



POSITION STATEMENT:

Recommendations for Establishing and Providing Hypertonicity / Spasticity Services in Queensland - 2022

Queensland Hypertonicity / Spasticity Special Interest Group

The Special Interest Group was established in 2018 to bring together a representative group of health professionals from a range of rehabilitation services across Queensland, who work with clients experiencing hypertonicity / spasticity, in order to:

- *Provide support and advice to Queensland clinicians managing clients with Hypertonicity / Spasticity.*
- *Share Hypertonicity / Spasticity knowledge, expertise and resources*
- *Develop Hypertonicity / Spasticity educational resources for therapists and clients*
- *Maximize access to specialized Hypertonicity / Spasticity services for clients across the state*
- *Build / sustain a network of clinicians across QLD working in Hypertonicity / Spasticity management*
- *Collaborate and coordinate statewide evaluation strategies, education and research opportunities in Hypertonicity / Spasticity management*



Recommendations for Establishing and Providing Hypertonicity / Spasticity Services in Queensland

Summary statement

In order to provide a high quality, evidence-based service to clients experiencing hypertonicity/spasticity, clinicians need to implement an individualised, person and family-centred, comprehensive and multidisciplinary approach to their practice.

Purpose of position statement

The purpose of this position statement is to provide an outline of the principles considered to be minimum standards for best practice in the service provision for people experiencing hypertonicity/spasticity.

It is intended to inform clinicians, health service managers, professional associations and policy developers at a local level.

It aims to promote consistency in an individualised and collaborative approach to the management of hypertonicity/spasticity.

Definitions and Background

Terminology

There are multiple terms used in the literature and by clinicians to describe the **stretch-sensitive muscle overactivity** observed in clients with an Upper Motor Neurone (UMN) injury or condition. These include 'spasticity', 'hypertonia', 'increased tone' or 'hypertonicity'.

The contemporary definition of spasticity, used in the UK National Guidelines, 2018, is as follows:

Spasticity 'a disorder of sensory-motor control resulting from an upper motor neurone lesion, presenting as an intermittent or sustained involuntary activation of muscles' (Burrige et al 2005).

However, spasticity is not the only contributor to the stiffness and resistance to movement that is experienced by our clients. Adaptive changes to the biomechanical and contractile elements of muscle and connective tissue also contributes to this stiffness (Esquenazi et al 2010). Therefore, the broader term of 'hypertonicity' is used to encompass all aspects of the resistance to movement we see clinically (Copley & Kuipers, 2014) and the following definition is used for the purpose of this document:

Hypertonicity is the increased resistance to movement experienced by people due to upper motor neuron conditions e.g. stroke, traumatic brain injury, cerebral palsy, spinal cord injury


Importance of managing hypertonicity / spasticity

The prevalence of hypertonicity / spasticity and its impact on daily life creates a considerable burden for service recipients, their carers and the health care system. It is estimated that approximately 20-40% of stroke survivors, 75% of individuals with physical disabilities post traumatic brain injury, and a similar proportion of people with other neurological conditions such as severe multiple sclerosis, will develop hypertonicity / spasticity requiring intervention. The presence of hypertonicity / spasticity typically indicates a severe motor disorder which reflects substantial disability (Wissel et al 2013; Zorowitz et al. 2013; National UL Guidelines 2018, p.3) and can affect mood, sleep, quality of life, and participation in activities and active recreation as well as employment (Finnerup 2017).

People with hypertonicity / spasticity may experience:

- Pain
- Contractures
- Pressure areas
- Difficulty with self-care and other daily tasks such as transfers
- Impaired balance and mobility
- Carer burden
- Poor self-esteem and body image
- Insomnia
- Inability to reach potential
- Reduced quality of life

These difficulties are debilitating and can often negatively impact on a person's progress and outcomes, increasing the cost of both rehabilitation and long-term care (Zorowitz et al. 2013; Brainin et al. 2011; Finnerup. 2017; Barbosa et al. 2021).



Healthcare costs associated with hypertonicity/spasticity are significant, owing to readmissions and medical support (e.g. falls, fractures). Few studies have published the associated, specific cost burden of spasticity/hypertonicity but a 2010 study by Lundstrom and colleagues suggested that the cost of managing a stroke survivor with spasticity for a year is four times higher than managing a survivor without spasticity (UK National Guidelines 2018, Zorowitz et al, 2013, Lundstrom et al. 2010).

Hypertonicity/spasticity can potentially be undertreated due to a variety of reasons. It is recognised that to help clients achieve best outcomes along the continuum of care, it is important to recognise and then implement early and effective management of hypertonicity/spasticity. Any intervention should be guided by comprehensive assessment and systematic clinical reasoning, to reduce disability and carer burden and increase activity participation and quality of life (UK National Guidelines 2018).

