

**CENTER FOR DRUG EVALUATION AND
RESEARCH**

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PROPRIETARY NAME REVIEW(S)



Department of Health and Human Services
Public Health Service
Food and Drug Administration
Center for Drug Evaluation and Research
Office of Surveillance and Epidemiology

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Division of Medication Error Prevention and Analysis (DMEPA)

Subject: Proprietary Name Review

Drug Name(s): Dysport (AbotulinumtoxinA) for Injection
500 units/vial and 300 units/vial

Application Type/Number: BLAs: 125274 and 125286

Licensee/Licensee: Ipsen Biopharm, Inc.

OSE RCM #: 2008-1887

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EXECUTIVE SUMMARY

This re-assessment of the proprietary name is written in response to notification that BLA#125274 and BLA# 125286 will be approved within 90 days. DMEPA found the proposed proprietary name, Dysport, acceptable in OSE Review#2008-328 dated August 2008 for the treatment of adults with cervical dystonia to reduce the severity of abnormal head position and neck pain. Since that review, DMEPA in conjunction with the Division of Dermatologic and Dental Products, determined that the 300 units per vial strength of the product indicated for the treatment of glabellar lines, would also be managed under the proposed proprietary name, Dysport. Additionally, the licensee has resolved the potential confusion resulting from the use of one established name for the *clostridium botulinum toxin Type A* products by using a unique three-letter prefix followed by the nomenclature 'botulinumtoxinA. Thus, the established name for Dysport will be AbotulinumtoxinA.

During this re-review we identified 21 names for their similarity to Dysport. DMEPA re-evaluated the names identified in our initial review because the 300 unit strength was not initially considered (i.e., 300 unit strength was to be marketed under proposed proprietary name Reloxin). The results of the Failure Mode and Effects Analysis found that the proposed name, Dysport, is not vulnerable to confusion that could lead to medication errors with any of the 21 names. Thus, the Division of Medication Error Prevention and Analysis does not object to the use of the proprietary name, Dysport, for BLAs #125274 and 125286.

DMEPA considers this a final review, however, if approval of the BLA is delayed beyond 90 days from the date of this review, the Division of Neurology Products or Division of Dermatology and Dental Products should notify DMEPA because the proprietary name must be re-reviewed prior to the new approval date.

1 BACKGROUND

1.1 INTRODUCTION

1.2 REGULATORY HISTORY

Dysport is the proposed proprietary name for this product for the indication of treatment of adults with cervical dystonia to reduce the severity of abnormal head position and neck pain in both toxin-naïve and previously treated patients. The product is also undergoing a concurrent review in the Division of Dermatology and Dental Products for the proposed indication of the treatment of glabellar lines under BLA #125286. The Licensee submitted this latter BLA with a different proposed proprietary name, Reloxin.

The proposed proprietary name, Dysport, was originally reviewed by DMEPA in August 2008 in OSE Review # 2008-328 and the name was found acceptable at that time. This review also discussed the potential for confusion between multiple products with the same established name '*botulinum toxin Type A*'. This latter issue has been addressed by the use of a unique three-letter prefix followed by the nomenclature 'botulinumtoxinA', for each *clostridium botulinum toxin Type A* product.

The Division of Drug Marketing, Advertising and Communication (DDMAC) objected to the name Reloxin for the glabellar lines indication of use. Subsequent to that decision, DMEPA in conjunction with the Division of Dermatology and Dental Products determined that both indications of use for AbotulinumtoxinA for Injection (i.e., BLA 125286 and BLA 125274) can be managed under one proprietary name (OSE review #2008-1449).

On April 2, 2009, the Agency informed the Licensee of DDMAC's objection to the proposed proprietary name, 'Reloxin' and explained that DMEPA and DDDP agree the product can be managed under the proposed proprietary name, Dysport, for both strengths and indications.

Thus, this review will evaluate the proposed proprietary name Dysport for both indications of use.

