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NHG Health

Stroke Rehabilitation for the Primary Care Physician

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Woodlands Hospital
NHG Health

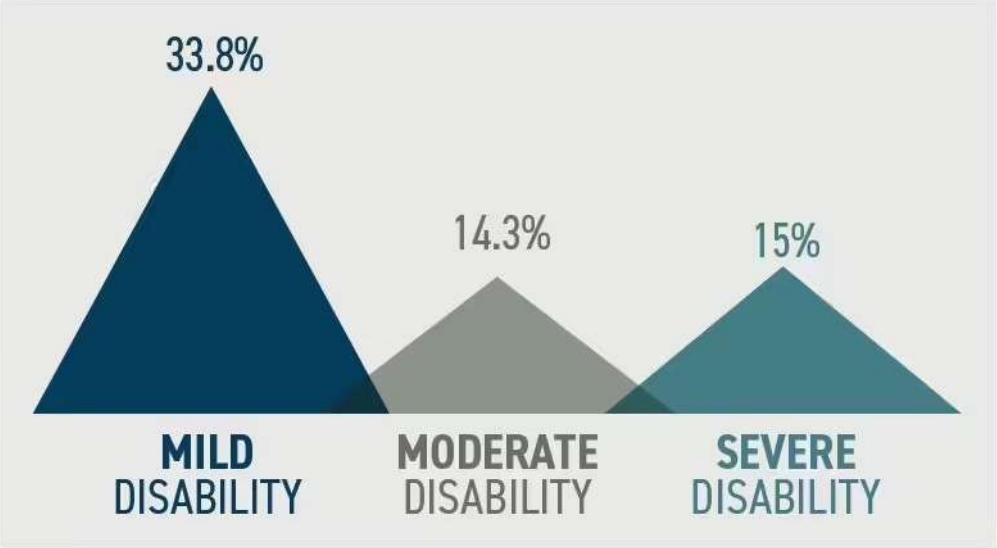
Learning objectives

- What does rehab really mean after a stroke
- Who needs rehab, when, where and how
- **Management of common post-stroke problems in primary care**
- **When to refer back to rehab/other specialists**

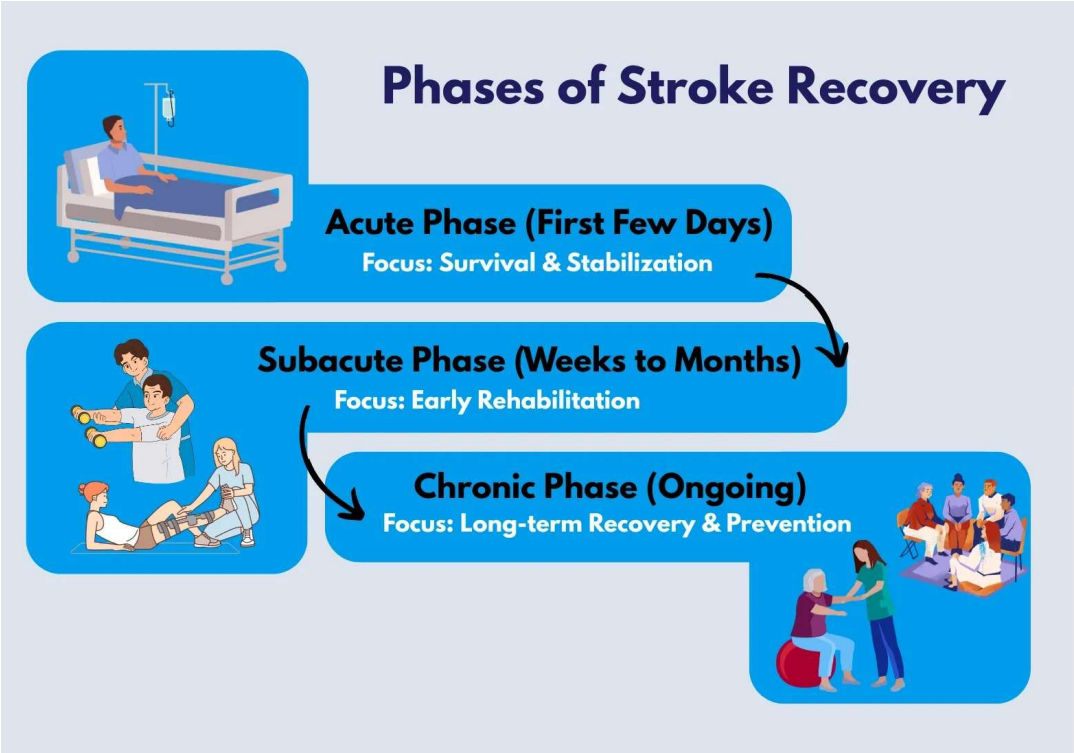
Why stroke rehab matters and relevance of primary care

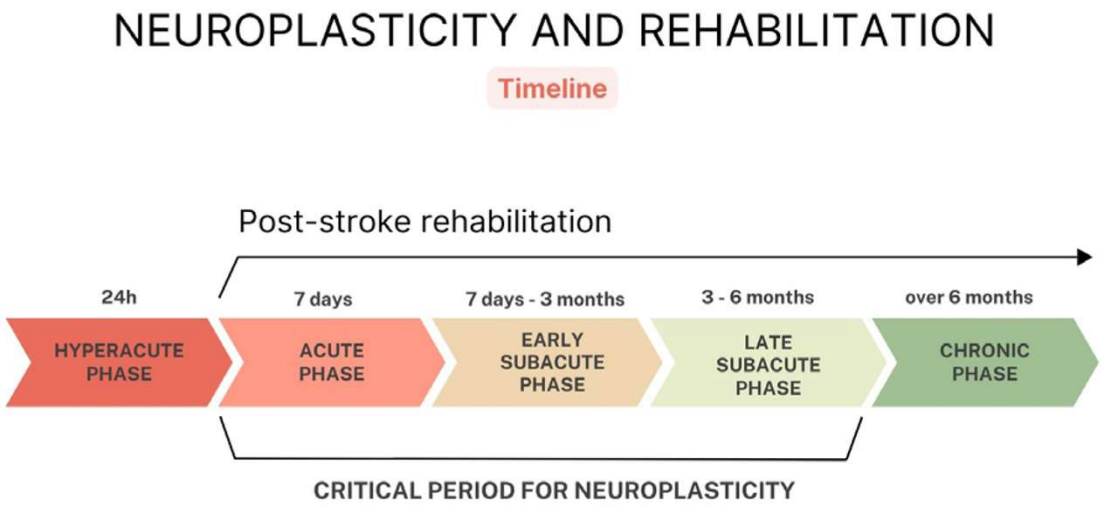
- Stroke = 2nd leading cause of disability worldwide
- ~6000 strokes in Singapore annually, ~16 cases/day
- Up to 65% have residual disability
- Survival rates increasing = increase disability burden

Figure 1. Disability Among Long-Term Survivors of Stroke[3]



