Technology Guidance

Botulinum toxin A

for the management of focal spasticity of the upper limbs associated with stroke in adults

Technology Guidance from the MOH Drug Advisory Committee

Guidance Recommendations

The Ministry of Health's Drug Advisory Committee has recommended:

- ✓ *Clostridium botulinum* toxin type A neurotoxin complex (Botox) 50 U and 100 U injection vials, and
- ✓ *Clostridium botulinum* type A toxin-haemagglutinin complex (Dysport) 300 U and 500 U injection vials

for the management of focal spasticity of the upper limbs associated with stroke in adults who:

- have a score of 2 or more on the Modified Ashworth Scale at the target muscle intended for botulinum toxin A treatment;
- do not have the affected joint permanently fixed in position due to fibrotic shortening of the target muscle; and
- are concurrently receiving physiotherapy.

Botulinum toxin A must be administered by either a neurologist trained in movement disorder or a rehabilitation physician who has undergone training to administer botulinum toxin A.

Funding status

Clostridium botulinum toxin type A neurotoxin complex (Botox) 50 U and 100 U injection vials are recommended for inclusion on the Medication Assistance Fund (MAF) for the abovementioned indication from 2 September 2019.

Clostridium botulinum type A toxin-haemagglutinin complex (Dysport) 300 U and 500 U injection vials are recommended for inclusion on the MAF for the abovementioned indication from 1 November 2025.

MAF assistance **does not** apply to Botox 200 U injection vial or other brands of botulinum toxin A.

Updated: 16 September 2025

Technology evaluation

1.1. The MOH Drug Advisory Committee ("the Committee") considered the evidence presented for the technology evaluation of botulinum toxin A for the management of focal spasticity of the upper limbs associated with stroke in adults in April 2017. The Agency for Care Effectiveness conducted the evaluation in consultation with clinical experts from the public healthcare institutions. Published clinical and economic evidence for all 3 brands of botulinum toxin A (Botox, Dysport and Xeomin) was considered in line with the registered indication, and for patient subgroups who have an unmet need.

1.2. The evidence was used to inform the Committee's deliberations around four core decision-making criteria:

- Clinical need of patients and nature of the condition;
- Clinical effectiveness and safety of the technology;
- Cost-effectiveness (value for money) – the incremental benefit and cost of the technology compared to existing alternatives; and
- Estimated annual technology cost and the number of patients likely to benefit from the technology.

1.3. Additional factors, including social and value judgments, may also inform the Committee's funding considerations.

1.4. The Committee considered revised price proposals for all three brands of botulinum toxin type A in April 2019.

1.5. The Committee considered a revised price proposal for Dysport in July 2025.

Clinical need

2.1. Local clinicians consider botulinum toxin A injection as the preferred pharmacologic agent for the treatment of focal spasticity, due to its better tolerability profile compared with oral anti-spasticity medicines and alcohol injections. It can also be used to treat a wider range of muscles compared with alcohol injections. However, eligible patients may not receive botulinum toxin A as a first-line pharmacologic therapy due to its high cost. The Committee agreed that there was a clinical unmet need for botulinum toxin A in patients who have a score of 2 or more on the Modified Ashworth Scale at the target muscle intended for treatment and do not have fibrotic shortening of the target muscle.

2.2. Local clinical experts considered all 3 brands of botulinum toxin A (Botox, Dysport and Xeomin) clinically comparable.

Clinical effectiveness and safety

3.1. The Committee acknowledged that the dosing of botulinum toxin A is individualised based on patient need, and unit doses are not equivalent among brands. Though the dose relativity between Botox and Xeomin is generally accepted to be 1:1, there is greater uncertainty surrounding the dose relativity between Botox and Dysport. The Committee accepted a dose relativity of around 1:4 between Botox and Dysport in line with ratios used by local clinicians, results from dose conversion studies and the therapeutic relativity accepted in Australia (PBAC) for post-stroke spasticity.

3.2. The Committee noted that there were no head-to-head trials comparing botulinum toxin A with other active comparators like oral anti-spasticity medicines and alcohol injections for the treatment of post-stroke spasticity of the upper limbs. Thus, results from placebo-controlled pivotal trials for each brand were accepted to inform the use of botulinum toxin A for this indication.

3.3. Pivotal trials of all 3 brands of botulinum toxin A showed significant reductions in the resistance to passive movement at the wrist, elbow or finger flexors when compared with placebo. A clinically meaningful reduction of at least one point in either the Modified Ashworth Scale or Ashworth Scale scores was demonstrated in trials where this endpoint was reported. The trials reviewed included Brashear et al (2002), Childers et al (2004), Bakheit et al (2000), Gracies et al (2015), Kanovsky et al (2009) and Elovic et al (2016).