1.3 PRODUCT INFORMATION

Dysport is an acetylcholine release inhibitor and a neuromuscular blocking agent indicated for the treatment of adults with cervical dystonia to reduce the severity of abnormal head position and neck pain in both toxin-naïve and previously treated patients. It is also indicated for the treatment of glabellar lines. The recommended initial dose of Dysport for cervical dystonia is 500 units administered intramuscularly in divided doses among the affected muscles. Retreatment every 12 weeks to 16 weeks or longer as necessary based on the return of clinical symptoms with doses between 250 units and 1000 units, is recommended. Titration should occur in 250 unit increments according to the patient's response.

(b) (4)

Dysport will be available in single use, 500 unit vials as a lyophilized powder requiring reconstitution with 1 mL of 0.9% Sodium Chloride for Injection USP (without preservative) with a final resultant concentration of 50 units per 0.1 mL. It will also be available in a single use, 300 unit vial, which will require reconstitution with 2.5 mL of 0.9% Sodium Chloride USP (without preservative) and will have a resultant concentration of 12 units per 0.1 mL. Unreconstituted vials are to be stored at 2° to 8° C (36° to 46° F) and require protection from light. Dysport will be packaged in cartons containing either one vial or two vials per carton.

2 METHODS AND MATERIALS

Appendix A describes the general methods and materials used by the Division of Medication Error Prevention and Analysis (DMEPA) when conducting a proprietary name risk assessment for all proprietary names. Section 2.1 identifies specific information associated with the methodology for the proposed proprietary name, Dysport. Since this name was previously reviewed, prescription studies were not repeated during this review cycle.

2.1 SEARCH CRITERIA

For this review, particular consideration was given to drug names beginning with the letter 'D' when searching to identify potentially similar drug names, as 75% of the confused drug names reported by the USP-ISMP Medication Error Reporting Program involve pairs beginning with the same letter.^{1,2}

To identify drug names that may look similar to Dysport, the DMEPA staff also considers the orthographic appearance of the name on lined and unlined orders. Specific attributes taken into consideration include the length of the name (7 letters), upstrokes (2, letters 'D' and 't'), downstrokes (2 letters, 'y' and 'p'), cross strokes (1 letter, 't'), and dotted letters (none). Additionally, several letters in Dysport may be vulnerable to ambiguity when scripted, including the capital letter 'D' may appear as capital letters 'O' or 'Q'; lower case 'd' may look like the lower case letters 'cl'; and the letterstring '-ort' may appear as '-act', '-art', '-oct', '-ert', and '-ast'. As a result, the DMEPA staff also considers these alternate appearances when identifying drug names that may look similar to Dysport.

When searching to identify potential names that may sound similar to Dysport, the DMEPA staff search for names with similar number of syllables (2), stresses (dys-PORT or DYS-port), and placement of vowel and consonant sounds. Additionally, the DMEPA staff considers that pronunciation of parts of the name can vary such as the first syllable, 'Dys' may be pronounced 'Dice', 'Dis', or 'Diz', and the second syllable 'port' may be pronounced as 'purt', 'pirt', 'part', and 'pert'. The Licensee did not provide their intended pronunciation of the proprietary name in the proposed name submission and, therefore, it could not be taken into consideration. Moreover, names are often mispronounced and/or spoken with regional accents and dialects, so other potential pronunciations of the name are considered.

3 RESULTS

3.1 DATABASE AND INFORMATION SOURCES

The searches yielded a total of 14 names as having some similarity to the name Dysport.

Ten of the names were thought to look like Dysport. These include Dymelor, Dymenate, Dyazide, Dyspel, Dyspamet, Dispermox, Synercid, Dynapen, Dyspen, and Drysol. One name, Disipal was thought to sound like Dysport. The remaining three names, Dysport, Dyspas, and Dry Sport, were thought to look and sound similar to Dysport.

Additionally, DMEPA staff did not identify any United States Adopted Names (USAN) stems in the proposed proprietary name, as of March 25, 2009.