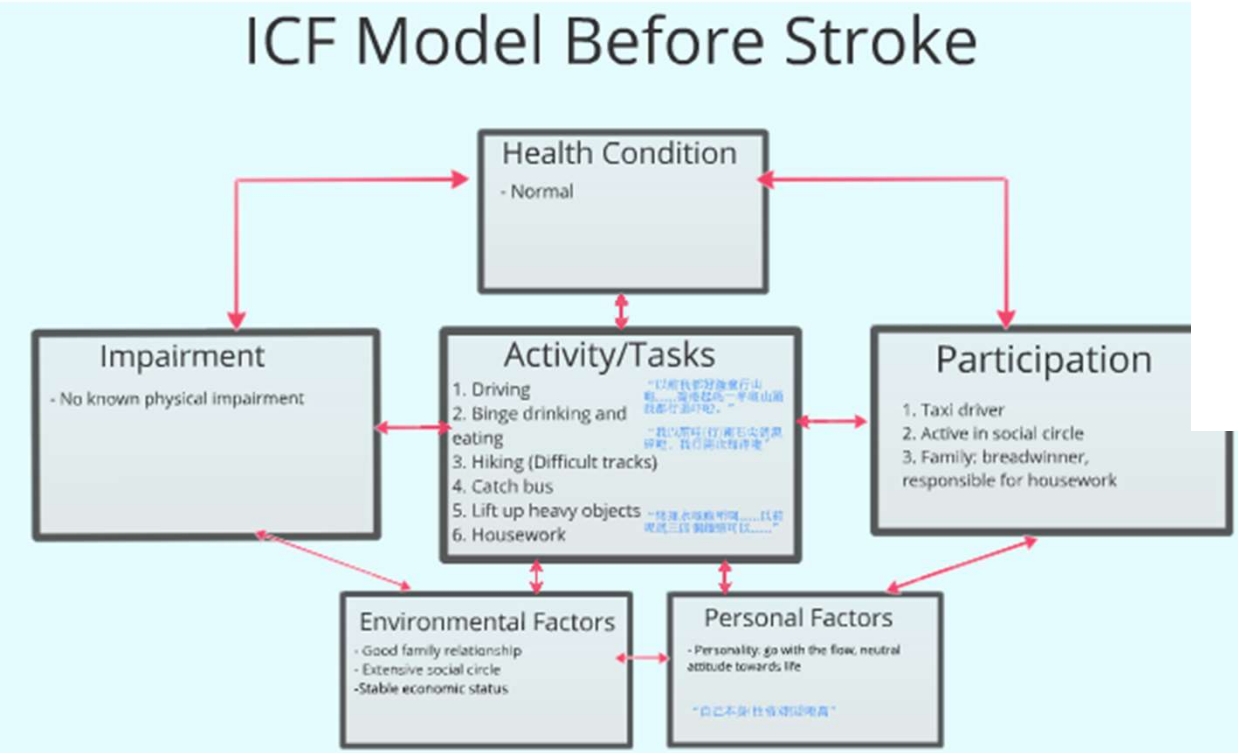
Trajectory of stroke recovery





ICF framework

International Classificatn of Functioning, Disability and Health



Bio-psycho-social Model of Functioning, Disability and Health

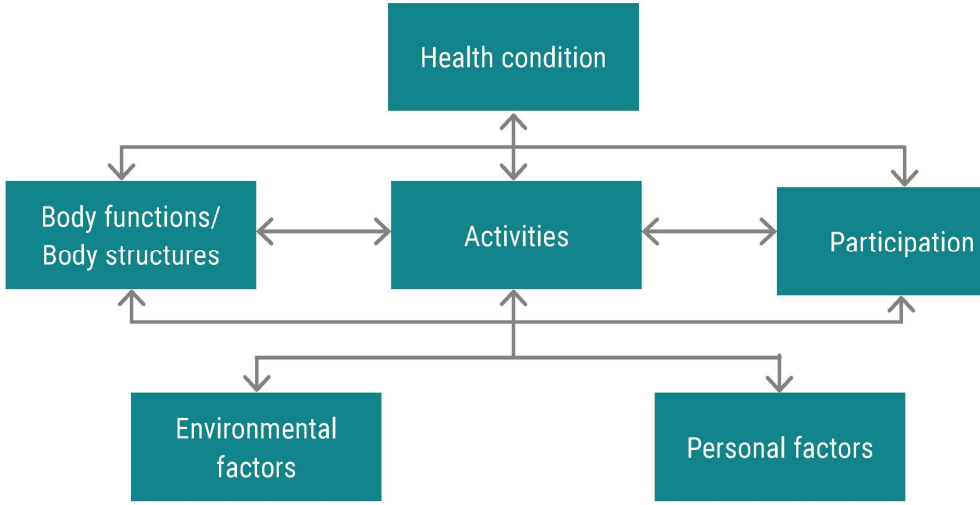


Figure 1: Bio-psycho-social model of the International Classification of Functioning, Disability and Health (ICF)

Domains of impairment

- Motor deficits
- Sensory deficits
- Communication
- Cognition and mood
- Swallowing and nutrition

Goals of stroke rehab

Restore function

Compensate for deficits (reduce limitations, modify environment)

Prevent complications,

Maintain health

Support reintegration into life roles

Principles of rehab

Early, intensive, repetitive, task-specific training

Goal-oriented and patient-centred

Promote independence, safety, community reintegration

Prevent complications (DVT, contractures, UTI/pneumonia, depression)

Prognostic factors

Poorer prognosis

- Severe initial deficits
- Neglect
- Comorbidities
- Poor social support

Better recovery

- Younger age
- Smaller infarct
- Preserved cognition
- Early rehab

Recovery is HETEROGENOUS

BUT

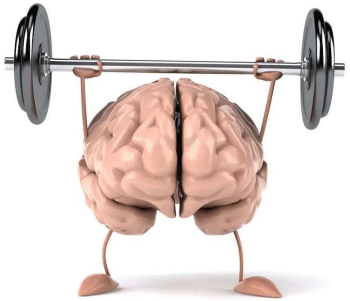
Rehab optimizes outcomes

Neurological recovery is not the same as functional recovery

Neurological recovery	Functional recovery
Intrinsic physical recovery of impairment	Regaining of independence in **ADLs**
Peaks within first 3-6 months post-stroke	Vast majority occurs within 3 months, but also can continue for longer period of time (beyond 6 months and **even up to 2-3 years post-stroke**)
Occurs by fixed proportion	Influenced by age, lesion size

Mechanisms of stroke recovery

Mechanism	Time Frame of Occurrence
Local CNS processes	
- Resolution of edema	Weeks to months
- Resolution of ischemic penumbra	Hours to weeks
- Resolution of remote diaschisis	Days to months
CNS reorganization	
- Neurotransmitter alterations	Weeks to years
- Unmasking of pathways	Immediate to months
- Synaptogenesis	Weeks to months



Mechanisms of stroke recovery

Neuroplasticity

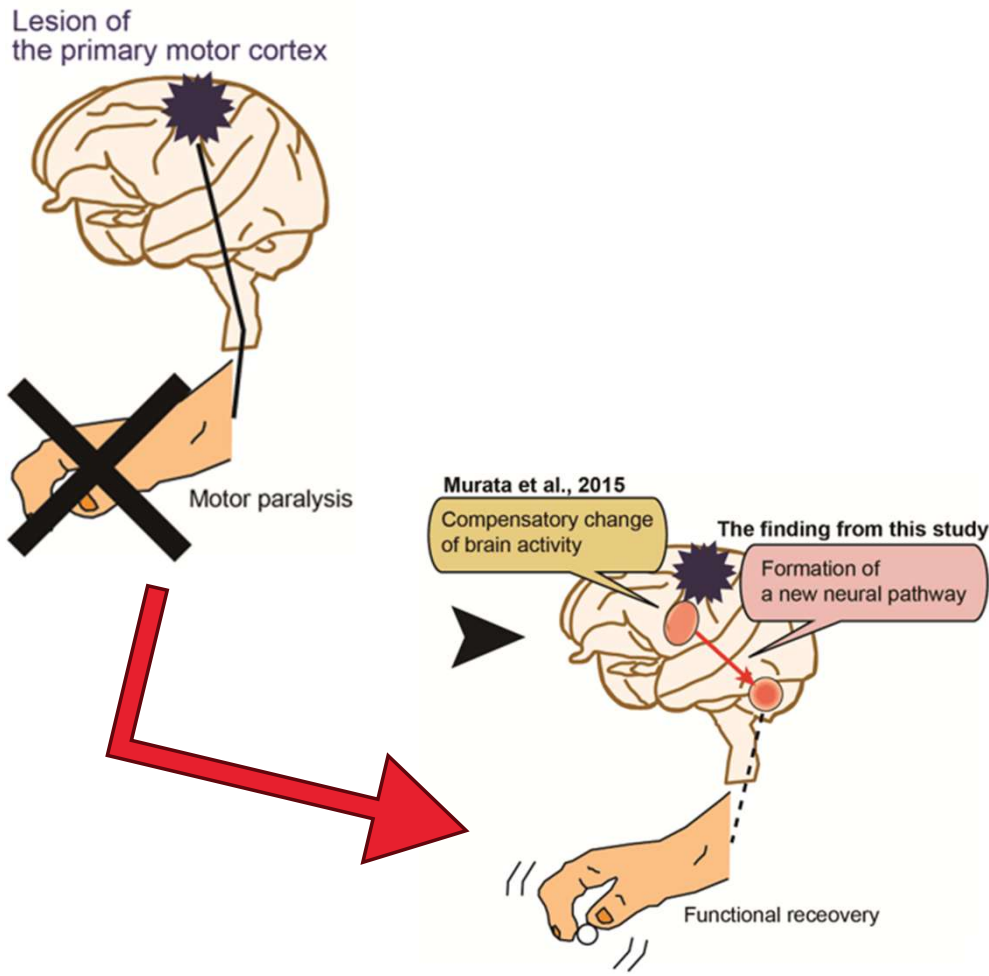
- Cortical reorganization
- Dendritic sprouting
- Unmasking latent pathways

Diaschisis resolution

- Reversal of suppressed areas

Compensation

- Use of alternative motor/cognitive strategies



Post-stroke recovery

- Neurological recovery is NOT the same as functional recovery

Neurological recovery	Functional recovery
Intrinsic physical recovery of impairment	Regaining of independence in **ADLs**
Peaks within first 3-6 months post-stroke	Vast majority occurs within 3 months, but also can continue for longer period of time (beyond 6 months and **even up to 2-3 years post-stroke**)
Occurs by fixed proportion	Influenced by age, lesion size

