



Thursday, October 8, 2026, 5:00 - 6:15 pm

Spinal cord injury and cognitive function: Impacts on adaptation following injury and strategies for managing cognitive impairment

Prof Ashley Craig, The University Of Sydney, Australia

Dr Mohit Arora, The University Of Sydney, Australia

Prof Allen Heinemann, Northwestern University, Chicago USA

SPEAKER'S DISCLOSURE

I declare to have no interests in the below:

- The existence of any significant financial activity or other relationship
- Financial or material compensation in relation to research and publishing
- Financial or material compensation in relation to educational activities
- Ownerships and possessions in companies related to health care (includes service providers, IT)
- Compensation for expert functions in health care and consulting health care guidance processes



Speakers

Ashley Craig, PhD, Hon Doct., Professor of Rehabilitation Studies, JWCRR, Faculty of Medicine and Health, The University of Sydney

Mohit Arora, PhD. Senior Research Fellow, JWCRR, Faculty of Medicine and Health, The University of Sydney

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Professor, Physical Medicine and Rehabilitation, Feinberg School of Medicine @ Northwestern University

One course, three connected questions

01

What changes over time?

Presenter #1
Prospective cognition at subacute, 3-month and 12-month time points

02

How should services respond?

Presenter #2
Guideline development, SCI-adapted screening and implementation in three units

03

What does length of stay enable?

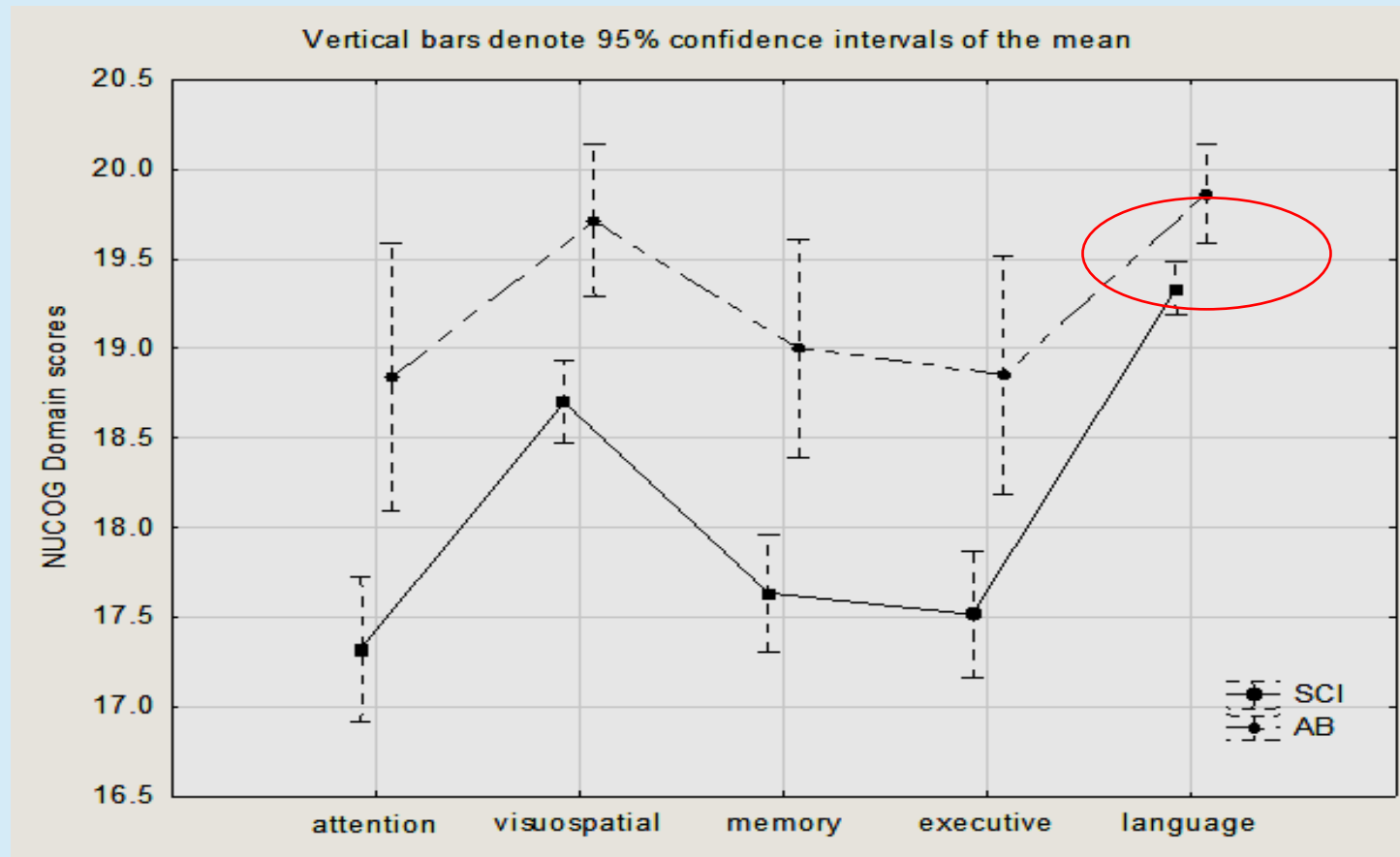
Presenter #3
Five-country perspectives on length of stay, rehabilitation and long-term outcomes

The shared focus is whether rehabilitation systems can recognise cognitive needs and provide enough tailored support.

Learning Objectives for this instructional course:

1. Describe the impact that SCI has on cognitive function in the first 12 months post SCI, and how moderators such as depression and other secondary conditions influence cognitive impairment (20 mins)
2. Discuss the importance of cognitive guidelines developed for SCI rehabilitation and the facilitators and barriers to their integration by multidisciplinary teams (20 mins)
3. Evaluate the relationship between cognitive impairment and length of stay in the SCI Unit and the possible impacts on adaptation (15 mins)
4. Questions (20 mins)

Cognitive performance in adults with SCI (N=150) compared to able-bodied controls (N=45) using the Neuropsychiatry Unit Cognitive Assessment Tool (NUCOG)



The SCI group had significantly poorer cognitive capacity compared to able-bodied controls ($p < .01$); all domains were significantly lower ($p < .05$), though there was little difference in language. Age, sex and education were covariates in the analysis

28.6% would be classified as cognitively impaired
(based on a cut-off NUCOG Total score of 88.5 or 1 SD below the norm)

16.6% (n=25) were 2 standard deviations below

The odds of an adult with SCI having cognitive impairment was 17.7 times greater than that for someone without SCI ($p < 0.01$, 95% CI: 2.4-132.4)

RESEARCH ARTICLE

Cognitive Impairment in Individuals With Spinal Cord Injury: Findings of a Systematic Review With Robust Variance and Network Meta- analyses

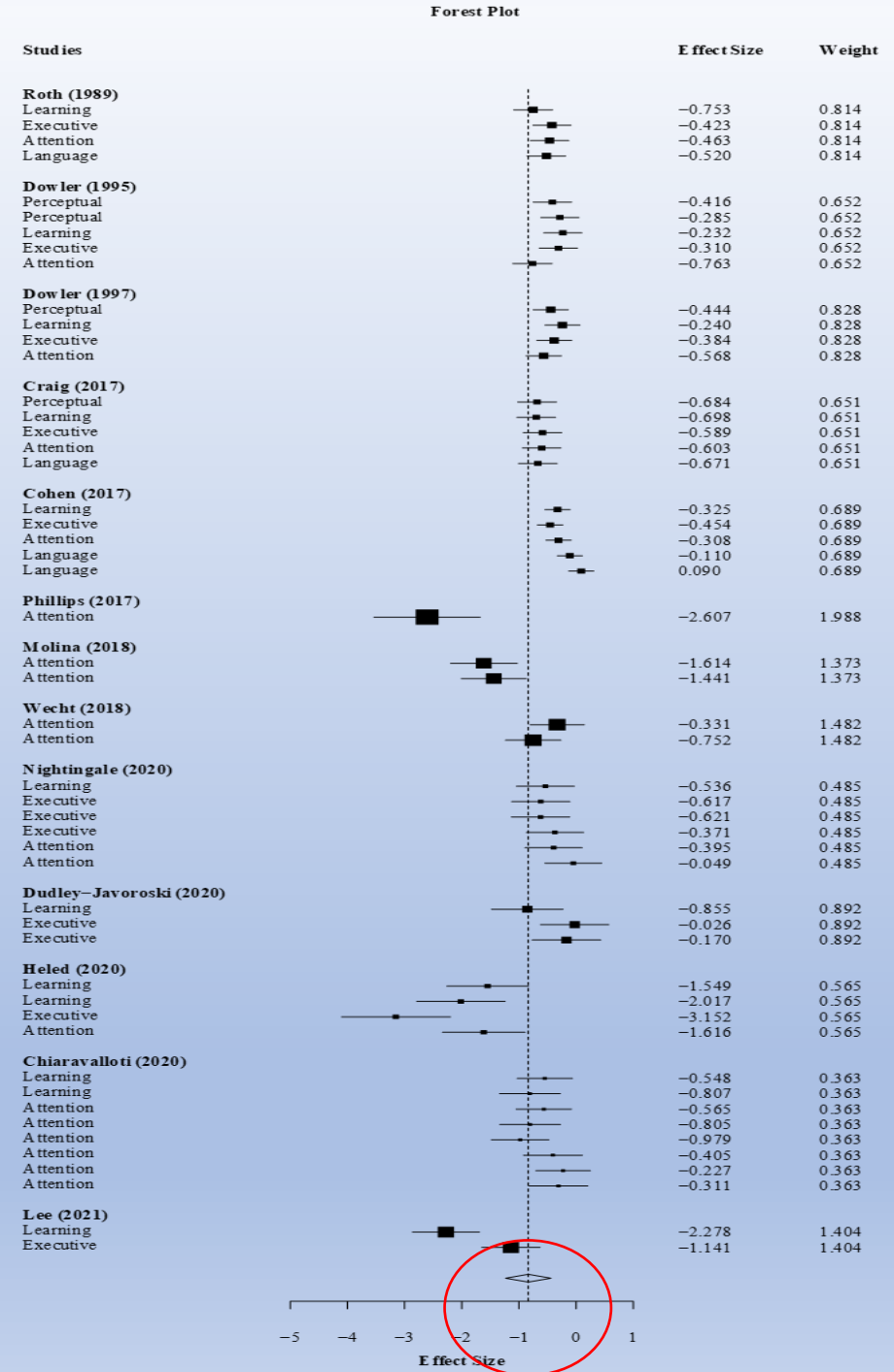
Danielle Sandalic, PhD, Ashley Craig, PhD, Yvonne Tran, PhD, Mohit Arora, PhD, Ilaria Pozzato, PhD, Candice McBain, PhD, Helen Tonkin, Grahame Simpson, PhD, Bamini Gopinath, PhD, Jasbeer Kaur, MBBS, Sachin Shetty, MBBS, Gerard Weber, MBBS, and James Middleton, PhD

