Modelling the Economic Impact of Incorporating AbobotulinumtoxinA Into an Institutional Formulary for FDA-Approved Indications

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BACKGROUND

- Type A botulinum toxin (BoNT-A) is a neurotoxin produced by the bacteria *Clostridium botulinum*, which has become widely used for various neurologic indications, including cervical dystonia (CD) and limb spasticity.[1]
- In the US, abobotulinumtoxinA (aboBoNT-A) and onabotulinumtoxinA (onaBoNT-A) are approved for the treatment of CD and limb spasticity.
- FDA-approved BoNT formulations have different potency units, dosage regimens, and acquisition costs.[2, 3]
- Real-world data suggest potential cost savings to organizational settings when converting patients to aboBoNT-A from other neurotoxins for FDA-approved indications as part of a formulary management process.[4]

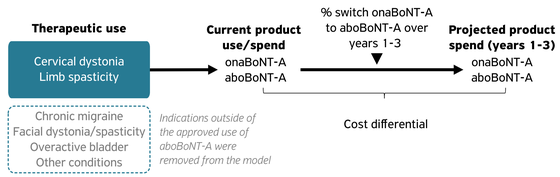
OBJECTIVE

- The objective of this analysis was to estimate the overall costs of two BoNT-A products—onaBoNT-A and aboBoNT-A—for CD in adults, and limb spasticity in adults and children (aged ≥2 years), using an economic model that evaluates a formulary conversion from onaBoNT-A to aboBoNT-A, over a three-year time horizon within a health care organizational setting.

METHODS

- A Microsoft-based model was developed to show the relative annual budget expenditures of botulinum toxins within an organization (hospital health system) setting (**Figure 1**).

Figure 1. Model overview



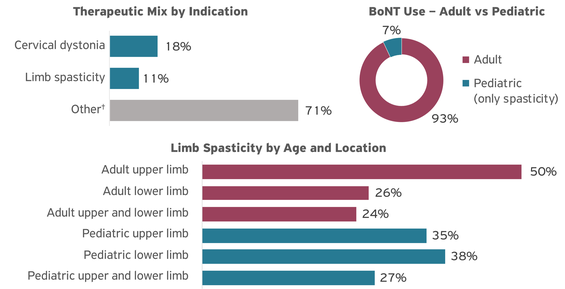
- The model provided a budgetary analysis only for the on-label indications for aboBoNT-A for cervical dystonia in adults and limb spasticity in adults and children ≥2 years of age.
- For limb spasticity, adult and pediatric populations and anatomic locations for treatment were segmented.
- Inputs for current product use were based on relative market share of BoNT-A products, vials purchased annually by a representative institution, and the annual spend calculated with wholesale acquisition costs (WAC).
- Total institutional spend on BoNT-A products was estimated to be $3,040,789 across all indications and $949,142 within CD and limb spasticity (**Table 1**).

Table 1. Current annual product utilization and cost to institution

	Number of vials	Number of units	Product cost	WAC	Rebate	Unit Cost
onaBoNT-A						
100 U	3296	329,600	$1,980,896	$601.00	0%	$6.01
200 U	803	160,600	$965,206	$1,202.00	0%	$6.01
Total		**490,200**	**$2,946,102**			
aboBoNT-A						
300 U	42	12,600	$21,672	$516.00	0%	$1.72
500 U	85	42,500	$73,015	$859.00	0%	$1.72
Total		**55,100**	**$94,687**			
Total BoNT-A spend			**$3,040,789**			

- Cost calculations were estimated based on therapeutic mix across approved indications, annual dosages using the maximum FDA-approved doses for each toxin, and the annual unit utilization and unit cost (**Figure 2**).[4]
  - Default inputs for the product utilization mix across CD and limb spasticity comprised 29% of overall product use.
- Cost modeling that reflected a shift in product utilization to aboBoNT-A over 3 years was performed and annual cost estimates were compared for the aboBoNT-A indications.