Maintenance of stroke recovery : Functional status remains relatively stable once it plateaus

BUT: differential shifts in performance of specific functions after stroke rehab in long term
- Mobility, bowel continence improves
- ADLs, socialization, leisure activities decrease

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Inpatient rehab

- Multi-disciplinary approach
- Vitals monitoring
- Early mobilization, exercise prescriptions
- Shoulder precautions
- Equipment prescription, home modifications
- Bowel/bladder programme, continence care
- Skin care and pressure injury prevention
- Supporting swallowing safety, nutrition
- Family education, caregiver training,
- Discharge planning

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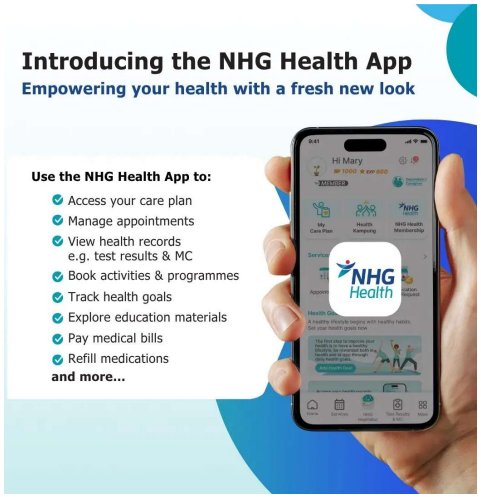
Community support

spd
Serving people with disabilities since 1964

SINGAPORE NATIONAL STROKE ASSOCIATION

S3 Stroke Support Station®



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aic
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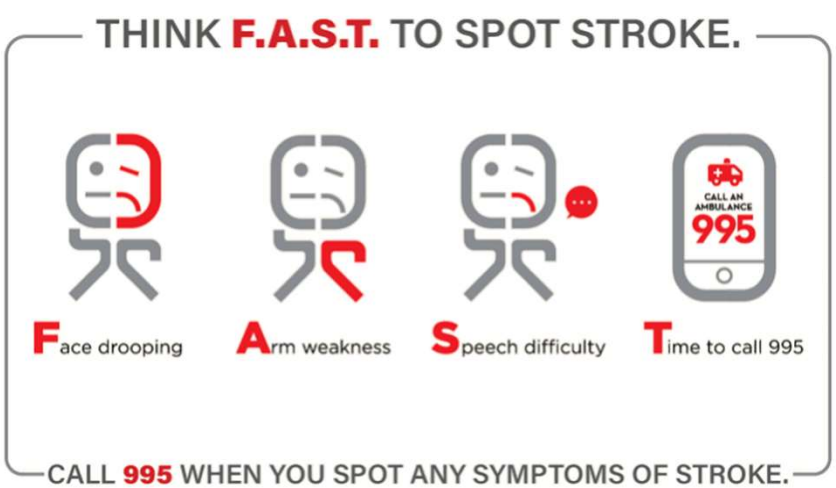
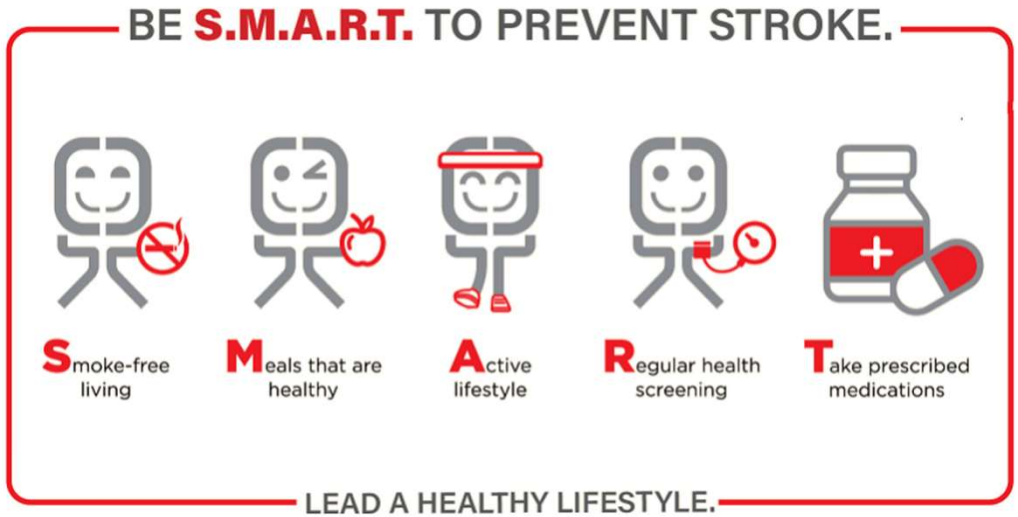
Prevention is better than cure

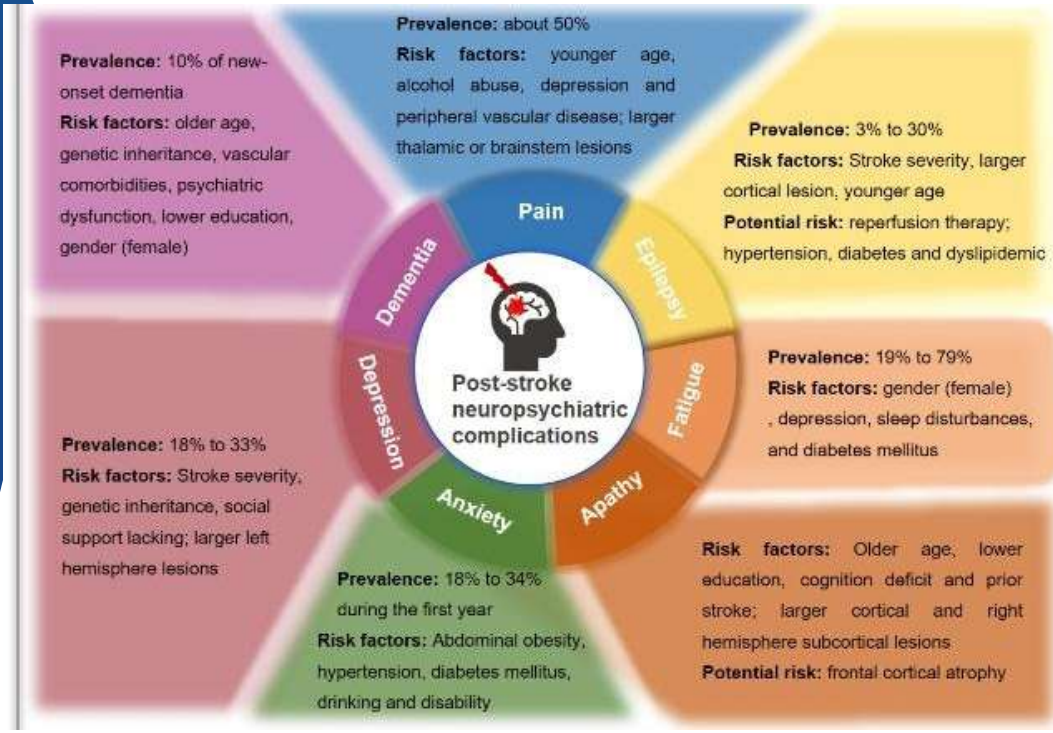




Post-stroke complications/issues

- Depression
- Cognitive impairment/fatigue
- Spasticity
- Hemiplegic shoulder pain
- CRPS
- Dysphagia

- Return to driving
- PMA



Post-stroke depression

- Prevalence 30-50%
- Early screening (PHQ2/PHQ9, GAD2/GAD7)
  - First 3, 6 and 12 months
- Treat early, low threshold to refer psychology/psychiatry

- Watch for:
  - 'Apathy' (mistaken for laziness)
  - 'Emotional lability' (mistaken for personality change)

PHQ-2 Questions

Over the last 2 weeks how often have you been bothered by any of the following problems?	**Not at all**	**Several days**	**More than half the days**	**Nearly every day**
Little interest or pleasure in doing things	0	1	2	3
Feeling down, depressed, or hopeless	0	1	2	3

- A cut-off score ≥ 3 is positive

Fig 1. **GAD-2 screening tool**

Over the last two weeks, how often have you been bothered by the following? (Use ✔ to indicate your answer)	Not at all	Several days	More than half of the days	Nearly every day
1. Feeling nervous, anxious, or on edge	0	1	2	3
2. Not being able to stop or control worrying	0	1	2	3
NB. A score of >3 would signify clinically significant anxiety symptoms				

GAD-2 = two-item generalised anxiety disorder.
Source: Hughes et al (2018)

30-50%
prevalence post-stroke

Simple 3-Step Algorithm:

STEP 1: Screen with PHQ-2
Ask: 'Little interest/pleasure?' and 'Feeling down/depressed?'