Neurology

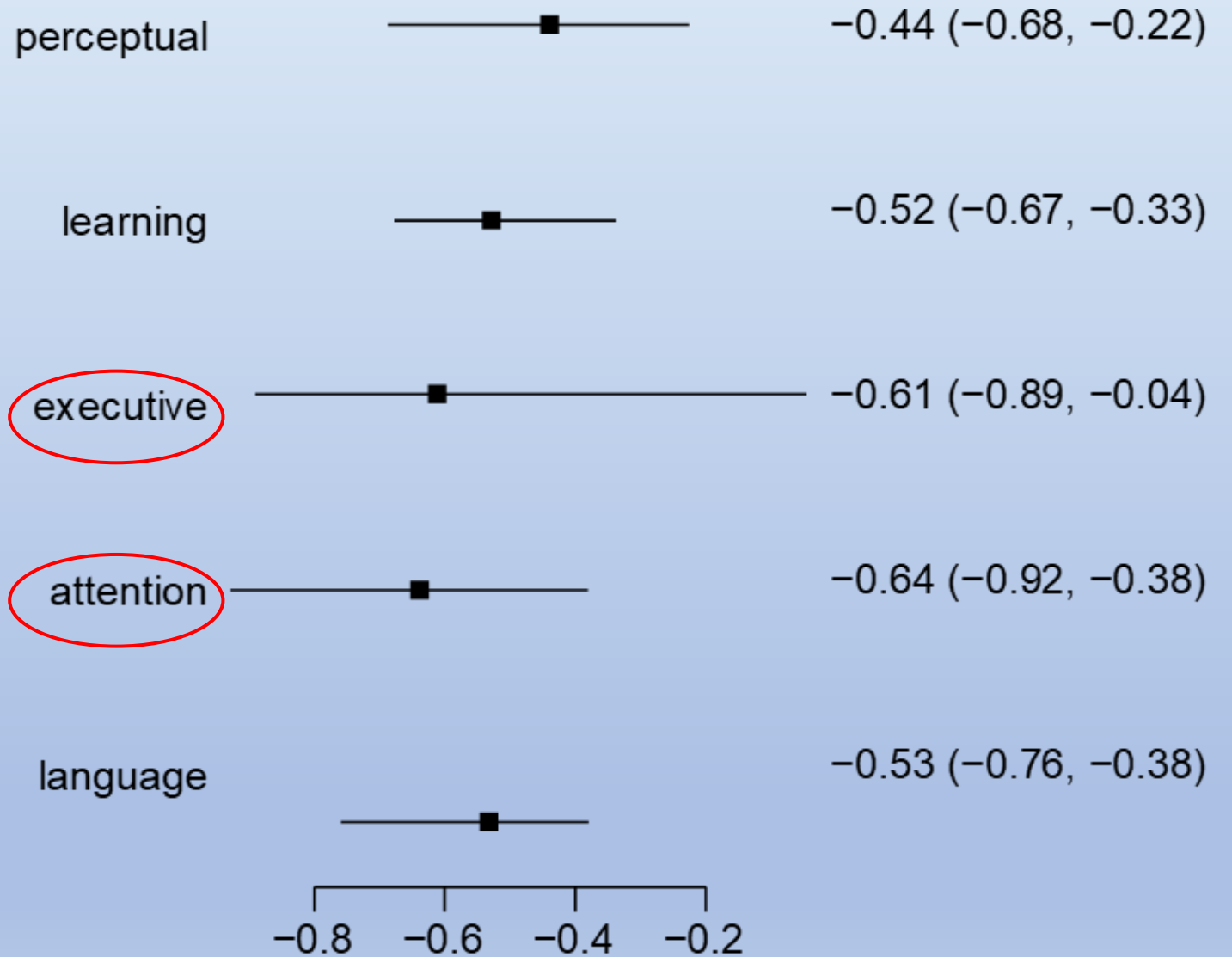
2022;99:e1779-e1790. [doi:10.1212/WNL.0000000000200957](https://doi.org/10.1212/WNL.0000000000200957)

Meta-analysis results for cognitive function after SCI

Overall differences: SCI participants had lower cognitive function compared to the able-bodied
 $g = -0.84$; 95% confidence interval 1.24, -0.44, $p < .001$



The cognitive domains
that are most affected
after SCI and which
therefore should
receive increased
emphasis?



Trajectory of cognitive function after spinal cord injury and factors influencing cognitive function over time

A prospective study from the subacute stage to 12-months post-injury

Acknowledgement of co-researchers:

Professor James Middleton; Dr Mohit Arora; Dr Ilaria Pozzato; Dr Candice McBain; Dr Yvonne Tran; Mr Daniel Myles, Dr Danielle Sandalic; Dr Jasbeer Kaur (Royal North Shore Hospital); Dr Sachin Shetty (Prince of Wales Hospital); Dr Gerard Weber (Royal Rehab)

The first longitudinal study to examine trajectories of cognitive function assessed from the subacute stage to 12-months post-injury

N=81 adults with SCI

The Neuropsychiatry Unit Cognitive Assessment Tool (NUCOG) was used to assess cognitive function which has a total score of 100; 5 domains: executive function, perceptual, attention, memory and language, each with a maximum score of 20

The sample was split into those with acceptable cognitive function (Higher NUCOG >88) and those with suspected cognitive impairment (Lower NUCOG ≤ 88)

Cognitive function over time was analysed using linear mixed-effects repeated-measures models to examine changes in the trajectory of cognitive function over 12 months and differences in trajectories between the two cognitive function groups.

In addition, attention and executive function were selected a priori for domain specific analyses

Results

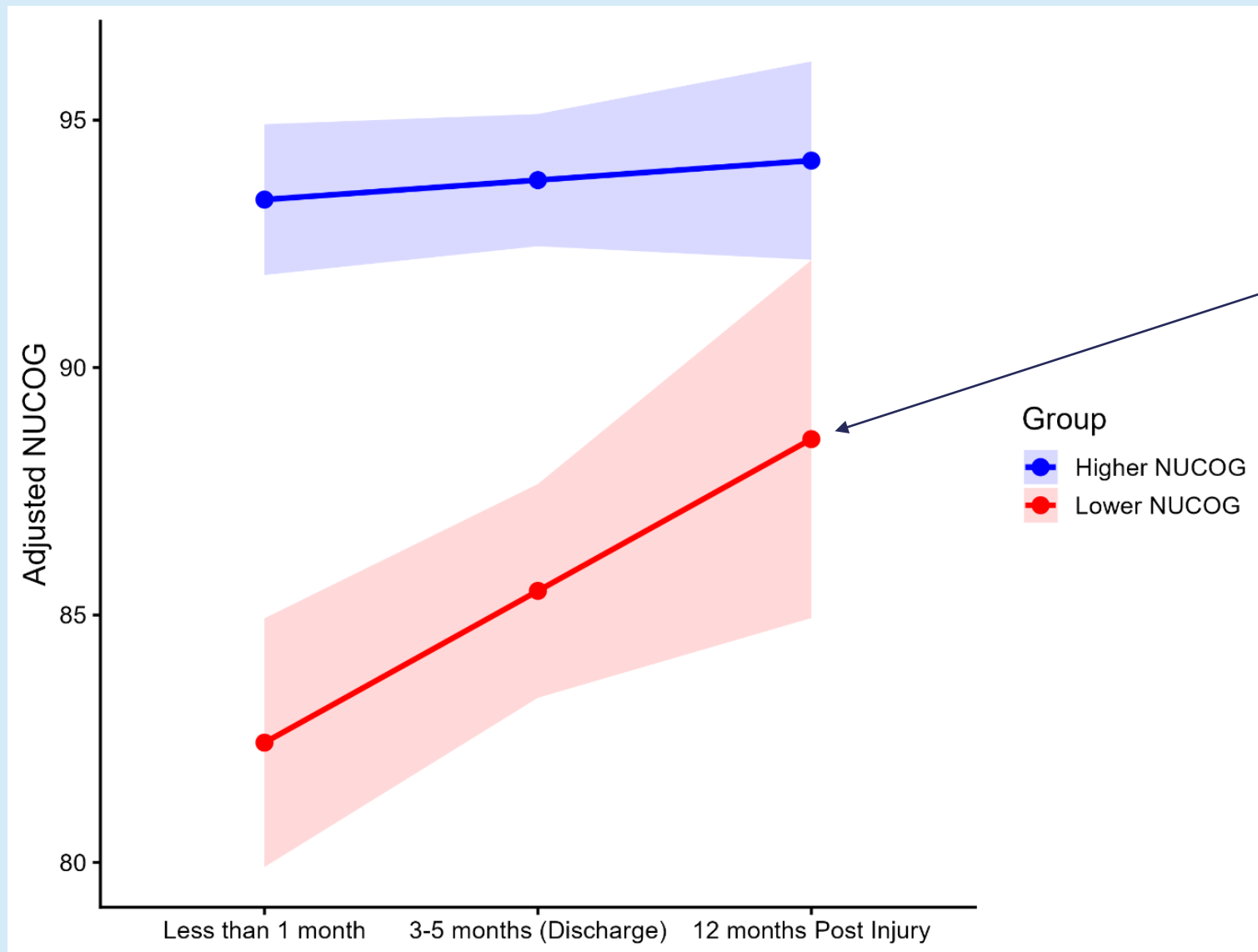
Total NUCOG scores significantly increased over 12-months, indicating improvement in cognitive function.