3.2 EXPERT PANEL DISCUSSION

The Expert Panel reviewed the pool of names identified by DMEPA staff (See Section 3.1 above) and noted no additional names thought to have orthographic or phonetic similarity to Dysport.

DDMAC had no concerns regarding the proposed name from a promotional perspective, and did not offer any additional comments relating to the proposed name.

¹ Institute for Safe Medication Practices. Confused Drug name List (1996-2006). Available at <http://www.ismp.org/Tools/confuseddrugnames.pdf>

² Kondrack, G and Dorr, B. Automatic Identification of Confusable Drug Names. Artificial Intelligence in Medicine (2005)

3.3 SAFETY EVALUATOR RISK ASSESSMENT

Independent searches by the primary Safety Evaluator resulted in no additional names which were thought to look or sound similar to Dysport and represent a potential source of drug name confusion.

Although the Expert Panel identified 14 names for this review, one of the fourteen names, Dysport, was not evaluated further since it is the same product currently marketed in Europe. Additionally, the names previously reviewed in OSE Review #2008-328, which were not identified in the database searches (8), were re-evaluated because of the decision to market both the 500 units and the 300 units strength under the same proprietary name. As such, 21 names were analyzed to determine if the drug names could be confused with Dysport and if the drug name confusion would likely result in a medication error.

4 DISCUSSION

DMEPA evaluated twenty-one names for their potential similarity to the proposed name, Dysport. Six names lacked orthographic and/or phonetic similarity and were not evaluated further (see Appendix B).

Failure Mode and Effect Analysis (FMEA) was then applied to determine if the proposed proprietary name could potentially be confused with the remaining fifteen names and lead to medication errors. This analysis determined that the name similarity between Dysport was unlikely to result in medication errors with any of the fifteen products for the reasons presented in Appendices C through E.

5 CONCLUSIONS AND RECOMMENDATIONS

The Proprietary Name Risk Assessment findings indicate that the proposed name, Dysport, is not vulnerable to name confusion that could lead to medication errors. Thus, the Division of Medication Error Prevention and Analysis (DMEPA) has no objection to the proprietary name, Dysport, for this product at this time. Additionally, DDMAC does not object to the proposed name, Dysport, from a promotional perspective.

However, if any of the proposed product characteristics as stated in this review are altered prior to approval of the product, DMEPA rescinds this Risk Assessment finding and the name must be resubmitted for review. In the event that our Risk Assessment finding is rescinded, the evaluation of the name on resubmission is independent of the previous Risk Assessment, and as such, the conclusions on re-review of the name are subject to change.

5.1 COMMENTS TO THE DIVISION

We are willing to meet with the Division for further discussion, if needed. Please copy DMEPA on any communication to the Licensee with regard to this review. If you have further questions or need clarifications, please contact Daniel Brounstein, project manager, at 301-796-0674.

6 REFERENCES

6.1 REVIEWS

1. OSE Review 2008-328, *Proprietary Name, Label and Labeling Review for Dysport (clostridium botulinum type A Toxi-Haemagglutinin Complex) for injection, Fava, W., August 29, 2008.*
2. OSE Review 2008-1149, *Proprietary Name Review for Reloxin (abobotulinumtoxinA) for injection, Fava, W. April 21, 2009.*

6.2 DATABASES

1. ***Micromedex Integrated Index (<http://csi.micromedex.com>)***

Micromedex contains a variety of databases covering pharmacology, therapeutics, toxicology and diagnostics.

2. ***Phonetic and Orthographic Computer Analysis (POCA)***

POCA is a database which was created for the Division of Medication Error Prevention and Analysis, FDA. As part of the name similarity assessment, proposed names are evaluated via a phonetic/orthographic algorithm. The proposed proprietary name is converted into its phonemic representation before it runs through the phonetic algorithm. Likewise, an orthographic algorithm exists which operates in a similar fashion.