STEP 2: If PHQ-2 ≥ 3 → Complete PHQ-9
- Score 5-9 (Mild): Watchful waiting, repeat in 2 weeks
- Score 10-14 (Moderate): Consider treatment
- Score ≥15 (Severe): Treat + refer psychology/psychiatry

STEP 3: Treatment Options
- Pharmacotherapy: SSRIs (sertraline, escitalopram)
- Non-pharm: Exercise, social activities, caregiver support
- **Refer if mood affects rehab participation or suicidal ideation**

Depression impairs rehabilitation participation - treat early for better functional outcomes

INTERPRETING THE PHQ-9

SCORE	DEPRESSION SEVERITY	PROPOSED TREATMENT ACTIONS
0-4	None	None
5-9	Mild	Watchful waiting; Repeat PHQ-9 at follow-up
10-14	Moderate	Treatment plan; Consider counseling and/or therapy
15-19	Moderately Severe	Active treatment with medication and/or therapy
20-27	Severe	Medication treatment and if member shows severe impairment and poor response to therapy, refer to mental health specialist or psychotherapy and/or collaborative management

calmness. journey

GAD-7 Anxiety

Over the last two weeks, how often have you been bothered by the following problems?	Not at all	Several days	More than half the days	Nearly every day
1. Feeling nervous, anxious, or on edge	0	1	2	3
2. Not being able to stop or control worrying	0	1	2	3
3. Worrying too much about different things	0	1	2	3
4. Trouble relaxing	0	1	2	3
5. Being so restless that it is hard to sit still	0	1	2	3
6. Becoming easily annoyed or irritable	0	1	2	3
7. Feeling afraid, as if something awful might happen	0	1	2	3

Column totals ____ + ____ + ____ + ____ =

Total score ____

If you checked any problems, how difficult have they made it for you to do your work, take care of things at home, or get along with other people?

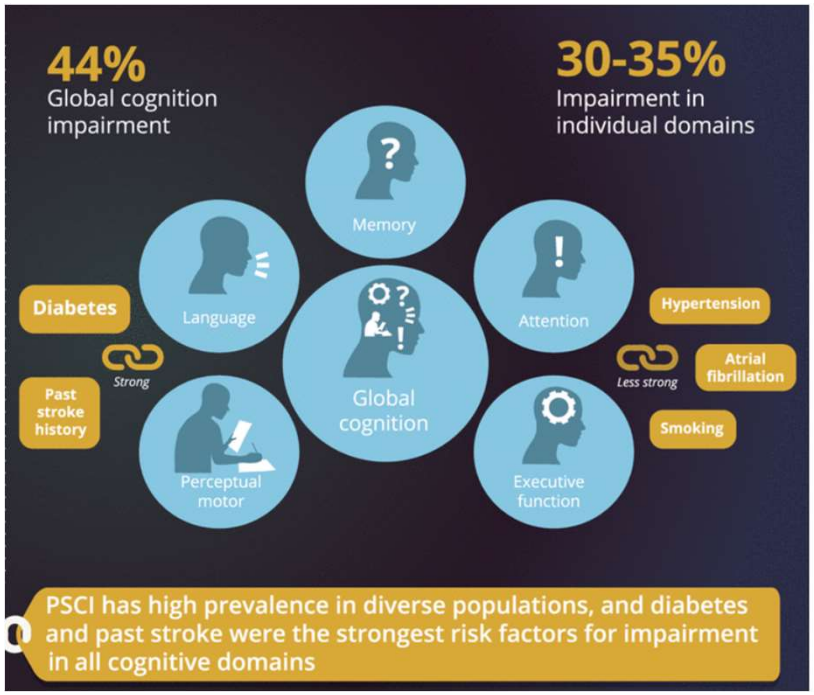
Not difficult at all ☐ Somewhat difficult ☐ Very difficult ☐ Extremely difficult ☐

Source: Primary Care Evaluation of Mental Disorders Patient Health Questionnaire (PRIME-MD-PHQ). The PHQ was developed by Drs. Robert L. Spitzer, Janet B.W. Williams, Kurt Kroenke, and colleagues. For research information, contact Dr. Spitzer at ris8@columbia.edu. PRIME-MD® is a trademark of Pfizer Inc. Copyright© 1999 Pfizer Inc. All rights reserved. Reproduced with permission

Score	Risk Level	Intervention
0-4	No to Low Risk	None
5-9	Mild	Provide general feedback, repeat GAD-7 at follow up, consider adjusting treatment plan if not improving in last 4 weeks
10-14	Moderate	Further evaluation recommended; For active treatment plans consider adjustment; For text therapy clients monitor for synchronous therapy
15+	Severe	Adjust treatment plan; focused assessment of safety plan and pharmacotherapy evaluation/ re-evaluation; If emergent need then consider referral to higher level of care; Client is not a good candidate for text therapy/asynchronous

Post-stroke cognitive impairment

Recognize it



- 30-60% stroke survivors
- ~25% develop dementia within 1 year post-stroke
- Risk increases with recurrent strokes, strategic location of stroke, pre-existing vascular risk factors
- Executive function most commonly affected

Recognise

- Clinical presentation subtle
  - Difficulty RTW, managing finances, iADLs
  - Apathy, emotional lability, behavioural changes
  - Stepwise pattern
- Screening: MOCA

Risk Stratification

- **Strategic infarcts:** thalamus, angular gyrus, caudate, watershed zones
- Multiple infarcts or significant white matter disease
- Pre-stroke cognitive concerns or functional decline

Post-stroke cognitive impairment

Management

Secondary Prevention = Primary Treatment

Aggressive Vascular Risk Management

- BP control
- Statin
- Antiplatelet/anticoagulation
- Diabetes management
- Smoking cessation, obesity management
- Treat contributing factors: depression, OSA, hearing loss

Cognitive Rehabilitation

- Refer neuropsych for formal assessment and therapy
- Refer OT for compensatory strategies
- Address mood disorders (50% have post-stroke depression)

Medications

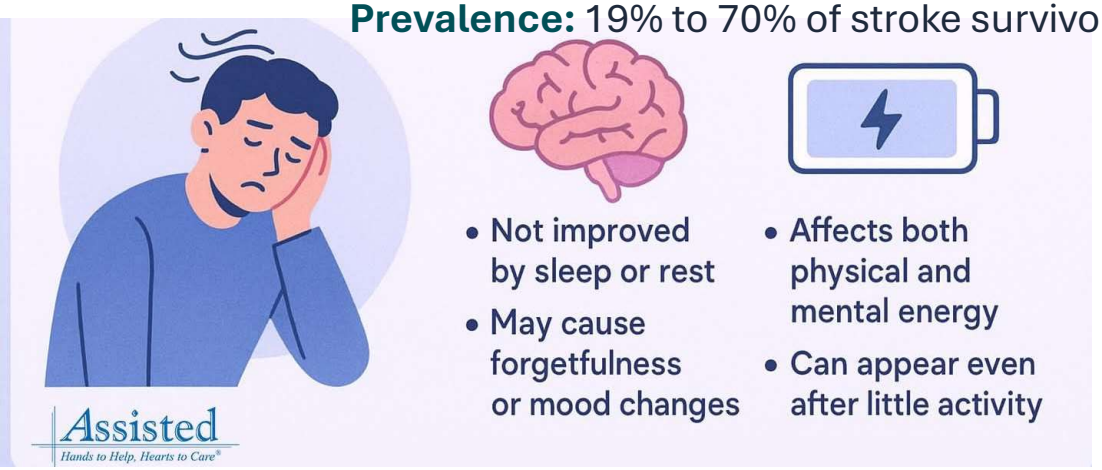
- **Cholinesterase inhibitors:** Limited evidence, may consider if moderate-severe impairment
- Avoid anticholinergics, sedatives (worsen cognition)

When to Refer: Moderate-severe impairment, rapid decline, diagnostic uncertainty, caregiver burnout

Key Takeaway: Aggressive stroke prevention IS the cognitive treatment

Post-stroke fatigue

Prevalence: 19% to 70% of stroke survivors



Can Impact:

- Return to work (RTW)
- Driving ability
- Medication adherence
- Activities of daily living
- Social participation and quality of life

Often Overlaps With:

- Cognitive impairment
- Post-stroke depression
- Affects both physical and mental energy

Role of primary care physician

- Screen and identify fatigue early
- Normalize fatigue as common post-stroke symptom
- Refer to OT for activity modification and energy conservation strategies
- Refer to neuropsychology if cognitive component present
- Adjust expectations and goals with patient and family

Management Strategies

- Energy conservation techniques
- Structured rest periods and pacing
- Graded activity programs
- Treat contributing factors (depression, sleep disorders, pain)