Probable cognitive impairment was identified in approximately 22–24% of participants

As expected, the Higher NUCOG group maintained significantly higher cognitive function scores than the Lower NUCOG group ($p < .001$) over the 12-months with no significant change over time

The Lower NUCOG group showed significant improvement in cognitive function over the 12 months ($p < .05$).

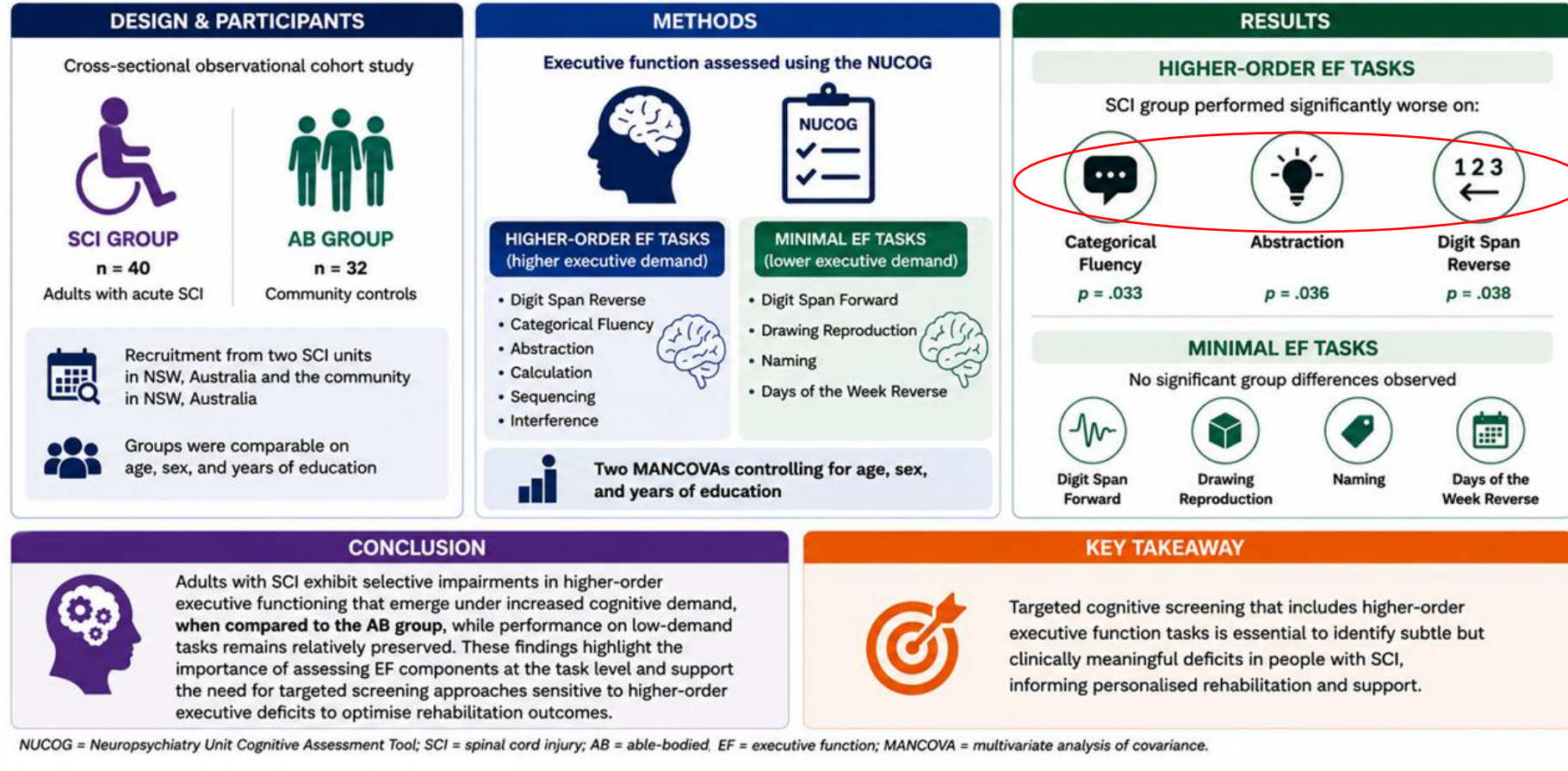
However, mean Lower NUCOG scores remained around the threshold for probable cognitive impairment at 12-months



Cut off for probable
cognitive impairment

Trajectory of adjusted cognitive scores in the sub-groups (Lower NUCOG ≤ 88 and Higher NUCOG > 88) over time in SCI participants with 95% confidence intervals shown

Spinal cord injury is associated with reduced cognitive capacity to self-regulate, organise and adapt to new situations

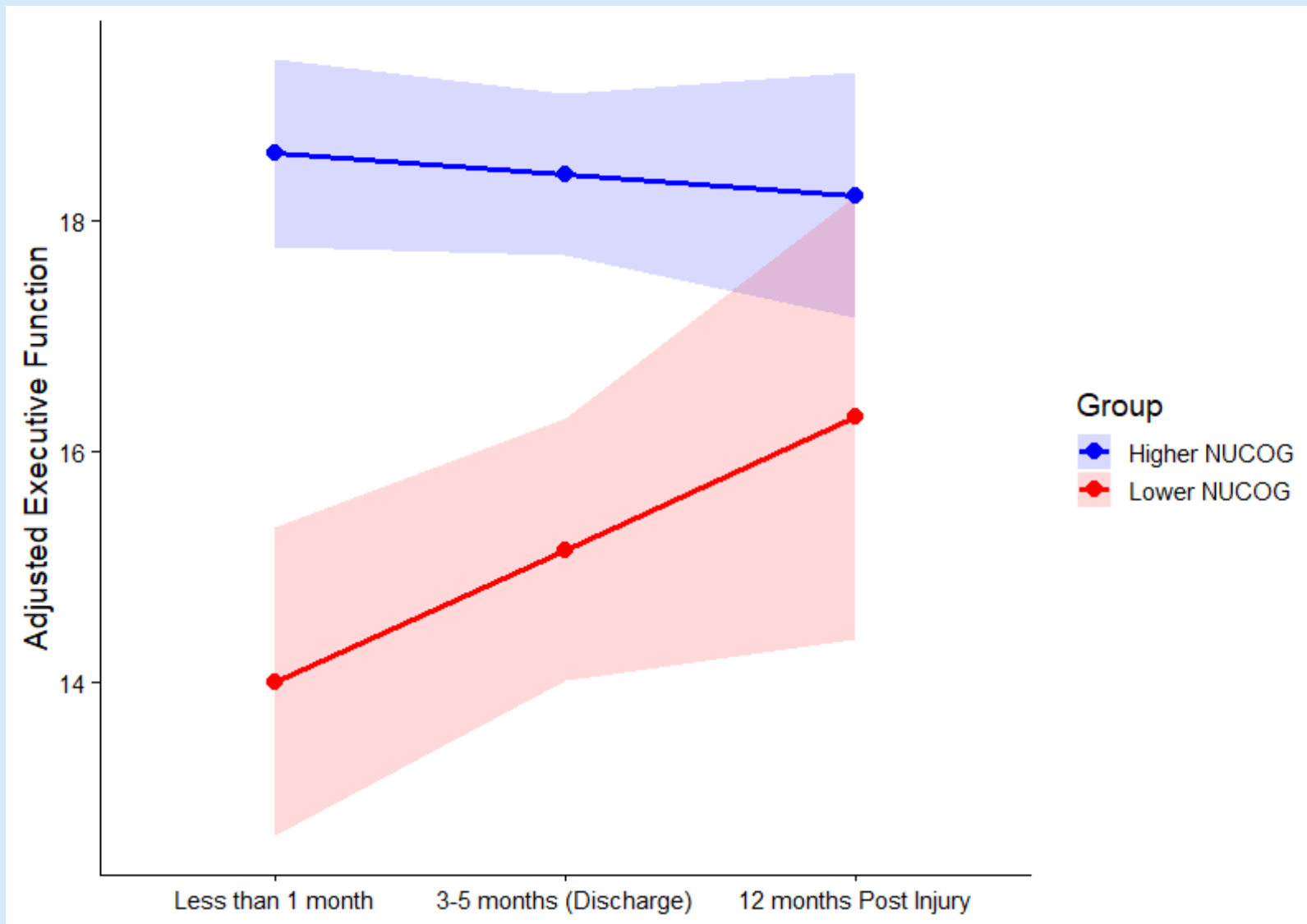


Myles, D., Sandalic, D., Gascoigne, M., Pozzato, I., Arora, M., McBain, C., Tran, Y., Middleton, J. W., & Craig, A. (2026). Spinal cord injury is associated with reduced cognitive capacity to self-regulate, organise and adapt to new situations. *Spinal Cord*, doi.org/10.1038/s41393-026-01264-4