Figure 2. Therapeutic mix of BoNT-A products*



*Default values were based on real-world use in the institutional hospital setting as reported by Al-Mazraawy B, et al.
†Other indications for which onaBoNT-A is approved by the FDA and aboBoNT-A has no approved indication include chronic migraine, facial dystonia/spasticity, overactive bladder, and other (as reported by Al-Mazraawy et al). Patients who might receive treatment for these indications were removed from this cost model.

RESULTS

- Transitioning the annual utilization share of onaBoNT-A to aboBoNT-A by 25% annually from baseline in CD and limb spasticity resulted in an estimated savings of $46,190, $138,571, and $277,143 in years 1, 2, and 3, respectively (**Figures 3 and 4**).

Figure 3. BoNT annual spend over time

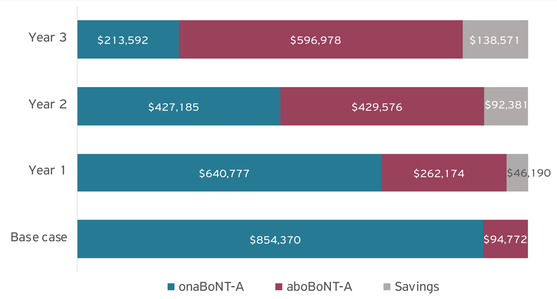
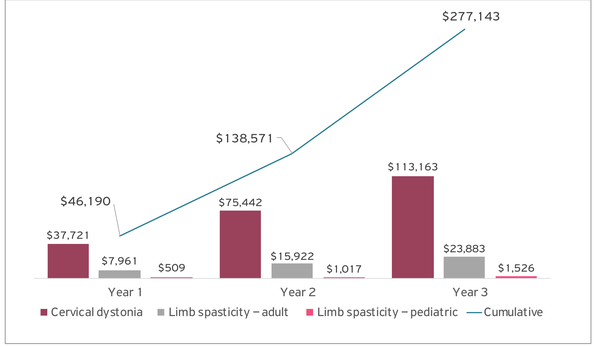
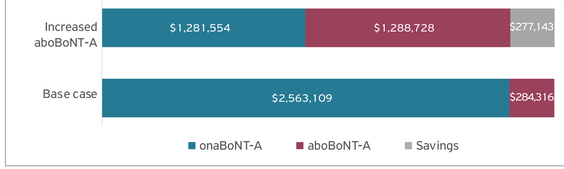


Figure 4. Indication-specific and total annual savings over time



- Cumulative savings over 3 years with the 25% annual switch rate were estimated to be $277,143 (**Figure 5**).

Figure 5. Cumulative BoNT 3-year spend



- Limitations of the study include:
  - Model does not compare the clinical efficacy or safety of the BoNT-A products; therefore, it does not incorporate the resulting economic impact of these outcomes.
  - Any comparison of aboBoNT-A with other products is not intended to imply clinical benefit of safety or efficacy because the products have not been studied in head-to-head trials. The products may not be comparable in terms of efficacy and safety.
  - Dosing of BoNT-A products should be individualized based on a patient's therapeutic response and tolerability. As such, drug expenditure may vary from that in the model.
  - Comparator BoNT-A products may have different FDA-approved indications than aboBoNT-A. Comparisons were not made in those instances for which there is not the same FDA-approved indication as aboBoNT-A.
  - The results presented could be conservative as the model assumes the same injection intervals for all BoNT-A products, however real-world evidence suggests that aboBoNT-A offers longer injection intervals, therefore decreasing the annual injection costs.[5]

CONCLUSIONS

- For the aboBoNT-A indications of CD and limb spasticity, converting from onaBoNT-A to aboBoNT-A is potentially cost saving for institutions and hospital systems.
- These results are consistent with findings from independent research.[4, 6]
- In a representative institutional setting, converting onaBoNT-A use to aboBoNT-A for CD and limb spasticity by 25% year over year resulted in an estimated cumulative savings of $277,143 over 3 years.

References

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Disclosures JM: Consultant for Ipsen; **ND:** employee of Ipsen; **JB:** employee of Ipsen.

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