Spasticity

Definition: Velocity-dependent ↑ muscle tone from UMN lesion (↑ stretch reflexes, "clasp-knife" resistance)

- Red flags/ddx:
  - Fluctuating tone (dystonia, meds, new infx)
  - Pain with passive ROM (contractures, heterotopic ossification)
  - Proximal/axial only (parkinsonism)
  - Progressive without known UMN lesion (spinal pathology eg cord compression or tumour)

Spasticity management

- Prevention of nociception (remove ill-filling orthoses, ingrown toenails, constipation etc)
- Physiotherapy
- Oral pharmacologics – baclofen, dantrolene
- Focal spasticity treatments: botulinum toxin, alcohol, phenol, lidocaine neurolysis, nerve blocks
- Intrathecal baclofen
- Surgery

PT and OT management

- Passive splinting to maintain tendon length
- Serial casting for contractures
- Dynamic splinting for weight bearing or function
- Lycra garments

Spasticity: When to Treat & Refer

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When to Treat Spasticity:

- Affects function (ADLs, walking, hand use)
- Causes pain or discomfort
- Impairs safety (increased fall risk)
- Creates hygiene issues (hand clenching “thumb in palm”, hard to clean axillary area/change diapers)
- Increases caregiver burden
- Prevents proper positioning
- Risk of contractures

⚠️ ***May not treat***
- if it's helping function (e.g., aiding transfers)

Management Options:

✓ First-line (PCP can initiate):

- Physiotherapy - stretching, ROM exercises
- Remove noxious stimuli (UTI, constipation, tight clothing)
- Oral baclofen: Start 5mg TDS, increase slowly to max 80mg/day
  Monitor: Sedation, weakness, hepatic function

→ Refer to Rehab for:

- Focal spasticity → Botulinum toxin injections
- Severe generalized spasticity → Intrathecal baclofen pump
- Fixed contractures → Surgical assessment
- Complex splinting/casting needs

Spasticity can develop or worsen months after stroke – screen regularly!

Pain – hemiplegic shoulder pain

Mechanial	•Subluxation •Muscle weakness •Adhesive capsulitis •Rotator cuff tears •Bicipital tendonitis
Neurological	•Spasticity •CRPS •Central post-stroke pain
Sensory	•Altered pain sensation •Sensory inattention

- Early identification and workup
- Support and positioning
  - Arm slings
  - Pillows
- Physical therapy
  - ROM exercises
  - Massage
  - Kinesio taping
  - Electrical stimulation
- Steroid injections
- NSAIDs
- Botulinum toxin injections

Hemiplegic shoulder pain

40-70%
develop shoulder pain post-stroke

🔍 Assessment Approach:

History:
- Onset, duration, character
- Aggravating factors
- Impact on function/sleep

Exam:
- Inspect: subluxation, swelling, color changes
- Palpate: tenderness
- ROM: active vs passive
- Spasticity assessment
- Neuro: sensation, CRPS signs

Consider imaging:
- X-ray if trauma/subluxation
- Ultrasound for rotator cuff
- MRI if diagnosis unclear

Common Causes (Think in Categories):

Mechanical
- Subluxation (muscle weakness)
- Rotator cuff tears
- Adhesive capsulitis (frozen shoulder)
- Bicipital tendonitis

Neurological
- Spasticity
- CRPS (see next slide)
- Central post-stroke pain
- Sensory changes

Other
- Brachial plexus injury
- Pre-existing shoulder pathology

Step-wise Management Approach:

STEP 1: Prevention (Everyone)

- **Proper positioning**
- Educate caregivers: Never pull on affected arm, support during transfers
- Early PT referral for shoulder ROM exercises

STEP 2: First-line Treatment (Primary Care)

Physical therapy:

- Gentle ROM exercises (within pain-free range)
- Scapular mobilization
- Modalities: Heat, TENS, kinesio taping

Pharmacotherapy:

- Paracetamol, NSAIDs (if no contraindication) - topical or oral
- Neuropathic pain: gabapentin, titrate to max 900mg TDS

Supportive devices:

- Arm sling for support during walking (lapboard when sitting)

STEP 3: Refer to Rehab/Ortho if:

- No improvement after 4-6 weeks of conservative management
- Severe pain limiting function or sleep
- Suspected rotator cuff tear, adhesive capsulitis (limited ROM)
- Spasticity contributing to pain → botulinum toxin
- CRPS suspected (see next slide)

Advanced Interventions

- Intra-articular steroid injection (glenohumeral joint)
- Suprascapular nerve block
- Botulinum toxin for spasticity
- Electrical stimulation (FES)
- Surgery rarely needed (e.g., adhesive capsulitis release)

Shoulder Positioning and Handling

Wearing of arm sling

Thumb supported in the loop to prevent the arm from sliding out.
The length can be adjusted with the velcro, ensuring that the arm is 90 degrees.

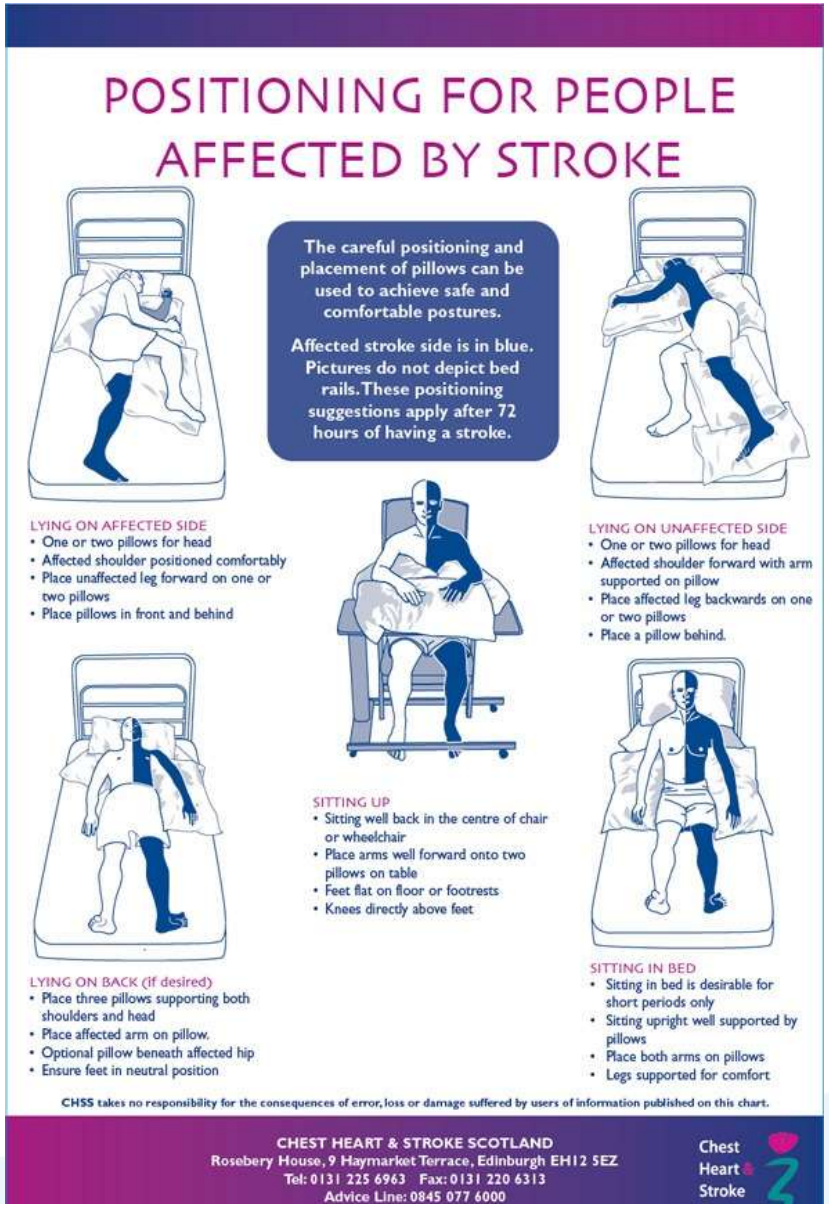
Arm in a sling during ambulation to prevent it from dangling, however removed at rest to prevent stiffness

Lying on the back

Head: Placed in neutral aligned to body.
Pillow/ towel roll tucked under head.
Shoulder: Supported by pillows
Elbow, wrist: straightened, resting on pillow
Hip: Pillow to prevent turning out of the hips

Lying on unaffected shoulder

Head: Placed in line with the body
Shoulder: shoulder blades to be slightly forward
Elbow, wrist: straightened, resting on pillow



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How is shoulder pain treated?