3.4. The Committee also acknowledged that botulinum toxin A was found to be safe when compared with placebo based on safety results reported in the clinical trials.

Cost effectiveness

4.1. The Committee considered the cost-effectiveness of botulinum toxin A based on published studies, and noted that there were no local economic evaluations available. It acknowledged that published economic analyses conducted in the Scottish setting showed that botulinum toxin A in addition to usual care (physiotherapy and occupational therapy) was considered to be cost effective compared with usual care alone for patients who had moderate to severe disability on the Disability Assessment Scale due to focal spasticity of the upper limb, with ICERs ranging between £10,000 to £27,000 per QALY gained.

4.2. As part of value-based pricing discussions, the companies of all 3 brands of botulinum toxin A offered price reductions contingent on successful listing of their products on the MAF. The Committee concluded that at the prices proposed by the companies, botulinum toxin A was likely to also be cost effective in Singapore, if used in line with treatment protocols.

4.3. Given all three brands of botulinum toxin A were considered to be comparable in effectiveness and safety, the Committee agreed at the April 2017 meeting that Botox 50 U vial was the most cost-effective option based on a cost-minimisation approach, due to its lowest unit cost relative to the other brands. The Committee also acknowledged scenario analyses which demonstrated that the unit cost of Botox 50 U remained the lowest compared to the other brands, for all of the different dose relativity ranges tested, including the ranges accepted by the Committee.

4.4. In April 2019, following a revised price proposal for Botox 100 U vial, the Committee agreed that the cost of Botox 100 U vial was reasonable and could be considered an acceptable use of healthcare resources. Dysport and Xeomin remained at a higher cost compared with Botox.

4.5. In July 2025, following a revised price proposal for Dysport, the Committee agreed that the cost of Dysport was reasonable and could be considered an acceptable use of healthcare resources.

Estimated annual technology cost

5.1. The Committee estimated that around 381 people with focal spasticity of the upper limbs due to stroke in Singapore would benefit from government assistance for botulinum toxin A. The annual cost impact was estimated to be less than $1 million in the first year of listing on the MAF.

5.2. The Committee was aware that the annual cost impact was expected to gradually increase over the next 3-5 years due to the ageing population in Singapore and uptake in prescribing once MAF was implemented. Scenario analyses using various doses prescribed indicated that the annual cost impact still fell below $1 million.

Recommendations

6.1. Based on the evidence presented in April 2017, the Committee recommended botulinum toxin type A (Botox) 50 U vial for listing on the MAF for the management of focal spasticity of the upper limbs associated with stroke in adults, due to acceptable clinical and cost-effectiveness, and the high clinical need for this treatment in the absence of alternative treatment options.

6.2. Botox 100 U and 200 U vials, Dysport 500 U vial and Xeomin 50 U and 100 U vials were not recommended due to their higher costs compared with Botox 50 U vial that were not justified by the clinical outcomes they provide over Botox 50 U.

6.3. In April 2019, the Committee also recommended Botox 100 U vial for listing on the MAF in line with the same clinical criteria as Botox 50 U vial, following an acceptable price reduction offered by the company.

6.4. In July 2025, the Committee also recommended Dysport 300 U and 500 U vials for listing on the MAF in line with the same clinical criteria as Botox 50 U and 100 U vials, following an acceptable price reduction offered by the company.

VERSION HISTORY

Guidance on botulinum toxin A
for the management of focal spasticity of the upper limbs associated with stroke in adults

This Version History is provided to track any updates or changes to the guidance following the first publication date. It is not part of the guidance.

1. **Publication of guidance**
   Date of Publication 16 Oct 2017

2. **Guidance updated to extend MAF listing to Botox 100 U vial**
   Date of Publication 2 Sep 2019

3. **Guidance updated to extend MAF listing to Dysport 300 U and 500 U injection vials**
   Date of Publication 16 Sep 2025

Agency for Care Effectiveness - ACE Agency for Care Effectiveness (ACE)

About the Agency

The Agency for Care Effectiveness (ACE) was established by the Ministry of Health (Singapore) to drive better decision-making in healthcare through health technology assessment (HTA), clinical guidance, and education.

As the national HTA agency, ACE conducts evaluations to inform government funding decisions for treatments, diagnostic tests and vaccines, and produces guidance for public hospitals and institutions in Singapore.

The guidance is not, and should not be regarded as, a substitute for professional or medical advice. Please seek the advice of a qualified healthcare professional about any medical condition. The responsibility for making decisions appropriate to the circumstances of the individual patient remains with the healthcare professional.

Find out more about ACE at www.ace-hta.gov.sg/about

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