3. ***Drug Facts and Comparisons, online version, St. Louis, MO (<http://factsandcomparisons.com>)***

Drug Facts and Comparisons is a compendium organized by therapeutic course; it contains monographs on prescription and OTC drugs, with charts comparing similar products.

4. ***AMF Decision Support System [DSS]***

DSS is a government database used to track individual submissions and assignments in review divisions.

5. ***Division of Medication Errors Prevention and Analysis proprietary name consultation requests***

This is a list of proposed and pending names that is generated by the Division of Medication Error Prevention and Analysis from the Access database/tracking system.

6. ***Drugs@FDA (<http://www.accessdata.fda.gov/scripts/cder/drugsatfda/index.cfm>)***

Drugs@FDA contains most of the drug products approved since 1939. The majority of labels, approval letters, reviews, and other information are available for drug products approved from 1998 to the present. Drugs@FDA contains official information about FDA approved brand name, generic drugs, therapeutic biological products, prescription and over-the-counter human drugs and discontinued drugs and "Chemical Type 6" approvals.

7. ***Electronic online version of the FDA Orange Book (<http://www.fda.gov/cder/ob/default.htm>)***

The FDA Orange Book provides a compilation of approved drug products with therapeutic equivalence evaluations.

8. ***U.S. Patent and Trademark Office (<http://www.uspto.gov>)***

USPTO provides information regarding patent and trademarks.

9. **Clinical Pharmacology Online** (www.clinicalpharmacology-ip.com)

Clinical Pharmacology contains full monographs for the most common drugs in clinical use, plus mini monographs covering investigational, less common, combination, nutraceutical and nutritional products. It also provides a keyword search engine.

10. **Data provided by Thomson & Thomson's SAEGIS™ Online Service, available at** (www.thomson-thomson.com)

The Pharma In-Use Search database contains over 400,000 unique pharmaceutical trademarks and trade names that are used in about 50 countries worldwide. The data is provided under license by IMS HEALTH.

11. **Natural Medicines Comprehensive Databases** (www.naturaldatabase.com)

Natural Medicines contains up-to-date clinical data on the natural medicines, herbal medicines, and dietary supplements used in the western world.

12. **Stat!Ref** (www.statref.com)

Stat!Ref contains full-text information from approximately 30 texts; it includes tables and references. Among the database titles are: Handbook of Adverse Drug Interactions, Rudolphs Pediatrics, Basic Clinical Pharmacology, and Dictionary of Medical Acronyms Abbreviations.

13. **USAN Stems** (<http://www.ama-assn.org/ama/pub/category/4782.html>)

USAN Stems List contains all the recognized USAN stems.

14. **Red Book Pharmacy's Fundamental Reference**

Red Book contains prices and product information for prescription, over-the-counter drugs, medical devices, and accessories.

15. **Lexi-Comp** (www.lexi.com)

Lexi-Comp is a web-based searchable version of the Drug Information Handbook.

16. **Medical Abbreviations Book**

Medical Abbreviations Book contains commonly used medical abbreviations and their definitions.

APPENDICES

Appendix A:

FDA's Proprietary Name Risk Assessment considers the potential for confusion between the proposed proprietary name and the proprietary and established names of drug products existing in the marketplace and those pending IND, NDA, BLA, and ANDA products currently under review by the Center. DMEPA defines a medication error as any preventable event that may cause or lead to inappropriate medication use or patient harm while the medication is in the control of the health care professional, patient, or consumer.³

For the proposed proprietary name, DMEPA staff search a standard set of databases and information sources to identify names with orthographic and phonetic similarity and hold a Center for Drug Evaluation and Research

³ National Coordinating Council for Medication Error Reporting and Prevention.
<http://www.nccmerp.org/aboutMedErrors.html>. Last accessed 10/11/2007.

(CDER) Expert Panel discussion to gather professional opinions on the safety of the proposed proprietary name. DMEPA staff also conducts internal CDER prescription analysis studies. When provided, DMEPA considers external prescription analysis study results and incorporated into the overall risk assessment.