Recommendations for Establishing and Providing a Hypertonicity / Spasticity Service

Service Infrastructure

Staffing and Collaborative Practice

- Services should ideally be provided by a **multidisciplinary team**, either within the same facility or via referral to relevant individual clinicians, teams or organisations.
- **Clear referral pathways and regular communication among clinicians** is essential to coordinated care. It is important to communicate with the patient's **General Practitioner** as their primary medical care provider and coordinator of their care.
- Key staff should include a Medical Practitioner (preferably a Rehabilitation Physician), an **Occupational Therapist** and a **Physiotherapist, all with neurological rehabilitation and hypertonicity/spasticity management experience**. In relation to therapy services, where the focus is on upper limb management, best practice would involve an occupational therapist (at minimum), and where the focus is on the trunk and lower limb management, best practice would involve a physiotherapist (at minimum). Where access to these therapists is difficult, for example in rural services, it is recommended that consultation with the relevant profession in another region is sought.
- Other disciplines who may contribute to the service provision, depending on client needs, include, but are not limited to, General Practitioner, **nursing, orthotics/prosthetics, exercise physiology, pharmacy and speech pathology, and other medical/surgical specialities such as neurology, orthopaedic surgery and neurosurgery**. The staffing specialty indicated will depend on the individual client.
- **Dedicated positions for key staff** are recommended, with these positions held by clinicians with **expertise** in spasticity/hypertonicity management. Specific, ongoing professional development **training and/or peer mentoring** in spasticity/hypertonicity management is highly recommended.
- The **ratio of key staff to clients** should be considered in relation to:
 - the average time requirements for an assessment or intervention session (60-90 minutes on average)
 - the follow up frequency required for short-term and long-term monitoring services
 - whether rehabilitation is offered individually or in a group context.

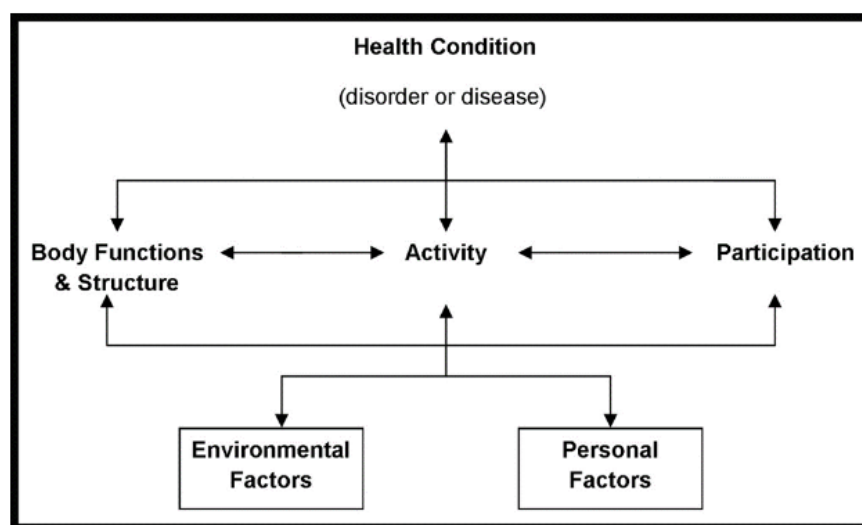
- **Administrative support** is recommended due to the need for frequent ordering of consumables, client scheduling and frequent/responsive client communication.
- Hospital-based services should consider implementing strategies, including allocation of appropriate staffing, that promote **early recognition and management of spasticity** in persons with neurological conditions, in line with best practice (Raymond et al, 2016).
- Liaison with relevant **services that can promote optimal outcomes** is recommended. This may include services that target, for example, the client's seating or other equipment needs, caregiver training and support, and capacity building through achievement of daily life goals in activities of daily living and/or community participation.

Resources

- The location of service provision should be fully **accessible**, with **sufficient space** for activities such as assessment, splinting, casting and gait analysis.
- Access to **relevant and safe equipment, materials and consumables** is required to allow best practice assessment and intervention provision, including, for example, a wide, height-adjustable electric plinth or bed to aid transfers, manual handling and positioning, access to hoist equipment as required, goniometers to measure joint range of motion, cast fabrication and removal equipment and materials, and equipment to support injections such electromyography (EMG)/nerve stimulator and/or ultrasound devices, and intrathecal baclofen (ITB) delivery.

General Principles

- Services should be **individualised** to meet each client's goals, with the multidisciplinary team offering a range of specific intervention options that are combined as an integrated package of care.
- The International Classification of Functioning (**ICF**) (WHO, 2001) is recommended as a framework to guide focused service provision, with service providers taking the time to collaboratively identify with the client their intervention priorities and whether they are targeting body impairment, activity performance and/or daily life participation.



The ICF Framework

(WHO, 2001)

- **Client collaboration** in goal setting and intervention decision-making is essential to support meaningful outcomes and long-term management. Caregivers and significant others should be actively included in service provision, with shared decision-making and education provided at each stage of service provision.

