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# Neuro-Intensive Rehabilitation Service

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Service Improvement

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Deliver

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## Summary

Neurointensive Rehabilitation (NIR) is a specialised, high-intensity day rehabilitation program for people with newly acquired moderate to severe brain and spinal cord injuries. NIR improves care for people with disabilities, effecting meaningful change in function and quality of life, as well as delivering significant improvements for inpatient access and flow. A new service to the Sunshine

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Coast HHS, NIR is a day-admitted model of community-based rehabilitation providing four-day per week interdisciplinary rehabilitation to patients within 2.08 business days of discharge from the local hospital or from tertiary and quaternary specialist units. This goal-based program allows patients to live at home and practice their independent living skills whilst accessing a four-to-six-week block of therapy immediately following hospital discharge. The team is comprised of a Rehabilitation Physician and Clinical Nurse Consultant (CNC), Neuropsychologist, Occupational Therapist, Physiotherapist, Speech Pathologist, Social Worker, Psychologist, Clinical Assistant and an Administration Officer. Treatment is largely provided in individual sessions, focused on both recovery of function and adjustment to limitations. The NIR team has a biopsychosocial approach to disability management and focuses on achieving both clinically significant improvement in function and adjustment to disability/new life roles. All patients are offered additional group programs providing psychoeducation and skills for approaching anxiety, adjustment and self-management.

## Key dates

Mar 2022

Oct 2023

## Implementation sites

Sunshine Coast University Hospital

## Key Contacts

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## Aim

NIR was established to offer rapid access to interdisciplinary rehabilitation services in a day-admitted model. Getting people with newly acquired moderate to severe brain and spinal cord injuries out of hospital and back into life sooner. NIR replicates close to the same intensity of rehabilitation input of an inpatient rehabilitation unit but allows the patient to return to their own home and family each night. Prior to NIR, patients were waiting weeks to months for community rehabilitation. The average wait from referral to commencement of NIR, is 2.08 business days.

## Benefits

In 18 months of delivering the program, NIR has saved 1463 inpatient bed days and avoided inpatient admission for 26.6% of patients treated. The annual labour cost of delivering this care is ~\$965,000. Admitting eight -10 patients daily, NIR generates sufficient activity-based funding to cover the total expenses of delivering the program. Most importantly, NIR is achieving statistically significant outcomes for patients in the Functional Independence Measure (FIM) tool and in the Mayo Portland adaptability inventory (MPAI-4) in the areas of functional ability, adjustment and life participation. There is an extremely high level of patient satisfaction, with 100% positive feedback from all respondents to the hospital survey and no reported patient adverse outcomes.

## Background

Recovery after significant neurological injury is a long and challenging journey, with patients often displaced from their families and communities for long periods of time. Rehabilitation for this cohort is demanding on health service resources. Historically on the Sunshine Coast, access to intensive (daily) and specialist rehabilitation was only available via an admission to the inpatient rehabilitation ward. Community rehabilitation services were often operating beyond capacity which meant that patients either had to remain in hospital for prolonged periods to have daily input or had to wait many weeks/months in the community until they could access rehabilitation following discharge, often missing the prime window of opportunity to affect meaningful change in outcomes and function.

## Solutions Implemented

With the introduction of NIR to the Sunshine Coast, patients commenced day rehabilitation within 2.08 business days of hospital discharge and underwent four to six weeks of high-intensity

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interdisciplinary treatment, with significant improvements in function and adjustment. Another unique and innovative aspect of rehabilitation at NIR is the inclusion of a digital cognitive memory group 'MEMO' - Making the Most of Your Memory Program. This is an interactive telehealth platform based on the evidenced based face-to-face MEMO Rehab program. This service attracts revenue which entirely offsets the cost of the program.

## Evaluation and Results

- MPAI-4- improvements in all domains, including improvement in ability, adjustment and participation scores
- average FIM improvement = 7.56
- average duration of NIR program 19.41 business days
- time to commencement 2.08 days following discharge
- avoidance of an inpatient rehab admission for 26.6%
- reduction in LOS for Stroke by seven bed days per patient
- 1,463 inpatient rehabilitation bed days saved

## Lessons Learnt

- Transport into the centre still presents a barrier to participation for some patients, particularly those more vulnerable patients with less social support. Ability to incorporate daily transport would improve equity of access and patient flow.
- Location within the Sunshine Coast University Hospital allows for access to ongoing specialist reviews, investigation including pathology, medical imaging, and video fluoroscopic swallow studies. This allows the team to truly replicate the inpatient rehabilitation model of care, in a community program.
- The CNC position is integral to the flow of patients into and out of the service. This is the link between the hospital and the community setting and allows the service to be highly responsive to the needs and of the patients and the demands on the HHS.
- When surveyed regarding a four-day or five-day service, patients overwhelmingly opted for four days, finding that this provided a good balance between 'rehabilitation and life'.
- Patients reported improved wellbeing associated with being able to live at home during their rehabilitation.
- Active involvement of a Rehabilitation Physician and Neuropsychologist enables complex issues to be managed in this community setting, including capacity, returning to work and returning to drive.
- Acknowledgement of the adjustment to neurological disability is profoundly important in supporting patient transition from hospital to the community.