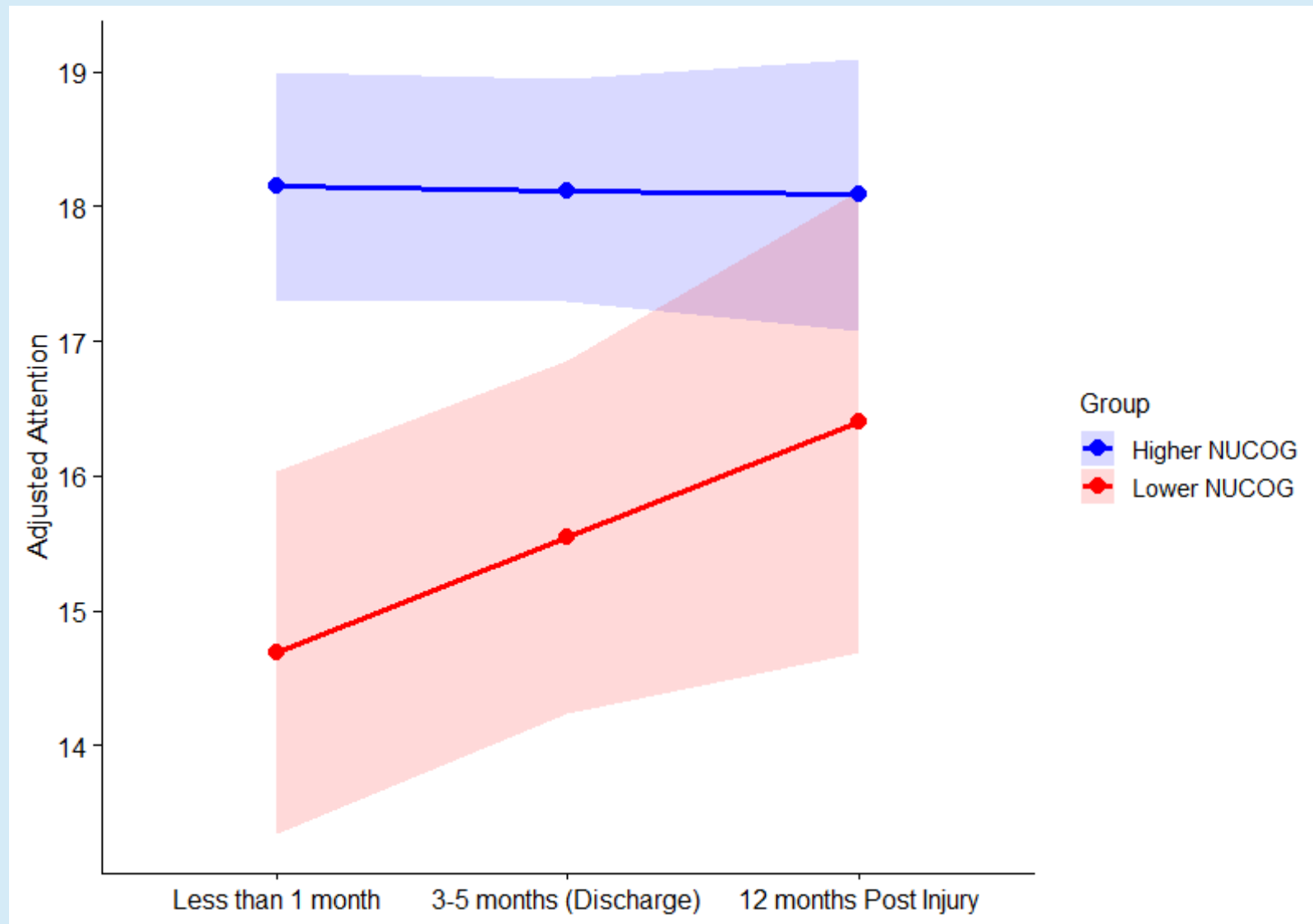
Executive functioning and attention domains are particularly relevant to rehabilitation following SCI because rehab involves learning comprehensive skills involving, among other things, self-regulation, organization, and adaptation to life with a SCI.

Deficits in these domains will negatively affect an individual's capacity to manage the complex and changing demands of rehabilitation and community living

Myles, D., Sandalic, D., Gascoigne, M., Pozzato, I., Arora, M., McBain, C., Tran, Y., Middleton, J. W., & Craig, A. (2026). Spinal cord injury is associated with reduced cognitive capacity to self-regulate, organise and adapt to new situations. *Spinal Cord*, doi.org/10.1038/s41393-026-01264-4



Trajectory of adjusted executive function scores in the sub-groups (Lower NUCOG ≤ 88 and Higher NUCOG > 88) over time in SCI participants with 95% confidence intervals shown



Trajectory of adjusted attention scores in the sub-groups (Lower NUCOG ≤ 88 and Higher NUCOG > 88) over time in SCI participants with 95% confidence intervals shown

The influence of moderators on cognitive function over the 12 months (depressive mood, anxiety, fatigue, sleep quality and satisfaction with social support)

While the cognitive impairment group had significantly higher depressive mood and anxiety scores, there was no evidence that changes in depressive mood or anxiety symptoms were differentially associated with cognitive function trajectories between the groups over time

No evidence that sleep quality was associated with cognitive function trajectories between the groups over time

Fatigue was significantly associated with cognitive function scores ($p < 0.05$). Participants reporting higher fatigue levels were more likely to have lower total NUCOG scores

Satisfaction with social support was significantly associated with cognitive function ($p < 0.05$). Participants reporting lower satisfaction with social support were more likely to have lower cognitive function

Age, sex at birth, education, type of injury, and severity of injury were not significantly associated with cognitive trajectories

Conclusions

Intensive SCI rehabilitation is a mentally and cognitively challenging time, involving multiple aspects of medical, physical and psychosocial recovery and is designed to support community reintegration.

If adults with SCI have cognitive impairment it most likely will adversely affect their adjustment and functional recovery.

It is imperative that barriers to cognitive impairment be recognized early so that ameliorative strategies can be utilized to optimize cognitive and neurological function.

Social support facilitates opportunities for social and cognitive engagement during recovery, and people with better cognitive functioning may be better able to establish supportive relationships

Fatigue is common after SCI and may compound cognitive difficulties during demanding rehabilitation activities. Therefore, assessment and appropriate management of fatigue is important during rehab.

While cognitive function improved during the first year after SCI, participants with lower cognitive function mostly remained around the threshold for probable cognitive impairment at 12 months.

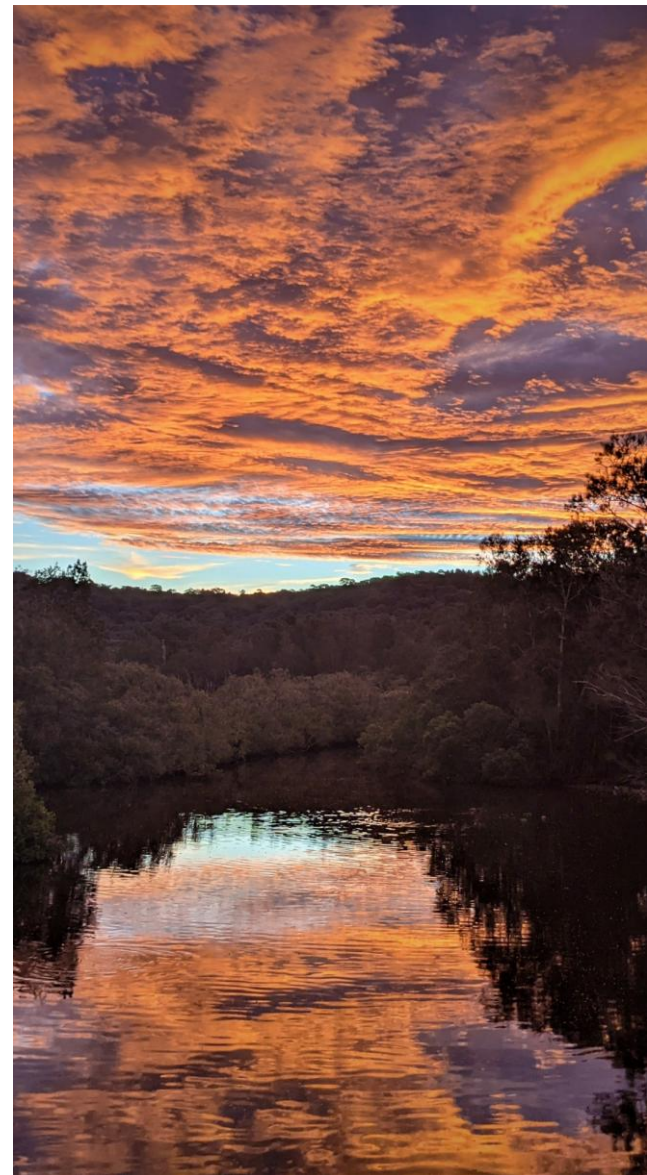
Cognitive difficulties should therefore not be assumed to resolve during inpatient rehabilitation, and early identification and ongoing monitoring is warranted throughout the transition from inpatient rehabilitation to community living.

Limitations

The Neuropsychiatry Unit Cognitive Assessment Tool (NUCOG) is not specific to SCI as it requires adjusting to make it hands free. We are currently working on boutique neurocognitive tools for SCI

Practice effects maybe associated with repeated administration of the NUCOG, which could have contributed to higher scores at long-term. However, there were long periods between cognitive testing and there is no consensus about an agreed minimum test-retest period between testing

Loss to follow-up was experienced in this study at discharge (a mean 4-6 months after the acute stage) and at 12 months. Therefore, linear mixed effects modelling was used to utilize available data





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Instructional Course: Spinal cord injury and cognitive function: Impacts on adaptation following injury and strategies for managing cognitive impairment



From Cognitive Evidence to Routine SCI Rehabilitation

Developing and integrating cognitive impairment guidance across three specialist spinal cord injury units

Dr Mohit Arora

Senior Research Fellow

John Walsh Centre for Rehabilitation Research

The University of Sydney, Australia



THE UNIVERSITY OF
SYDNEY

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Cognitive impairment changes what rehabilitation can achieve

17–36%

estimated prevalence after SCI
in the guideline evidence base

LEARNING

New self-management skills and
safety routines

PARTICIPATION

Goal setting, communication
and shared decisions

INDEPENDENCE

Medication, equipment and
community transition

**Cognition may improve over the first year, but persistent impairment means
rehabilitation cannot rely on spontaneous recovery alone.**

Rationale



Need

- Psychosocial rehabilitation – was neglected in the past
- *Prof Paul Kennedy* – NSW Ministry of Science Spinal Exchange Fellowship