Goal Setting

- **Priorities for intervention**, in accordance with the ICF framework, should be set **collaboratively** with the client and caregivers/significant others as a routine process.

- At minimum, **thorough discussion** with the client and caregivers/significant others **regarding the client's context and daily activities** is essential to establish goals that target meaningful outcomes from the client's perspective. A **formal goal setting tool** (e.g. Canadian Occupational Performance Measure – COPM; Goal Attainment Scaling – GAS light) is recommended where possible.
- Goals should be formally **documented** and may target any/all levels of the ICF but should ideally be **linked to current or future activity and/or participation**.
- Goals may target outcomes related to **active function**, such as use of the arms and legs in daily activities such as eating, dressing, cooking, transferring and walking, or **passive function** (e.g. ease of care for the caregiver during hygiene, self-catheterisation or dressing tasks).

Assessment and Evaluation of Outcomes

- Assessment information for each client should be formally **documented at multiple points** during service provision. At minimum, assessment/evaluation should occur **prior to intervention** and **soon after (within 4-6 weeks) intervention**. Where possible, **short-term follow up** evaluation (3-6 months post intervention) and **long-term follow up** evaluation (nine months or longer after intervention) is recommended. Evaluation of outcomes applies to any intervention undertaken (e.g., casting, botulinum toxin injections or movement retraining).
- Assessment/evaluation should include relevant **formal and informal assessments** that relate to the client's goals. It is recommended that assessment targets **body impairment as well as activity performance and/or daily life participation levels** of the ICF.
- The **most valid and reliable assessments available** should be used, and a **consistent assessment process** agreed upon within each service.

Assessment examples include, but are not limited to:

- Body impairment – passive and active joint range of motion, muscle strength, severity of pain, severity of hypertonicity/spasticity (Modified Ashworth Scale, Modified Tardieu Scale), analysis of movement patterns and impact of spasticity/hypertonicity on this movement, presence of contractures, skin integrity and joint changes.

- Activity capacity and performance – e.g. observational analysis (including videos where possible) of daily tasks in which clients participate such as transfers, walking, and reach, grasp/manipulation or stabilisation of relevant items.
 - Participation – e.g. goal achievement, caregiver assistance scales, caregiver burden scales and quality of life measures.
- Scheduling of assessment sessions should allow an average of **60-90 minutes** per session.

Interventions

- A **range of interventions** should be offered or be able to be accessed through referral to other services, to allow an individualised package of intervention.
- **Intensive, goal focused, blocks of intervention** (e.g. 1-2 times a week for 4-6 weeks, depending on the goal of intervention) should be offered, as well as less frequent long-term **monitoring/review services** (e.g. every 3-6 months).
- Interventions should aim to:
 - **Reduce spasticity/hypertonicity and secondary complications such as contracture or pain** that impact on the client's function, positioning or comfort;
 - Address missing components of function such as **improved voluntary control of active movement** where relevant to the client's goals; and
 - Address **caregiver needs for support and education**.
- Interventions offered (either by the service or by referral to another practitioner with relevant expertise) should include a range of the following:
 - **Physical modalities and therapy** – These should target both the impacts of hypertonicity/spasticity and optimisation of movement, function and comfort as relevant to the individual client. Examples include, but are not limited to, splinting/orthotics, electrical stimulation, casting, task practice, and other interventions aimed at developing movement control, balance, independence and/or comfort. Scheduling of physical modalities and therapy interventions should allow an average of **60-90 minutes per session**.

- **Medical and surgical interventions** – e.g., pharmacotherapy treatment options, Botulinum toxin A injections, intrathecal baclofen, surgical procedures (such as, tendon transfer or joint arthrodesis). **Medical and surgical interventions** should be **linked to client goals**. **Involvement of allied health professionals** (occupational therapists and/or physiotherapists at minimum) at the stages of **assessment and follow up** is recommended to ensure consideration of the client context and other factors that may influence intervention outcomes.

Information Resources

The purpose of this position statement is to provide recommendations for establishing and providing hypertonicity / spasticity services in Queensland. To access up-to-date resources, it is recommended that the service provides access to relevant clinical guidelines and link with other specialist networks.

These include, but are not limited to:

- Spasticity in adults: management using botulinum toxin –[UK National Guidelines 2018](#)
- Become a member of the Qld Rehabilitation Clinical Network- Qld Hypertonicity / Spasticity Special Interest Group: Email Hypertonicity.SIG@health.qld.gov.au
- Resources created by the Qld Rehabilitation Clinical Network: [Goal-setting in Rehabilitation Services | Improvement Exchange | Clinical Excellence Queensland | Queensland Health](#)
- If you are a Qld Health employee, you can access the UL Hypertonicity Education Package on ilearn: [iLearn - Hypertonicity Education Package](#)

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