The Safety Evaluator assigned to the Proprietary Name Risk Assessment is responsible for considering the collective findings, and provides an overall risk assessment of the proposed proprietary name. DMEPA bases the overall risk assessment on the findings of a Failure Mode and Effects Analysis (FMEA) of the proprietary name, and focuses on the avoidance of medication errors.

FMEA is a systematic tool for evaluating a process and identifying where and how it might fail.⁴ DMEPA uses FMEA to analyze whether the drug names identified with orthographic or phonetic similarity to the proposed proprietary name could cause confusion that subsequently leads to medication errors in the clinical setting. DMEPA uses the clinical expertise of its staff to anticipate the conditions of the clinical setting where the product is likely to be used based on the characteristics of the proposed product.

In addition, the product characteristics provide the context for the verbal and written communication of the drug names and can interact with the orthographic and phonetic attributes of the names to increase the risk of confusion when there is overlap or, in some instances, decrease the risk of confusion by helping to differentiate the products through dissimilarity. Accordingly, the DMEPA staff considers the product characteristics associated with the proposed drug throughout the risk assessment because the product characteristics of the proposed may provide a context for communication of the drug name and ultimately determine the use of the product in the *usual* clinical practice setting.

Typical product characteristics considered when identifying drug names that could potentially be confused with the proposed proprietary name include, but are not limited to; established name of the proposed product, proposed indication of use, dosage form, route of administration, strength, unit of measure, dosage units, recommended dose, typical quantity or volume, frequency of administration, product packaging, storage conditions, patient population, and prescriber population. Because drug name confusion can occur at any point in the medication use process, DMEPA staff considers the potential for confusion throughout the entire U.S. medication use process, including drug procurement, prescribing and ordering, dispensing, administration, and monitoring the impact of the medication.⁵ DMEPA provides the product characteristics considered for this review in Section 1.2.

The Division of Medication Error Prevention and Analysis considers the spelling of the name, pronunciation of the name when spoken, and appearance of the name when scripted. DMEPA also compares the spelling of the proposed proprietary name with the proprietary and established name of existing and proposed drug products because similarly spelled names may have greater likelihood to sound similar to one another when spoken or look similar to one another when scripted. DMEPA staff also examines the orthographic appearance of the proposed name using a number of different handwriting samples. Handwritten communication of drug names has a long-standing association with drug name confusion. Handwriting can cause similarly and even dissimilarly spelled drug name pairs to appear very similar to one another. The similar appearance of drug names when scripted has led to medication errors. The DMEPA staff applies expertise gained from root-cause analysis of such medication errors to identify sources of ambiguity within the name that could be introduced when scripting (e.g., "T" may look like "F," lower case 'a' looks like a lower case 'u,' etc). Additionally, other orthographic attributes that determine the overall appearance of the drug name when scripted (see Table 1 below for details). In addition, the DMEPA staff compares the pronunciation of the proposed proprietary name with the pronunciation of other drug names because verbal communication of medication names is common in clinical settings. If provided, DMEPA will consider the Licensee's intended pronunciation of the proprietary name. However, DMEPA also considers a variety of pronunciations that could occur in the English language because the Licensee has little control over how the name will be spoken in clinical practice.

⁴ Institute for Healthcare Improvement (IHI). Failure Modes and Effects Analysis. Boston. IHI:2004.

⁵ Institute of Medicine. Preventing Medication Errors. The National Academies Press: Washington DC. 2006.