Objectives

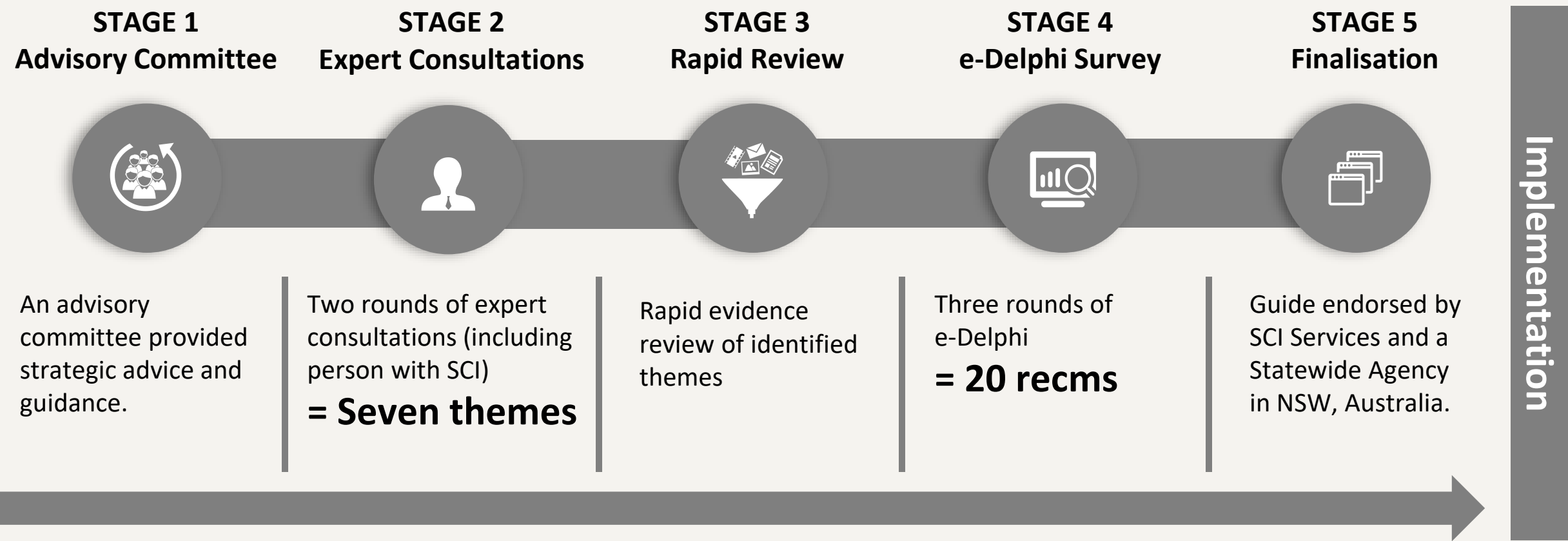
Provide direction for the appropriate provision of psychosocial care for people with SCI.



Recommendations

- Management of psychosocial adjustment and co-morbid psychosocial disorder
- **Management of those with cognitive impairment.**

Methodology



Source: Arora et al., Evidence based recommendations for health professionals, Spinal Cord 64 (2026), 165–176.

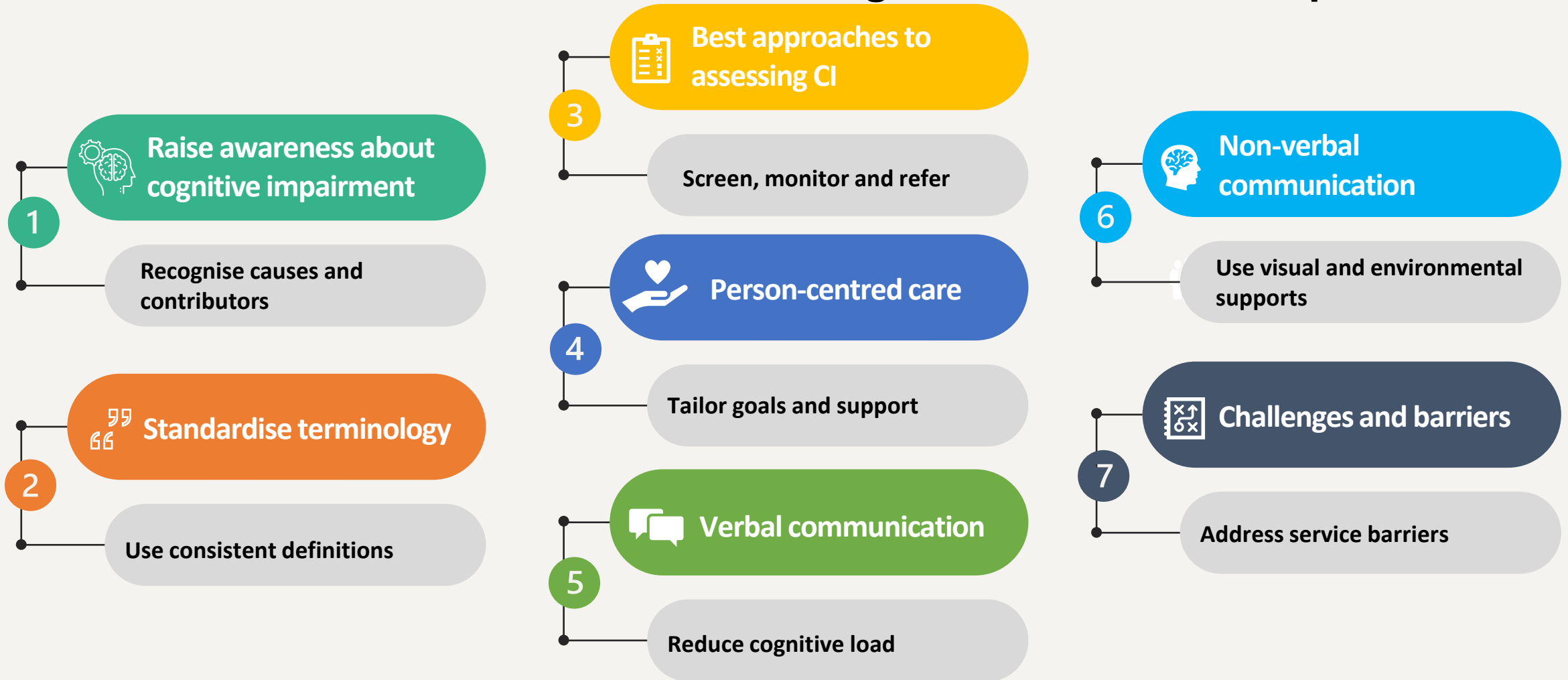
The 2023 guide made cognition part of psychosocial care

Consensus pathway

- ✓ Multidisciplinary advisory committee and expert consultation
- ✓ Rapid evidence review across seven themes
- ✓ Three-round e-Delphi process
- ✓ 47 accepted statements forming 20 recommendations
- ✓ Primary end users: multidisciplinary clinicians across acute, rehabilitation and community settings

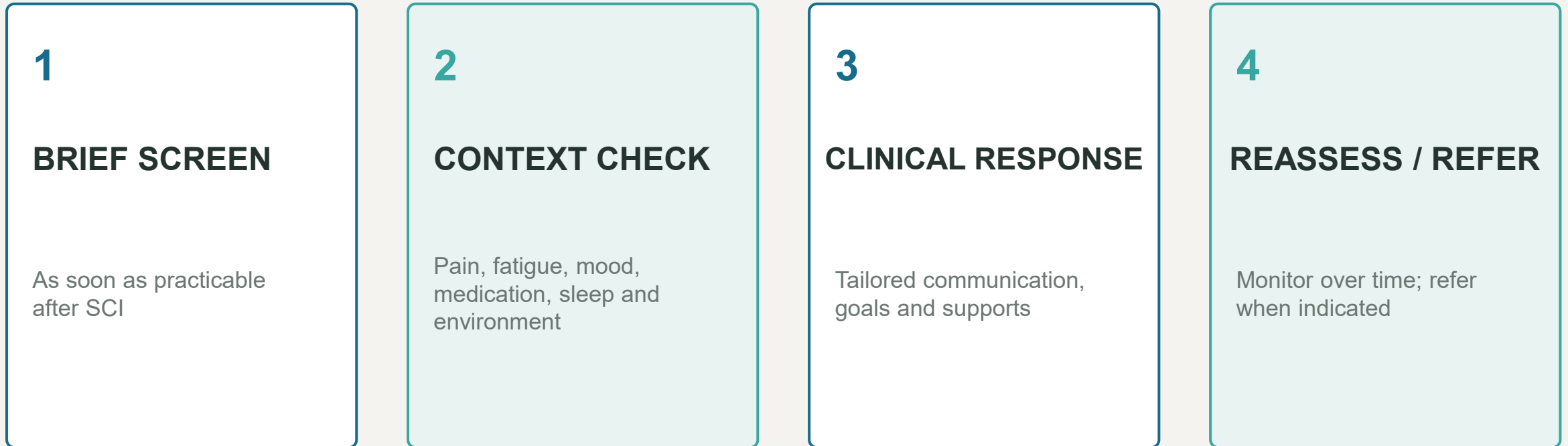
Multidisciplinary ownership - Central issue for implementing the guide in practice

Seven themes with 20 recommendations organise the clinical response



The guideline connects identification with changes to care, communication and systems.

Screen early, interpret context, then adapt care



Clinical discretion matters: defer direct testing when a person is acutely unwell and use collateral history until they can participate.

Current cognitive screens do not fully fit SCI

127

participants completed
the NUCOG

17–36%

classified with MCI depending
on the criterion used

An SCI-fit screen should...

- ✓ Allow hands-free or motor-adapted administration
- ✓ Prioritise domains affected after SCI, including attention, executive function and processing speed
- ✓ Use consistent impairment criteria
- ✓ Separate cognitive capacity from transient clinical burden

The NUCOG differentiated cognitive capacity, but several domain models showed limited fit.