Treatment of the shoulder pain includes a range of measures including:

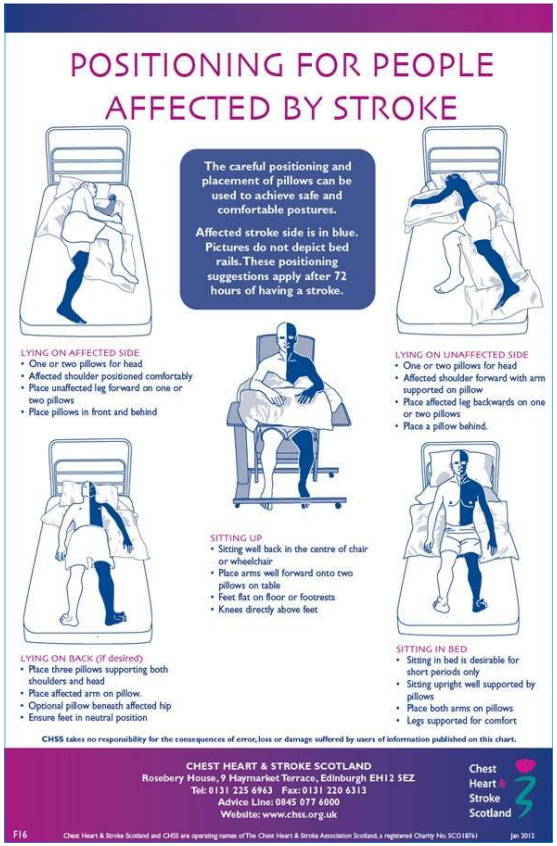
- Adherence to the preventive measures

- Medication as prescribed by the doctor to reduce pain and inflammation
- Electrical stimulation of the shoulder muscles – your therapist may discuss the possibility of application based on your sensation and pain tolerance

- Electrotherapy – stimulating your superficial nerves using a TENS machine may help reduce pain in some instances – please discuss with your therapist.

- Exercises to strengthen your shoulder muscles and to prevent shoulder joint stiffness.
- Gentle mobilisation of your joint, muscle stretching
- Modifying the activities to suit your impairments to allow sufficient rest and reduce irritation.

Proper Positioning



Positioning the Left Hemiplegic Arm

Stroke Strategy
Southwestern Ontario

Lying on Hemiplegic Side

- Hemiplegic arm forward at the shoulder; elbow extended and hand supported with the palm up
- Unaffected arm supported forward on the pillow
- Pillow behind back
- Both legs bent at the hips and knees; pillow in between

Lying on Unaffected Side

- Hemiplegic arm supported forward on two pillows
- Pillow behind back
- Both legs bent at the hips and knees, a pillow in between

Sitting in Bed

- Hemiplegic arm supported on two pillows
- Trunk in midline
- Pillows under unaffected arm as required

London Health Sciences Centre

Sitting in Wheelchair

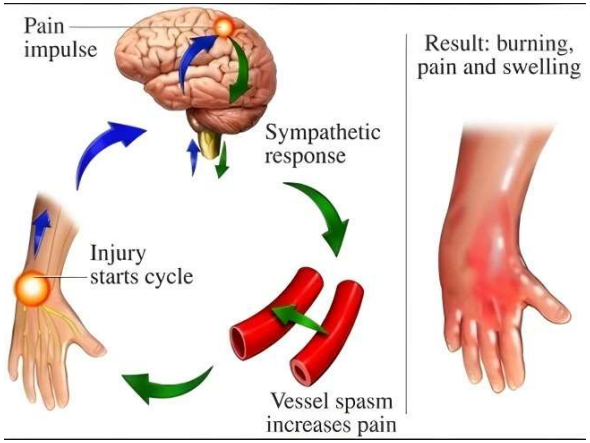
- Lap tray on wheelchair
- Pillow under hemiplegic arm with shoulder abducted, forearm pointing forward and hand supported

CRPS

Formerly known as Reflex Sympathetic Dystrophy (RSD) or Shoulder-Hand Syndrome

Prevalence: 12-25% post-stroke

Onset: Typically 1-6 months post-stroke



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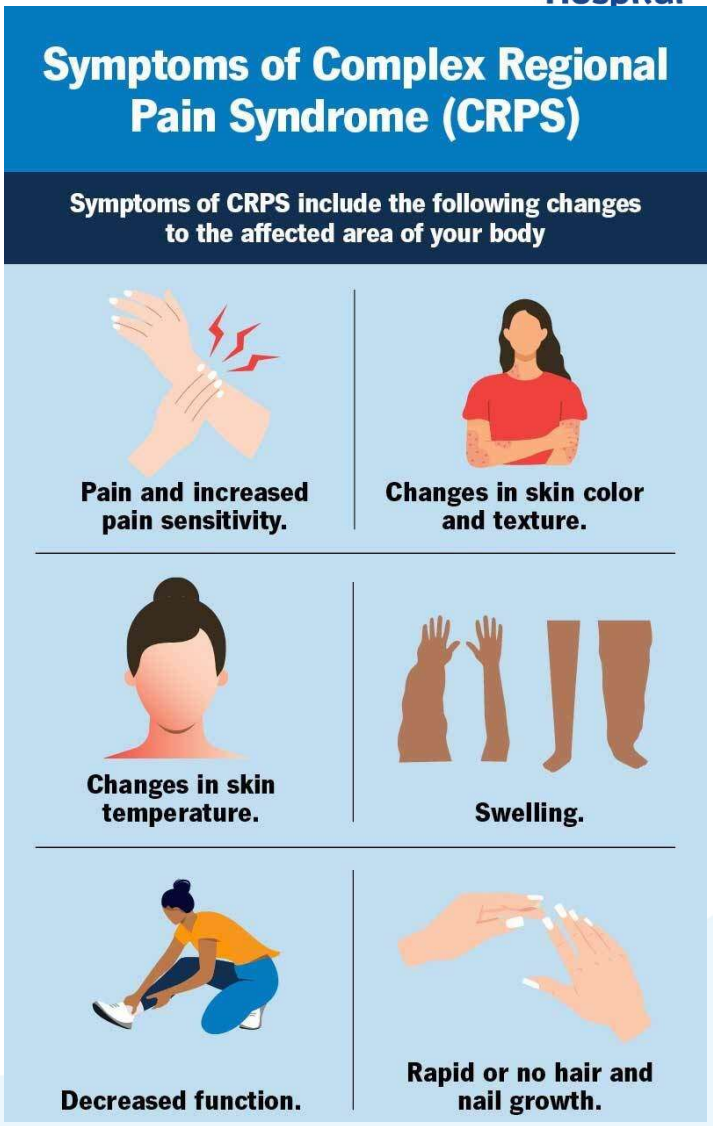

CRPS Management

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Early recognition and treatment is KEY - better outcomes with early intervention

Multi-modal Treatment Approach:

💪 1. Physical Therapy

- Desensitization techniques
- Gentle active ROM exercises
- Graded motor imagery
- Mirror therapy
- Avoid aggressive passive stretching
- Education, self management strategies

💊 2. Pain Management

- NSAIDs (early stages)
- Gabapentin/Pregabalin 300-900mg TDS
- Nortriptyline 25-75mg ON
- Topical lidocaine patches
- Short course steroids (early stage)
- Opioids generally avoided

💉 3. Interventional

- Sympathetic nerve blocks
- Stellate ganglion block
- Spinal cord stimulation (refractory)
- IV bisphosphonates (severe)
- Refer pain specialist

🧠 4. Psychological

- CBT for pain management
- Address anxiety/depression
- Patient education essential
- Support groups
- Functional restoration focus

⚠️ **REFER TO REHAB/PAIN SPECIALIST - CRPS requires specialized multidisciplinary care. Early referral = better outcomes.**

Dysphagia and nutrition

37-78%
have dysphagia acutely

🔍 Quick screening question

1. What about swallowing?

✓ What can primary care physicians do:

- Screen, ask about coughing with meal
- Review meds that may worsen dysphagia (anticholinergics, sedatives)
- Monitor weight monthly
- Assess nutrition status - consider dietician referral
- Educate on safe swallowing strategies if already assessed by ST
- Dental review - poor dentition worsens dysphagia

→ Refer to:

Speech Therapy for:

- Swallowing assessment & texture modifications
- Safe swallowing strategies
- Consideration for VFS

Dietician for:

- Nutritional supplementation
- Meal planning for texture-modified diets
- Feeding tube considerations (PEG)

🚨 RED FLAGS - Refer Urgently to Speech Therapy

- Coughing or choking during/after eating/drinking
- Wet/gurgly voice after swallowing
- Food sticking in throat or chest
- Recurrent chest infections/aspiration pneumonia
- Unexplained weight loss (>5% in 1 month or >10% in 6 months)
- Patient refusing to eat/drink or taking >30 mins per meal

