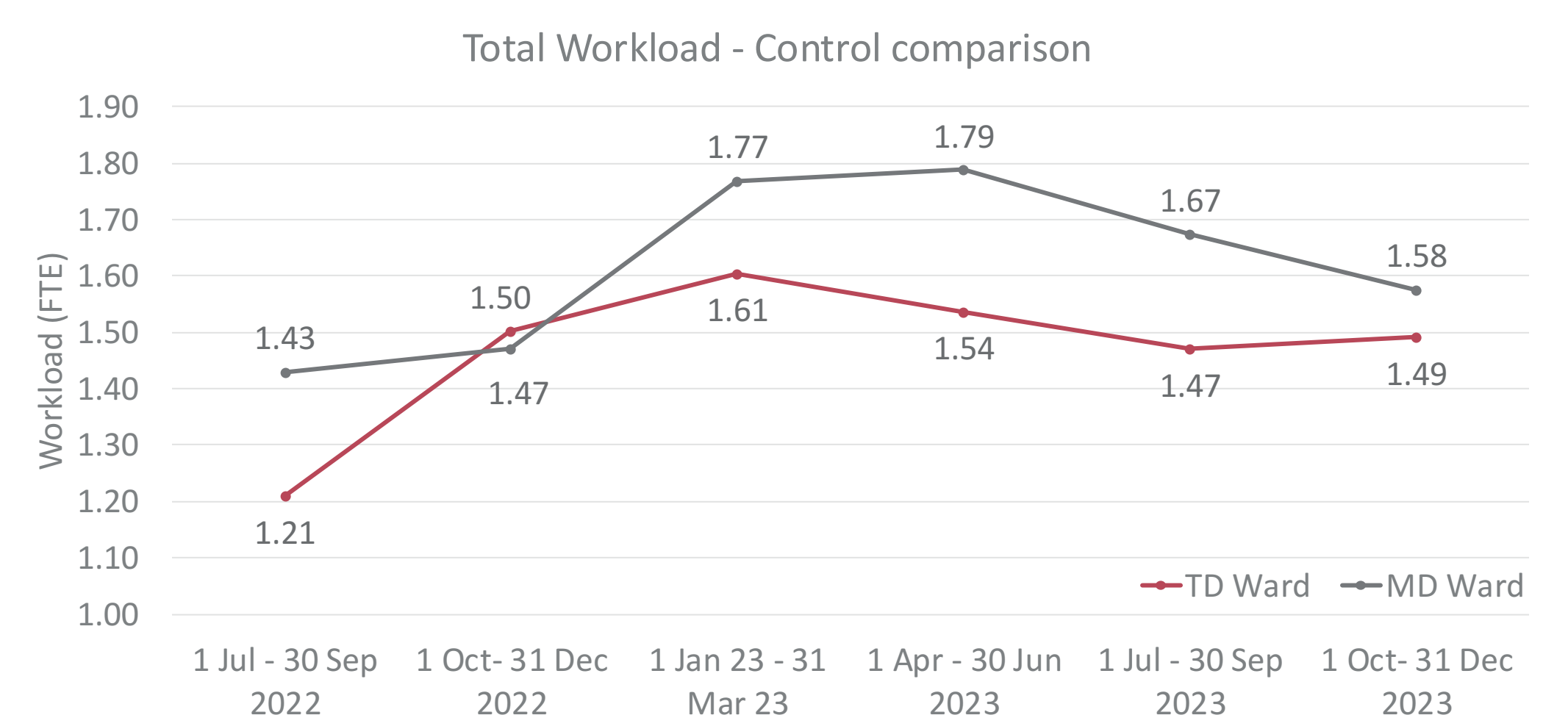
TD: ward adopted transdisciplinary model of care, MD: ward practicing multidisciplinary model of care
Figure 3: Average number of therapy session in TD wards versus control wards. Patients in TD wards have 6-17% lesser number of therapy sessions (average of 8%) compared to control wards.

2 Cost of Therapy

The average cost of therapy for all patients referred for both OT and PT was \$543.00, while the average costs for patients who received transdisciplinary therapy was \$316.00. This showed likely cost savings (42% reduction) for patients with basic rehabilitation needs.

3 Workload

Compared to baseline and control wards, the average therapy workload after adopting AIRES was about 0.15 full time equivalent (FTE) manpower lesser per ward. With the implementation of AIRES in the 7 wards, this has translated to manpower savings of approximately 1 FTE.



TD: ward adopted transdisciplinary model of care, MD: ward practicing multidisciplinary model of care
Figure 4: Average therapy workload per ward comparing TD wards and control wards. TD wards has an average of 0.15 FTE in workload lesser than control wards.

4 Length of Stay (LOS) and Adverse Events

The median LOS in transdisciplinary wards was 9 days compared to 10 days in the control wards. There were no reported adverse events.

Effects of Change

Care redesign

- 7 out of 32 general wards at TTSH have adopted the AIRES transdisciplinary care model.
- An average of 37% of all therapy sessions in the transdisciplinary wards were provided by one therapist.

Workforce transformation

- A total of 97 OTs and PTs have been trained in the AIRES transdisciplinary care model.
- 51 therapists are deployed for active coverage.
- Therapists perceived they are able to provide more holistic and patient-centric care with the upskilling.

Conclusion

Building a collective vision of delivering better value care to patients through stronger interprofessional collaboration was essential to the success of AIRES. Outcomes of wards which implemented AIRES showed significant results in reducing therapy costs to patient and workload of therapists. This model will be extended to more inpatient wards at TTSH and may potentially be applicable to other acute hospitals.

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