Implementation was designed as a service change study



Mixed methods

- ✓ HCP surveys
- ✓ Interviews and focus groups
- ✓ Patient interviews
- ✓ Ethnographic observations

Implementation lens

CFIR-informed analysis across individual, team, organisational and health-system factors.

Primary aim: embed the 2023 Psychosocial Care Guide into routine practice and evaluate barriers and facilitators.

The intervention combined education with workflow supports

PRACTICAL LEARNING

- ✓ Hybrid workshops
- ✓ ACI case studies
- ✓ One-hour or two shorter sessions

ACCESS

- ✓ Short online resource
- ✓ Revision on demand
- ✓ Coverage for rotating and weekend staff

ROUTINE REINFORCEMENT

- ✓ Multidisciplinary meetings
- ✓ Psychosocial huddles
- ✓ Orientation and onboarding

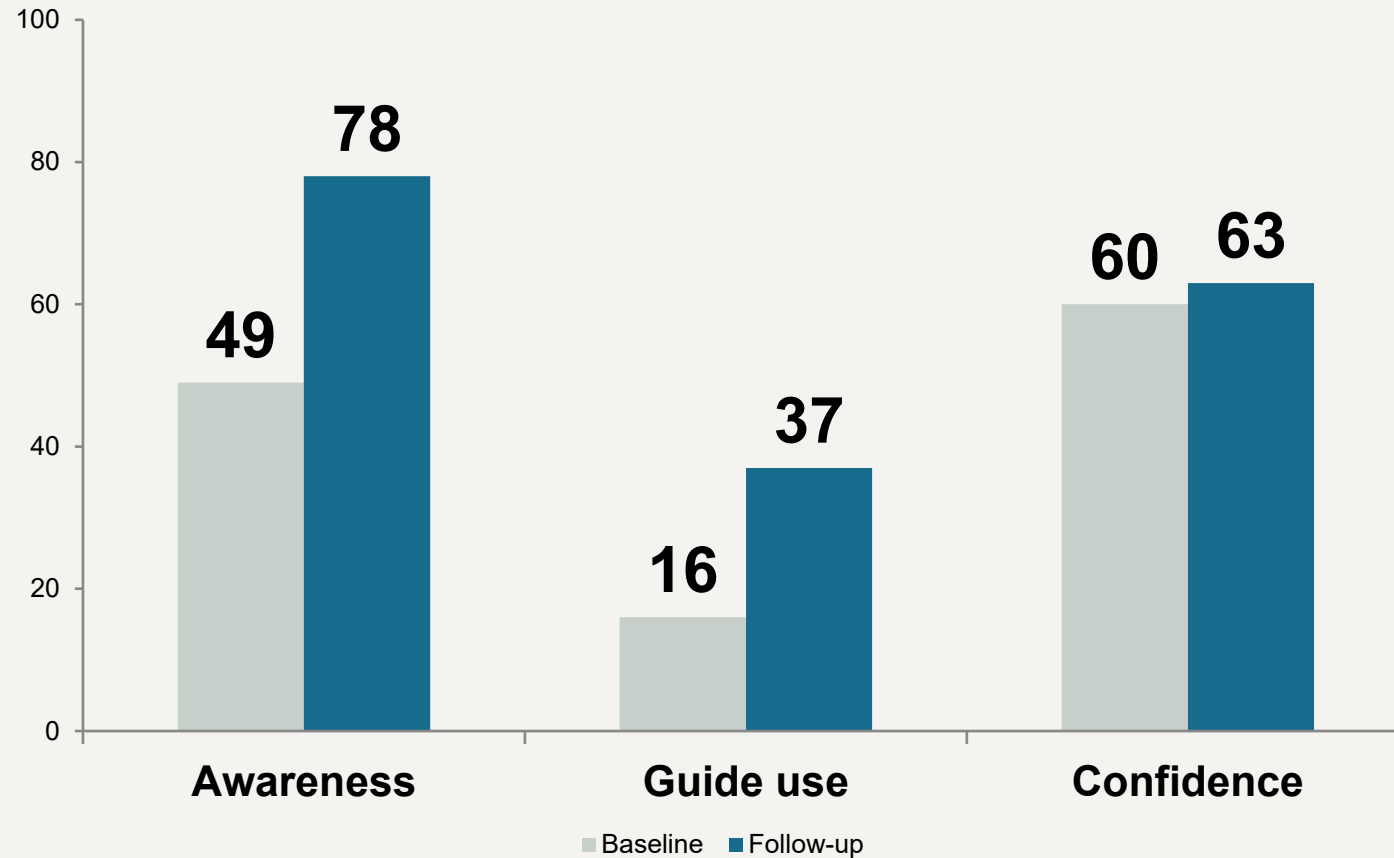
LOCAL OWNERSHIP

- ✓ Leadership endorsement
- ✓ Psychosocial champions
- ✓ Email and infographic nudges

Repeated, accessible reinforcement was necessary because a single launch could not reach all roles and shifts.

Source: SCI Cog 2 implementation notes; McBain et al. (2025).

Awareness rose faster than routine use



+29 pp

increase in awareness

+21 pp

increase in self-reported use

Knowledge improved, but translation into consistent practice remained incomplete.

Source: Preliminary survey findings; values are self-reported.

Four barriers explain the implementation gap

01 CAPACITY

60% still reported difficulty using a psychosocial approach alongside other demands

02 ROLE CLARITY

About one-third still viewed psychosocial care as outside their expertise

03 PRACTICAL SUPPORT

Staff wanted assessment tools, prompts and help translating guidance into workflows

04 REACH

Night, weekend and rotating staff could miss training and communication

Dissemination alone will not close these gaps.

Source: SCI Cog 2 implementation preliminary analysis

Implementation accelerates when the system carries the work



VISIBLE LEADERSHIP

Unit directors and managers endorse the work

LOCAL CHAMPIONS

Peers keep the guide visible and support questions

EXISTING RHYTHMS

Case conferences, MDT meetings and a weekly psychosocial huddle

ACCESSIBLE RESOURCES

Brief online learning, orientation material and reminders

The strongest facilitators embed cognition within ordinary multidisciplinary practice, rather than adding a parallel program.

A minimum cognitive workflow for every SCI unit

POINT	ACTION	OWNERSHIP
ADMISSION	Identify risk and complete a brief screen when clinically appropriate	Medical + nursing + allied health
GOAL SETTING	Document cognitive strengths, needs and communication preferences	Whole MDT with the person & family
DAILY REHABILITATION	Use consistent verbal, visual and environmental supports	Every clinician, every shift
CASE REVIEW	Discuss changes, barriers and referral needs in existing meetings	MDT / psychosocial huddle
TRANSITION	Reassess, hand over supports and plan follow-up	Inpatient + community teams

Sources: Synthesis of the cognitive guideline and current implementation findings.

The next implementation questions concern reach and sustainability

REACH

Do night, weekend, rotating and community teams receive the same support?

FIDELITY

Do screening results reliably change communication and care plans?

PATIENT EXPERIENCE

Can people with SCI recognise tailored psychosocial and cognitive care?

SUSTAINABILITY

Do huddles, champions, orientation and prompts continue after active implementation?

Ongoing evaluation includes HCP and patient surveys, interviews, focus groups and ethnographic observation.

Three messages for practice

-  **Persistent cognitive impairment requires a planned service response, even when average cognition improves over time.**
-  **SCI rehabilitation needs accessible screening, consistent criteria and assessment linked directly to tailored care.**
-  **Guidelines move into practice when teams embed them in roles, meetings, training, prompts and leadership structures.**

Scan the QR code to
access the resources



Key sources

1. NSW Agency for Clinical Innovation. Psychosocial care of adults with spinal cord injuries guide: Recommendations. Sydney: ACI; 2023.
2. Arora M, Middleton J, Sarandrea AM, Pozzato I, McBain C, Myles D, Tran, Y, Kaur J, Craig A. Evidence based recommendations for health professionals to improve care of people with spinal cord injury and cognitive impairment: An update to the psychosocial clinical practice guide. *Spinal Cord*. 2026; 64 (2): 165–76. [10.1038/s41393-025-01124-7](https://doi.org/10.1038/s41393-025-01124-7)
3. Sandalic D, Tran Y, Craig A, **Arora M**, Pozzato I, Simpson G, Gopinath B, Kaur J, Shetty S, Weber G, Benad L, Middleton JW. The Need for a Specialized Neurocognitive Screen and Consistent Cognitive Impairment Criteria in Spinal Cord Injury: Analysis of the Suitability of the Neuropsychiatry Unit Cognitive Assessment Tool. *Journal of Clinical Medicine* 2022: 11 (12): 3344. <https://doi.org/10.3390/jcm11123344>
4. McBain C, Sarandrea AM, Pozzato I, Arora M, Myles D, Bourke J, Tran Y, Cameron ID, Middleton JW, Craig A. Implementing psychosocial guidelines into specialized spinal cord injury rehabilitation services to strengthen person-centred health care: protocol for a mixed methods study. *Front. Rehabil. Sci.* 2025; 6: 1537890. [10.3389/fresc.2025.1537890](https://doi.org/10.3389/fresc.2025.1537890)
5. SCI Cog 2 implementation Infographics.

Acknowledgements

Authors: Mohit Arora, Ashley Craig, James Middleton, Ilaria Pozzato, Candice McBain, Daniel Myles and Yvonne Tran.

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Anne Maria Sarandrea (2024-Ongoing)

Endorsed by: SCI Unit Clinical Directors - Jasbeer Kaur (RNSH), Gerard Weber (RR) and Sachin Shetty (POWH).

Advisory Committee Members (other than listed above):
Annalisa Dezarnaulds, Alison Hales, Catherine Ephraums, Danielle Sandalic, Grahame Simpson, Jackson Singleton, Joe Hanna, Lisa Benad, Lisa Harvey, Lynn Blecher, Nick Taylor, Ruyi Yao and Wilhelmina Long.