SMA Driving guidelines

- Personal vehicle vs
- Vocational licenses

- DARP referral
- Car and motorbike

	GROUP 1 (CLASS 1, 2 & 3 LICENCES)	GROUP 2 (CLASS 4, 5 & VOCATIONAL LICENCES)
Cerebro-vascular Diseases	Stroke Patients without any residual disability may resume driving after 1 month. Patients with disabilities such as residual weakness, significant visual field defects, perceptual or mental impairment, in coordination, etc, severe enough to interfere with control of the vehicle should not drive. Patients with mild residual disabilities that may not interfere with control of the vehicle may undergo DARP* >1 month after stroke. They may be allowed to drive if they pass DARP*, after final review by a neurologist. Transient Ischaemic Attack (TIA) Single TIA: Allowed to return to driving once free of TIA for 1 month. Multiple TIA: Allowed to return to driving once free of TIA for 6 months. SAH / AVM / Aneurysms / SDH / EDH Patients can only be allowed to drive if they have no residual deficits	Stroke Able to return to driving if all following conditions are met: • >1 year post-stroke • Stroke is not due to high-risk underlying condition which is left untreated (e.g. high grade carotid stenosis, untreated aneurysm) • Fully recovered • Passed DARP* • Compliant with treatment • Final clearance given by a neurologist Transient Ischaemic Attack (TIA) Able to return to driving if all following conditions are met: • >6 months post-TIA (for single TIA) or >1 year post-TIA (multiple TIAs or brainstem TIA) • TIA is not due to high-risk underlying condition which is left untreated (e.g. high grade carotid stenosis) • Compliant with treatment • Final clearance given by a neurologist SAH / AVM / Aneurysms / SDH / EDH Patients can only be allowed to drive if they

DARP/DARS = Driving Assessment and Rehabilitation Programme/Services

- TTSH, NUH/JCH, SGH (DRIVERS)
- Occupational therapist-led

1. Off-road + on-road assessment
2. Driving rehab sessions
3. Vehicle modifications
4. Driving rehab with modified vehicle
5. Then sent to doctor to sign off

What is the Driving Assessment and Rehabilitation Programme (DARP)?

The Driving Assessment and Rehabilitation Program (DARP) at Tan Tock Seng Hospital aims to assist clients with medical conditions to learn or return to driving. The DARP therapist specialises in assessing a client's ability to return to driving safely and legally, based on the Medical Guidelines on Fitness to Drive (Singapore Medical Association, 2011) and the requirements of Traffic Police (Road Traffic Act).

Who is DARP for?

- Clients with a valid driving licence prior to their medical condition and would like to return to driving.
- Clients with medical conditions but no previous driving licence and would like to learn to drive. The DARP therapist will advise on the driving licence application process and introduce suitable vehicle modifications to suit the clients' needs.

Who can Benefit From DARP?

- Clients with physical conditions such as limb weakness and disability, amputation, spinal cord injury and progressive neurological conditions.
- Clients with cognitive impairments from brain injury, dementia and stroke.
- Clients with congenital and childhood illnesses such as cerebral palsy and polio.

How does the DARP Work?

To start with DARP, a client has to be first referred by a registered doctor.

DARP clients go through a structured process to ensure their safety on the road and that of other road users. The following lists the key milestones of the DARP process:

1. **Off Road Assessment**: The client will be interviewed on their medical condition(s) and driving experience. The client's physical, cognitive and visual abilities required for driving will be assessed.

2. **On Road Assessment**: This will be conducted by the DARP therapist with a certified driving instructor. On Road Assessment for Class 2, 3, 4 and 5 vehicles are available.

3. **DARP Report**: Upon completion of the above two assessment types, a detailed report will be sent to the client, physician and other relevant organisations (if applicable) to advise on the client's ability to return / learn to drive.

4. **Follow-up**: If there is a need for driving lessons or re-assessment, the DARP therapist will follow-up accordingly.

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PMA guidelines

PMA = Personal Mobility Aid

- Motorised wheelchair or scooters which are designed to assist patients with certified relevant medical needs, with mobility difficulties to manage day-to-day activities
  - Typically only 1 seat

- Only motorised scooter users will be affected by the new regulation

Motorized Scooter*

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CERTIFICATION OF MEDICAL NEED FORM

Important Notes:

- The Assessor (i.e. Registered Doctor, Occupational Therapist (OT)) must complete all fields and countersign against any amendments and/or ambiguity made on the mobility scooter certification. Failure to do so will deem the mobility scooter certification as incomplete.
- The Assessor may refer to the guidelines for Assessment for Mobility Scooter (AMS) issued by MOH to assess Applicant's medical need for a mobility scooter.
- If the Applicant requires further competency assessment by an OT[1], the referring doctor should not sign off this form. The OTs will certify users who pass the competency assessment and document the details of the assessment and outcome in the clinical notes.
- **The final assessor (i.e. doctor and OT) should complete this form for Applicants who passed the medical needs assessment and competency assessment respectively (including all Seniors' Mobility and Enabling Fund (SMF) Applicants, regardless of their age).**
- The form need not be submitted for exempted users[2] (unless they are applying for SMF) and Applicants who do not have a medical need for an MS. However, if the latter group insists that the form be submitted, the Assessor can still do so, but should indicate that the Applicant has no medical need for MS. The Assessor should inform Applicants of the outcome of their assessment.

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[1] Please refer to any of the OTs listed on LTA's website (https://go.gov.sg/ca-ot-list).

[2] A. All seniors aged 70 and above; or
B. Beneficiaries of subsidised mobility scooters from the Seniors' Mobility and Enabling Fund (SMF) before 27 February 2026; or
C. All existing and prospective beneficiaries of subsidised mobility scooters from the Assistive Technology Fund (ATF); or
D. Past and future applicants of the Ministry of Health (MOH) disability schemes, who have been assessed with Activities of Daily Living (ADL) needs in either 'Mobility' or 'Transferring' via the Functional Assessment Report (FAR) or Severe Disability Assessment (SDA).

Individuals who wish to apply for Government-subsidised MSes under the SMF on or after 27 February 2026 will be required to undergo the AMS, which will replace other medical assessments previously required for SMF application. The Certificate of Medical Need under AMS will fulfil the medical assessment requirements under SMF.

The final assessor (doctor or OT) may complete the Certification of Medical Need form digitally via FormSG or in hardcopy. The hardcopy form will require a physical signature by the assessor. Doctors and OTs are encouraged to complete the form digitally for users who are assessed to have difficulty in submitting the hardcopy Certificate of Medical Need to LTA or who did not bring a hardcopy form.

Digital Form (FormSG)	Please note that the assessor will be required to log in via SingPass to access the digital form on FormSG. The

	assessor will submit the digital form on behalf of the user. **Link (please do not share this link with the MS users):** https://go.gov.sg/pma-hcp **QR Code (please do not share this QR code with the MS users):** GO gov.sg https://go.gov.sg/pma-hcp

Section A – Particulars of Applicant

1	Full NRIC/FIN	
2	Name as in NRIC/FIN	
3	Mobile / Home Number	

Section B – Certification of Medical Need

To qualify for a mobility scooter, the Assessor should take into account any underlying condition requiring the use of the device.

1. Does the Applicant have a medical need for a mobility scooter?

   ☐ Yes (Proceed to answer Q2 & Q3)

   ☐ No (End of Certification Process – Applicant does not qualify for an MS)

2. Please indicate the Applicant's estimated period of reliance on the mobility scooter.

   ☐ Long-term (As a general guide, user's medical condition that will persist for ≥ 6 months and that will not fully recover or resolve can be considered long-term.)

   ☐ Temporary: _____ months (If the Applicant has a condition under Q1 that will fully recover or resolve after 6 months, it is not considered long-term. Select 'Temporary' and specify the duration for which the mobility scooter is needed.)

3. Does the Applicant meet any of the following criteria requiring a mobility scooter beyond the allowable dimensions on public paths?
   (NB: Maximum width of 70cm, maximum length of 120cm, maximum height of 150cm)

Criteria:

- **Obesity** exceeding standard mobility scooter limits (user weight more than 135kg), OR
- **Body Structure**: For example, a larger body frame (e.g. long legs, wide hips) exceeding standard mobility scooter limits (user weight not more than 135kg)

In cases where an applicant does not meet any of the above criteria but demonstrates a need for a larger mobility scooter, the Assessor may exercise discretion and conduct a case-by-case assessment.

☐ Yes ☐ No

For Assessor

By signing the form below, I have carefully considered the statements made above and they are, to the best of my knowledge, true and correct.

_____ _____

Name & Signature of Assessing Medical Professional | MCR/AHPC No. of Assessing Medical Professional

_____ _____

Clinic / Hospital Stamp | Date of Assessment

FOR ONLINE FORM ONLY

Applicant's Email (Optional): _____

Note: Subsidies for MS are available via the Seniors' Mobility Fund (SMF, administered by AIC) and Assistive Technology Fund (ATF, administered by SG Enable). Mobility scooter users who have obtained the Certificate of Medical Need for mobility scooter are not automatically eligible for SMF/ATF as there are other eligibility criteria applicable. Interested applicants for SMF/ATF should visit the relevant websites and contact AIC or SG Enable respectively for further information if needed.