Table 1. Criteria used to identify drug names that look or sound similar to a proposed proprietary name

Type of similarity	Considerations when searching the databases		
	Potential causes of drug name similarity	Attributes examined to identify similar drug names	Potential Effects
Look-alike	Similar spelling	Identical prefix Identical infix Identical suffix Length of the name Overlapping product characteristics	<ul style="list-style-type: none"> Names may appear similar in print or electronic media and lead to drug name confusion in printed or electronic communication Names may look similar when scripted and lead to drug name confusion in written communication
	Orthographic similarity	Similar spelling Length of the name Upstrokes Down strokes Cross-strokes Dotted letters Ambiguity introduced by scripting letters Overlapping product characteristics	<ul style="list-style-type: none"> Names may look similar when scripted, and lead to drug name confusion in written communication
Sound-alike	Phonetic similarity	Identical prefix Identical infix Identical suffix Number of syllables Stresses Placement of vowel sounds Placement of consonant sounds Overlapping product characteristics	<ul style="list-style-type: none"> Names may sound similar when pronounced and lead to drug name confusion in verbal communication

Lastly, the DMEPA staff also considers the potential for the proposed proprietary name to inadvertently function as a source of error for reasons other than name confusion. Post-marketing experience has demonstrated that proprietary names (or components of the proprietary name) can be a source of error in a variety of ways. Consequently, DMEPA considers and evaluates these broader safety implications of the name throughout this assessment and the medication error staff provides additional comments related to the safety of the proposed proprietary name or product based on professional experience with medication errors.

1. Database and Information Sources

DMEPA staff conducts searches of the internet, several standard published drug product reference texts, and FDA databases to identify existing and proposed drug names that may sound-alike or look-alike to the proposed proprietary name using the criteria outlined in Section 2.1. Section 6 provides a standard description of the databases used in the searches. To complement the process, the DMEPA staff use a computerized method of identifying phonetic and orthographic similarity between medication names. The program, Phonetic and Orthographic Computer Analysis (POCA), uses complex algorithms to select a list of names from a database that have some similarity (phonetic, orthographic, or both) to the trademark being evaluated. Lastly, the DMEPA staff review the USAN stem list to determine if any USAN stems are present within the

proprietary name. The individual findings of multiple safety evaluators are pooled and presented to the CDER Expert Panel.

2. CDER Expert Panel Discussion

DMEPA conducts an Expert Panel Discussion to gather CDER professional opinions on the safety of the proposed product and the proposed proprietary name. The Expert Panel is composed of Division of Medication Errors Prevention (DMEPA) staff and representatives from the Division of Drug Marketing, Advertising, and Communications (DDMAC). The Expert Panel also discusses potential concerns regarding drug marketing and promotion related to the proposed names.

The primary Safety Evaluator presents the pooled results of the DMEPA staff to the Expert Panel for consideration. Based on the clinical and professional experiences of the Expert Panel members, the Panel may recommend the addition of names, additional searches by the primary Safety Evaluator to supplement the pooled results, or general advice to consider when reviewing the proposed proprietary name.

3. FDA Prescription Analysis Studies

Three separate studies are conducted within the Centers of the FDA for the proposed proprietary name to determine the degree of confusion of the proposed proprietary name with marketed U.S. drug names (proprietary and established) due to similarity in visual appearance with handwritten prescriptions or verbal pronunciation of the drug name. The studies employ 123 (one hundred twenty-three) healthcare professionals (pharmacists, physicians, and nurses), and attempts to simulate the prescription ordering process. The primary Safety Evaluator uses the results to identify orthographic or phonetic vulnerability of the proposed name to be misinterpreted by healthcare practitioners.

In order to evaluate the potential for misinterpretation of the proposed proprietary name in handwriting and verbal communication of the name, inpatient medication orders and outpatient prescriptions are written, each consisting of a combination of marketed and unapproved drug products, including the proposed name. These orders are optically scanned and one prescription is delivered to a random sample of the 123 participating health professionals via e-mail. In addition, a verbal prescription is recorded on voice mail. The voice mail messages are then sent to a random sample of the participating health professionals for their interpretations and review. After receiving either the written or verbal prescription orders, the participants send their interpretations of the orders via e-mail to DMEPA.