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“

*Knowing is not enough, we must apply.
Willing is not enough, we must do.*

”

... Johann Wolfgang von Goethe

THANK YOU!

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Mohit Arora





Thursday, October 8, 2026, 5:00 - 6:15 pm

Instructional Course: Spinal cord injury and cognitive function: Impacts on adaptation following injury and strategies for managing cognitive impairment



Inpatient Rehabilitation Experiences and Preparedness for Discharge: Perspectives of People with Spinal Cord Injuries, Care Partners, and Rehabilitation Clinicians

Prof Allen Heinemann
Northwestern University
Chicago USA



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Objectives



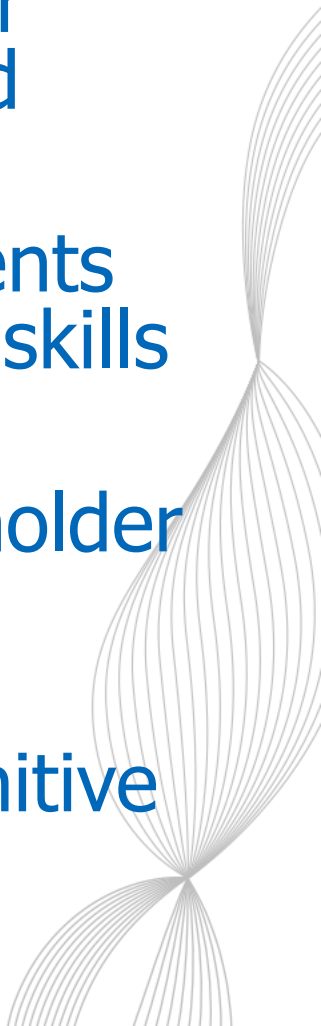
1. Describe and compare how people with spinal cord injuries (PwSCI), care partners, and rehabilitation clinicians experience inpatient rehabilitation
2. Examine how rehabilitation prepares patients and care partners for discharge and community integration
3. Identify barriers and facilitators to discharge preparedness, including length of stay (LOS)
4. Situate these experiences within the session theme: how cognitive demand and cognitive impairment shape learning, adaptation, and readiness during rehabilitation
5. Translate stakeholder perspectives into implications for practice and policy



Why This Study Speaks to the Session Theme



- Cognitive impairment is common after SCI (22-29% at or below the NUCOG threshold), and executive function and attention are most affected
- Inpatient rehabilitation is where that matters most: patients and care partners must learn complex self-management skills under time pressure
- This study examines the same transition from the stakeholder side: what actually prepares people for discharge and community living
- It bridges Objectives 1 and 2 to Objective 3, linking cognitive findings to length of stay and adaptation



Background: Why Length of Stay Matters



- Community reintegration is a central rehabilitation goal, yet many PwSCI feel unprepared for discharge and face barriers to independent living
- Longer LOS is associated with greater functional gains and time to train patients and care partners
- Prospective payment ties LOS to case mix rather than daily cost, creating pressure to shorten stays; U.S. LOS has declined steadily since 2002
- Therapy dose alone explains little outcome variance, raising the question of what actually prepares people for community living
- Specialized SCI programs produce better clinical and functional outcomes than generalist programs



Research Questions



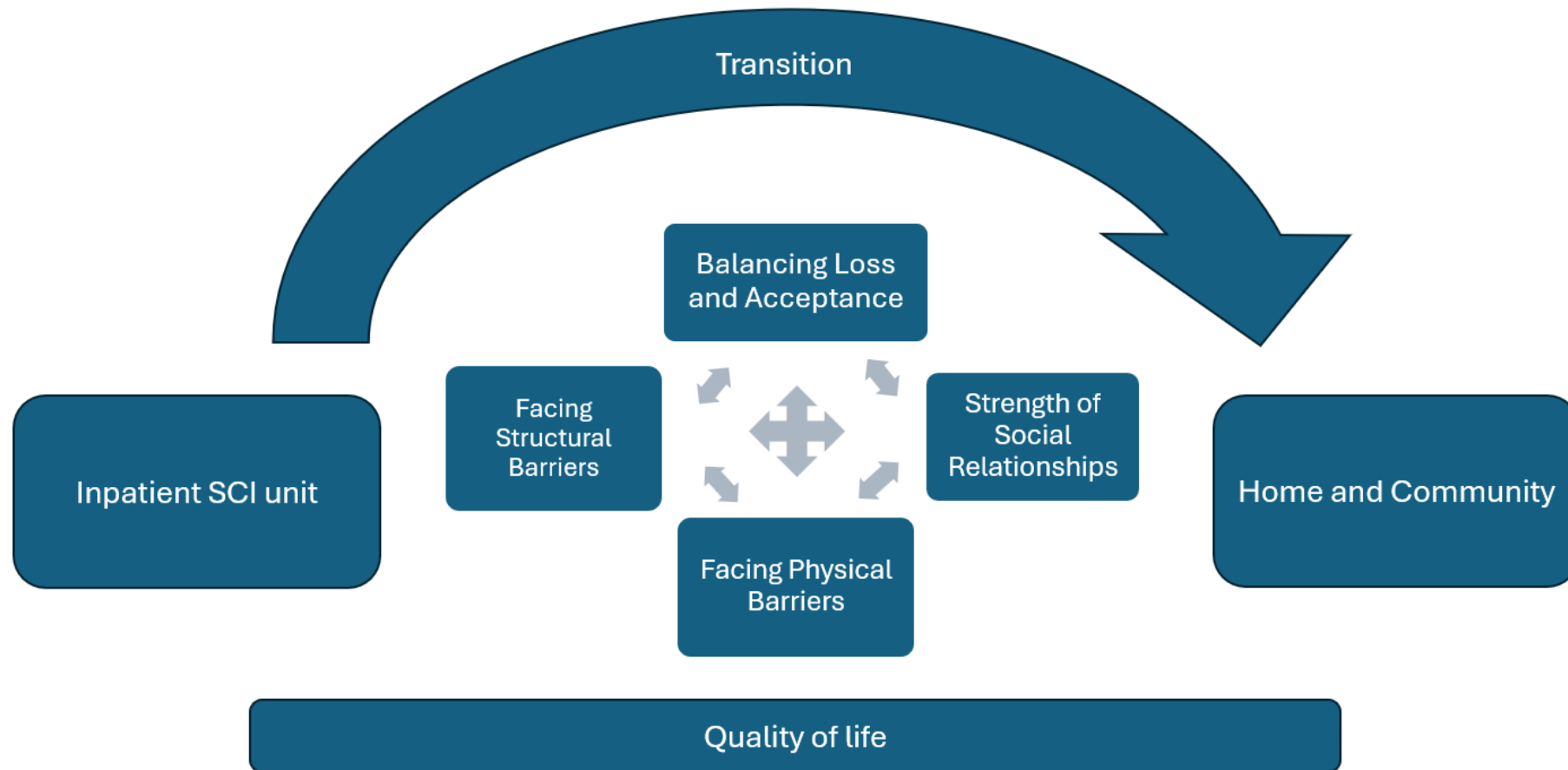
1. What barriers during inpatient rehabilitation influence preparedness for discharge and for a satisfying life in the community?
2. What facilitators during inpatient rehabilitation prepare people with SCI for discharge and community living?
3. How do the perspectives of people with SCI, care partners, and clinicians converge and differ?
4. Framework: transition from rehabilitation to community shaped by transfer of knowledge and skills, structural barriers, balancing loss and acceptance, and strength of relationships



Transition from Hospital to Community



Adapted from Weber et al. (2021), Anderson et al. (2024), and Tsoy et al. (2025)



Methods: Design and Sample



- Phenomenological design with separate stakeholder focus groups
- Recruited through SCI Model Systems contacts and listservs, seeking variation in injury, demographics, and setting
- Eligibility: adults in the U.S.; people with SCI discharged over a year earlier; care partners involved a year or more; clinicians with 5+ years of experience
- Three 90-minute Zoom focus groups in 2024, guided by the transition framework and an advisory committee



Focus Group Topics



- Goals for inpatient rehabilitation and how they were set
- Preparedness for discharge: education, training, and emotional readiness
- Experience of returning home and re-entering the community
- Skills acquired for self-management and independent living
- Care partner preparation, role changes, and problem solving
- Clinician views on goal setting, length of stay, and discharge planning
- Structural and environmental barriers affecting length of stay

Data Analysis



- Descriptive statistics
- Demographic, injury, and clinician practice characteristics
- Thematic analysis
- NVivo used to organize transcripts; three coauthors coded independently
- Mixed deductive-inductive approach beginning with framework codes, then descriptive coding of emergent constructs
- Themes reviewed against data segments, refined, and named until saturation
- Rigor
- Coding discrepancies discussed to consensus; audit trail of field notes and analytic memos supported confirmability and dependability



Sample: People with SCI, Care Partners, and Clinicians



	People with SCI (n=9)	Care Partners (n=11)	Clinicians (n=8)
Sex			
Male	55.6	45.5	12.5
Female	44.4	54.5	87.5
Race			
White	66.7	45.5	87.5
Black/African American	22.2	45.5	0
Other/Asian	11.1	9.1	12.5
Age (mean, range, sd)	47.1, 19-73, sd=20.1	47.5, sd=16.1	40.5, sd=8.6
Etiology			—
Traumatic	77.8	Not reported	—
Non-traumatic	22.2	Not reported	—
Level of injury			
Paraplegia	55.6	45.5	—
Tetraplegia	44.4	54.5	—
Complete injury	55.6	45.5	—
Years since injury / providing care	18.1, 4-48, sd=15.1	3.3, sd=2.6	13.4 yrs SCI care, sd=5.7
IP LOS (mean, range, sd) days	100.4, 29-210, sd=66.1	67.1, 2-150, sd=35.8	—

Themes: Barriers and Facilitators



- **Barriers:** discharge unpreparedness; inadequate length of stay; challenges during rehabilitation and transition
- **Facilitators:** individualized goals; patient-centered care; adequate length of stay
- People with SCI and care partners shared subthemes; clinicians raised distinct ones