What should you do?

Patient **has medical need** for motorized scooter and has no issues with operating the motorized scooter

↓

Doctors complete the certification of medical need form (Hardcopy or via Form.SG)

NO NEED FOR OT REFERRAL

- Refer to WH Rehab Med then we liaise with OT (PMA clinic) in WH if need OT to assess whether patient can safely use a PMA OR if funding is required

- If patients do not have any hospital follow-ups, they may contact AIC directly – they have a list of places in which they can get their training and assessment done

Patient **has medical need** for motorized scooter and has medical condition **affecting their ability to operate the motorized aid safely**

OR

Patient **requires funding** for the purchase of motorized scooter

↓

Refer to OT for competency assessment

VI. REFERRAL PROCESS FROM PRIMARY CARE DOCTORS AND PRIVATE SPECIALISTS TO OTS

This section applies to primary care doctors (i.e. polyclinic doctors and GPs) and private specialists only as there are existing OT referral processes in public healthcare institutions (PHIs). Primary care doctors and private specialists may refer the users to an OT if assessed to be necessary during the medical needs assessment stage. Doctors in hospitals should follow their hospital's existing OT referral process.

Before making a referral, doctors should inform the users that charges for OT assessment will apply as appropriate and confirm if they want to proceed.

There are several referral routes available, determined by whether the users (a) have rehab needs beyond competency assessment by the OT and (b) wish to apply for Government-subsidised MSes under the SMF or ATF.

MS User Group	Referral Route
1. Users who require competency assessment and have rehab needs	Existing referral routes to PHIs or community care organisation or private OT will continue.
2. Users who require competency assessment only	Refer to any of the OTs listed on LTA's website (Go.gov.sg/amrules)
3. Users who wish to apply for SMF	Inform users to approach AIC for SMF application. For polyclinics, a Medical Social Worker could also help the user to submit the SMF application form to AIC. Details and eligibility criteria for SMF: Seniors' Mobility and Enabling Fund | For Wheelchairs & More
4. Users who wish to apply for ATF	Refer users to the relevant specialty within the PHI based on their medical condition causing mobility challenges (e.g. refer users with musculoskeletal conditions to Rehabilitation Medicine physician). Details and eligibility criteria for ATF: Assistive Technology Fund

Doctors may share information on schemes in response to user enquiries, and direct interested applicants for SMF/ATF to the websites, AIC or SG Enable for further information.

Case Discussion

CASE **Mr Tan, 62M, 8 months post left MCA ischaemic stroke**

Presenting Complaints

→ Right shoulder pain for 2 months, worse with movement and at night

→ Wife concerned about his low mood and withdrawal from social activities

→ Fatigue — 'tired all the time even after rest'

→ Right hand remains stiff and difficult to open

→ Wants to know when he can drive again

Background

Residual deficits: Mild right arm weakness, spastic hand

Walking: Independent with AFO, uses quad stick outdoors

Discharge: From neurology 3 months ago; on aspirin, statin, amlodipine

Past history: HTN, T2DM, hyperlipidaemia

Social: Lives with wife; was working as an accountant, now on medical leave

Mood: PHQ-2 score = 4 at last visit (not followed up)

What would you assess and do at this visit?

Case Discussion — Management Approach

Shoulder Pain

- Examine: subluxation? ROM? Spasticity? Skin/colour changes?
- Imaging: X-ray if trauma/subluxation; USS if rotator cuff suspected
- Screen for CRPS: swelling, skin temp/colour changes, allodynia
- Start: paracetamol/topical NSAIDs + arm sling for ambulation
- If neuropathic: gabapentin 300mg TDS, titrate
- Refer Rehab if no improvement at 4–6 weeks, or CRPS suspected

Low Mood & Fatigue

- PHQ-2 was 4 → Complete PHQ-9 today
- Distinguish: true depression vs apathy vs fatigue (overlap common)
- Start SSRI if PHQ-9 ≥10: sertraline 50mg or escitalopram 10mg
- Normalise fatigue — not laziness; refer OT for energy conservation
- Depression impairs rehab participation — treat early
- Refer psychology/psychiatry if PHQ-9 ≥15 or suicidal ideation

Spastic Right Hand

- Check: is it functional (aiding grip) or causing hygiene problems?
- Remove nociception triggers: UTI, constipation, tight splints
- If affecting ADLs/hygiene: start baclofen 5mg TDS, titrate slowly
- Monitor: sedation, weakness, liver function
- Refer Rehab for botulinum toxin injection if focal spasticity
- OT for splinting/serial casting if contracture developing

Return to Driving

- SMA guidelines: may resume after 1 month if no residual disability
- With disabilities: needs DARP assessment > 1 month post-stroke
- Cognitive screen first: MOCA — impaired cognition = not safe to drive
- Current mood + fatigue also affect driving fitness
- Refer to DARP (TTSH/NUH) for formal off-road + on-road assessment
- Do not advise patient it is safe to drive without formal assessment

Key message: You can initiate first-line treatment today — and know exactly when to refer back to us.

Essential screening at routine visits

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Secondary Prevention

- BP control (target <130/80)
- Lipid management
- Antiplatelet/anticoagulant adherence
- Diabetes control if applicable
- Smoking cessation status

Functional Status

- ADLs - any new difficulties?
- Mobility - falls risk
- Driving status
- Return to work progress
- Community participation

Common Complications

- Depression (PHQ-2)
- Anxiety (GAD-2)
- Cognitive changes
- Fatigue levels
- Pain - hemiplegic shoulder, CRPS

Safety & Support

- Dysphagia symptoms
- Medication compliance
- Caregiver stress/burnout
- Home safety assessment
- Financial/social support needs

Medications to take note of

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Antiplatelet/Anticoagulant

Aspirin, Clopidogrel, Warfarin, DOACs

- Bleeding risk - gums, bruising, GI bleed
- Drug interactions (especially NSAIDs)
- INR for warfarin (target 2-3)
- Renal function for DOACs

Statins

Atorvastatin, Rosuvastatin

- LDL target <1.8 mmol/L
- Muscle pain/weakness (myopathy)
- Liver enzymes at baseline, 3 months
- Adherence - often discontinued by patients

Antihypertensives

ACEi/ARB, CCB, diuretics

- BP target <130/80 mmHg
- Orthostatic hypotension (fall risk)
- Renal function, electrolytes
- Avoid overtreatment in elderly

Antispasticity (if prescribed)

Baclofen, Dantrolene, Tizanidine

- Sedation, dizziness
- Liver function (tizanidine)
- Avoid abrupt withdrawal (baclofen)
- Review need periodically

When to Refer Back to Rehab/ Specialists/ED

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🚨 RED FLAGS – Refer urgently if:

1. Sudden functional decline
2. Recurrent falls
3. Severe, worsening spasticity
4. Uncontrolled pain affecting function
5. Significant caregiver burnout
6. Safety concerns at home

Not just for patients within the hospital –
we also follow patients across their lifespan

Wh.contactcentre@nhghealth.com.sg

✓ Routine Referrals

- **New functional goals**
  (e.g., return to work, driving assessment)
- **Spasticity management needed**
  (botulinum toxin, oral medications)
- **Complex equipment needs**
  (wheelchair, orthotics, home modifications)
- **Depression affecting participation**
  (despite treatment)
- **Cognitive issues impacting safety**
  (medication adherence, driving)
- **Total permanent disability assessment**
  (for insurance/benefits)

Key Takeaways for Primary Care

1

Recovery Continues Beyond 6 Months

Functional recovery can occur for 2-3 years. Never too late to refer if new goals emerge.

2

Screen Systematically

Use checklist approach: secondary prevention, function, complications, mood, pain, safety. Depression screening is essential.

3

You Can Initiate First-Line Treatment

Start SSRIs for depression, baclofen for mild spasticity, neuropathic pain meds, advise for shoulder positioning.

4

Red Flags Require Action

Functional decline, recurrent falls, severe spasticity/pain, caregiver burnout → refer urgently.

5

Rehabilitation is a Partnership

You're the long-term coordinator. We're here to support complex issues and new goals.

Thank You

Tan Tock Seng Hospital • Khoo Teck Puat Hospital • Woodlands Hospital • Yishun Community Hospital • TTSH Integrated Care Hub
Institute of Mental Health • National Skin Centre • National Centre for Infectious Diseases • NHG Cancer Institute • NHG Eye Institute • NHG Heart Institute
Population Health • NHG Polyclinics • Diagnostics • Pharmacy • Community Care • NHG College • Centre for Healthcare Innovation