Barrier 1: Discharge Unpreparedness



People with SCI

- Discharge often came before people could manage catheterization, bowel programs, or skin care; education felt rushed, generic, and hard to absorb.
- "I didn't have enough time because it's all my insurance would pay for, so I was sent home way before I could do anything on my own." (Eric)
- "I was not much prepared because mentally, physically, environmentally, nothing was really set." (Amber)

Care Partners

- Training did not match the physical demands and emotional strain care partners met at home, where inaccessible doorways, baths, and kitchens appeared.
- "At first, I thought I was prepared... Not until I actually got there, and I came to realize that I wasn't really prepared." (Eddie)
- "You think you're prepared. They give you a bed and the Hoyer... I didn't sleep for a very long time because I was afraid he was going to die." (Kate)

Barrier 2: Inadequate Length of Stay



People with SCI

- Discharge dates tracked insurance limits rather than readiness; even those granted extensions still felt rushed.
- "I was only in rehab for 5 weeks... I think I'd be a lot further along today. So, it was too short." (Doris)
- "I got my length of stay extended several times and I still feel like I could have benefited from staying longer." (Grace)

Care Partners

- Short stays limited preparation and shifted burden onto families, especially when illness interrupted therapy.
- "He was so sick he couldn't even make physical therapy multiple days in a row, so he never really got that full rehabilitation time. And before you know it, we were out the door." (Carmen)
- "I think we need to extend his stay so we can make sure you really understand what's going on." (Amy)

Clinician Perspectives on Length of Stay



Pressures to Shorten Stays

- Administrators benchmark against national average LOS, which fails to account for varied patient needs; quick turnaround crowds out psychosocial adjustment and community preparation.
- "We can barely scratch the surface on some patients because the psychosocial adjustment piece just doesn't happen in the timeframe that we have with them." (Danielle)

Risks of Stays That Are Too Long

- Clinicians cautioned that home and community are themselves therapeutic.
- "The longer they're within this type of controlled setting, the more an institutionalized mindset can develop... There's a greater risk for exposure to infections." (Kendall)

Barrier 3: Challenges during Rehabilitation and Transition



People with SCI and Care Partners

- Limited knowledge of SCI at admission, therapies that felt generic or poorly timed, and medical complications that delayed progress.
- Care partners lacked guidance for choosing facilities, equipment, and outpatient providers.
- "If we would have had a list of some of the best SCI places to go for rehab, we would have totally picked somewhere else."
(Amy)

Clinicians

- Medical instability, scarce placements, limited family support, and delays in home modifications and equipment complicate discharge planning.
- "Frequently patients' homes are inaccessible and very difficult to modify."
(Marge)
- "They're probably never going to see an SCI therapist again... it's tough to pass them off when there's no level of care waiting for them."
(Danielle)

Facilitator 1: Appropriate Rehabilitation Goals



People with SCI and Care Partners	Clinicians
● Individualized goals motivated engagement: mobility, strength, pain management, independence, and return to work or valued activities. ● "My goal originally was to gain my independence back, my strength, and to educate myself on the other side of spinal cord injuries." (Doris) ● "The goal was just to get as much function as possible, teaching me really about the bladder." (Renee)	● Goal setting is iterative and interdisciplinary, balancing professional expertise with patient preference and revisited throughout the stay. ● "We set goals based on a mixture of objective and subjective data... we gather the patient's personal goals. And then we revisit our goals every week." (Kendall)

Facilitator 2: Patient-Centered Care



People with SCI and Care Partners

- Control over decisions, therapies tailored to personal goals, and practical education on bowel and bladder care, skin, and nutrition built confidence.
- "Occupational therapy really was a game changer because I'm an artist... your life needs to start with what you need to do." (Amber)
- "The training was really helpful, and it gave me the confidence I needed to take care of him at home." (Renee)

Clinicians

- Person-centered care means seeing the whole person and advocating for what patients need.
- "Looking at the person multidimensionally... psychosocial wise, support system wise, community resource wise." (Kendall)
- Clinicians used documentation and team meetings to advocate for an appropriate length of stay and a safe discharge setting.



Facilitator 3: Adequate Length of Stay



- Some people with SCI described stays of 5-7 months as sufficient time for recovery, skill building, and realistic goal setting
- One care partner described 6 months as adequate, allowing practice of caregiving tasks and confidence before returning home
- Clinicians generally viewed the national average LOS as too short for many people with SCI
- Benefits of longer stays: additional therapies patients may not access after discharge, emotional adjustment time, family training, and reduced caregiver burden
- "Longer lengths of stay get us more functional, get us more confident, and get families more trained." (Heather)
- "Recognizing that home and being in the community can be interventions themselves is important." (Drew)

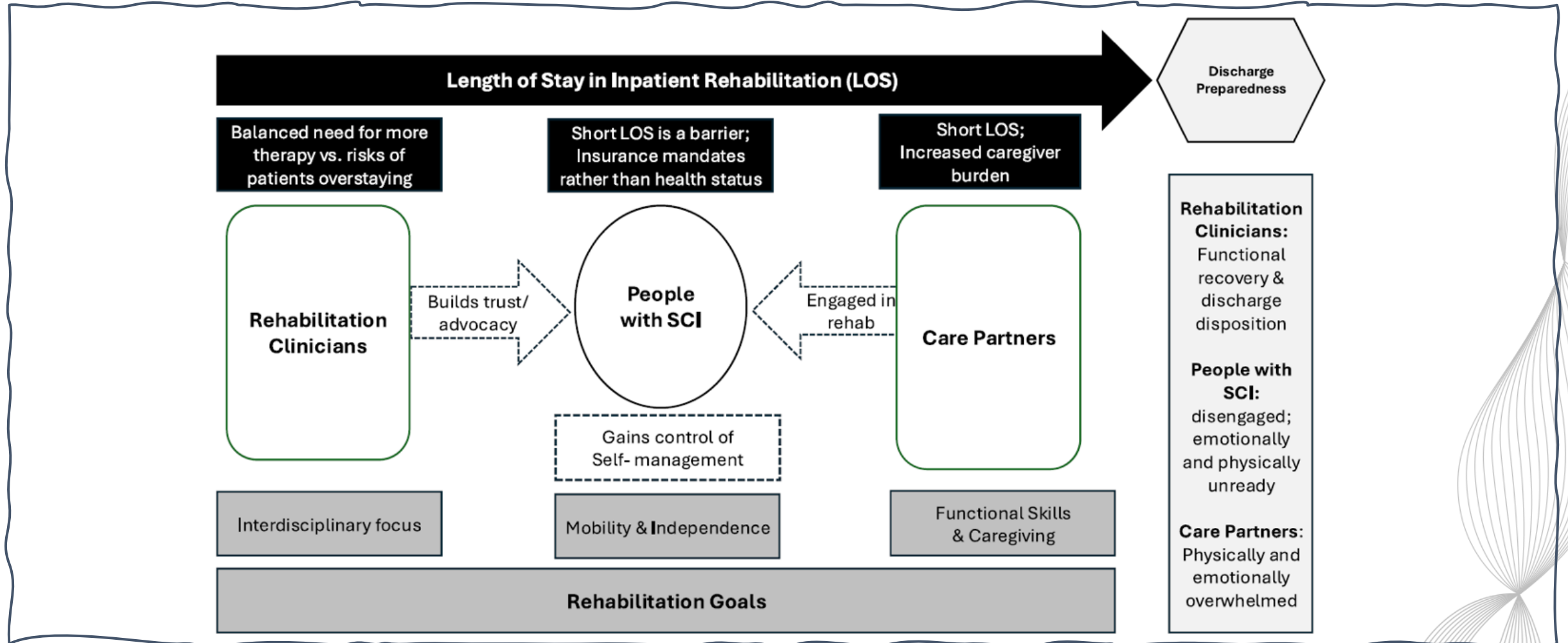


Similarities and Differences across Stakeholders



- **Shared themes:** length of stay, rehabilitation goals, and patient-centered care shape discharge preparedness
- **Insider vs. outsider views:** people with SCI and care partners saw longer stays as essential to function and confidence; clinicians balanced patient needs against payer and system demands
- **Patient-centered care:** insiders emphasized control, knowledge, and coping; clinicians emphasized trust, communication, and advocacy
- **Goals:** insiders focused on mobility, independence, and reintegration; clinicians on the iterative, interdisciplinary process of setting them
- All groups called for attention to emotional and mental health needs, often deprioritized relative to function
- Regardless of how prepared participants felt, all met challenges they did not anticipate

Stakeholder Perspectives on Length of Stay and Goals



What This Means for Managing Cognitive Impairment after SCI



- **Rehabilitation is a cognitive task;** participants described education that felt rushed, generic, and hard to absorb, precisely the conditions that expose deficits in attention and executive function
- **Length of stay is cognitive dose;** if cognitive function is still near the impairment threshold at 12 months, learning cannot be assumed to be complete at discharge
- **Fatigue and social support recur in both datasets;** both predicted lower cognitive scores in the longitudinal study and both surfaced repeatedly as barriers in the focus groups
- **Care partners are the cognitive safety net;** when patient learning is compromised, unprepared families absorb the gap, as the discharge accounts make clear
- **Emotional and mental health needs were deprioritized by every stakeholder group,** mirroring the elevated depressive mood and anxiety seen in the cognitive impairment group
- Screen early, teach in ways that accommodate impairment, and continue monitoring past discharge

Conclusions and Implications for Practice and Policy



Conclusions

- Inpatient rehabilitation is the foundation of a long journey, not its completion
- Most people with SCI and care partners felt stays were too short
- Clinicians set length of stay by patient need within system constraints
- Flexible, individualized stays support community integration

Implications

- Set and re-evaluate individualized functional and psychosocial goals
- Screen for cognitive impairment early and adapt teaching to attention and executive function demands
- Base length of stay on comprehensive assessment, including cognitive readiness, not a national average