4. Safety Evaluator Risk Assessment of the Proposed Proprietary Name

The primary Safety Evaluator applies his/her individual expertise gained from evaluating medication errors reported to FDA and conducts a Failure Mode and Effects Analysis and provides an overall risk assessment of name confusion. Failure Mode and Effects Analysis (FMEA) is a systematic tool for evaluating a process and identifying where and how it might fail.⁶ When applying FMEA to assess the risk of a proposed proprietary name, DMEPA seeks to evaluate the potential for a proposed proprietary name to be confused with another drug name because of name confusion and, thereby, cause errors to occur in the medication use system. FMEA capitalizes on the predictable and preventable nature of medication errors associated with drug name confusion. FMEA allows the Agency to identify the potential for medication errors due to orthographically or phonetically similar drug names prior to approval, where actions to overcome these issues are easier and more effective than remedies available in the post-approval phase.

In order to perform an FMEA of the proposed name, the primary Safety Evaluator must analyze the use of the product at all points in the medication use system. Because the proposed product is has not been marketed, the primary Safety Evaluator anticipates the use of the product in the usual practice settings by considering the

⁶ Institute for Healthcare Improvement (IHI). Failure Modes and Effects Analysis. Boston. IHI:2004.

clinical and product characteristics listed in Section 1.2. The Safety Evaluator then analyzes the proposed proprietary name in the context of the usual practice setting and works to identify potential failure modes and the effects associated with the failure modes.

In the initial stage of the Risk Assessment, the Safety Evaluator compares the proposed proprietary name to all of the names gathered from the above searches, Expert Panel Discussion, and studies, and identifies potential failure modes by asking:

“Is the proposed proprietary name convincingly similar to another drug name, which may cause practitioners to become confused at any point in the usual practice setting?”

An affirmative answer indicates a failure mode and represents a potential for the proposed proprietary name to be confused with another proprietary or established drug name because of look- or sound-alike similarity. If the answer to the question is no, the Safety Evaluator is not convinced that the name possesses similarity that would cause confusion at any point in the medication use system, thus the name is eliminated from further review.

In the second stage of the Risk Assessment, the primary Safety Evaluator evaluates all potential failure modes to determine the likely effect of the drug name confusion, by asking:

“Could the confusion of the drug names conceivably result in medication errors in the usual practice setting?”

The answer to this question is a central component of the Safety Evaluator’s overall risk assessment of the proprietary name. If the Safety Evaluator determines through FMEA that the name similarity would not ultimately be a source of medication errors in the usual practice setting, the primary Safety Evaluator eliminates the name from further analysis. However, if the Safety Evaluator determines through FMEA that the name similarity could ultimately cause medication errors in the usual practice setting, the Safety Evaluator will then recommend the use of an alternate proprietary name.

DMEPA will object to the use of proposed proprietary name when the primary Safety Evaluator identifies one or more of the following conditions in the Risk Assessment:

1. DDMAC finds the proposed proprietary name misleading from a promotional perspective, and the Review Division concurs with DDMAC’s findings. The Federal Food, Drug, and Cosmetic Act provides that labeling or advertising can misbrand a product if misleading representations are made or suggested by statement, word, design, device, or any combination thereof, whether through a proprietary name or otherwise. [21 U.S.C 321(n); See also 21 U.S.C. 352(a) & (n)].
2. DMEPA identifies that the proposed proprietary name is misleading because of similarity in spelling or pronunciation to another proprietary or established name of a different drug or ingredient [CFR 201.10.(C)(5)].
3. FMEA identifies the potential for confusion between the proposed proprietary name and other proprietary or established drug name(s), and demonstrates that medication errors are likely to result from the drug name confusion under the conditions of usual clinical practice.
4. The proposed proprietary name contains an USAN (United States Adopted Names) stem, particularly in a manner that is contradictory to the USAN Council’s definition.
5. DMEPA identifies a potential source of medication error within the proposed proprietary name. For example, the proprietary name may be misleading or, inadvertently, introduce ambiguity and confusion that leads to errors. Such errors may not necessarily involve confusion between the proposed drug and another drug product.

If DMEPA objects to a proposed proprietary name on the basis that drug name confusion could lead to medication errors, the primary Safety Evaluator uses the FMEA process to identify strategies to reduce the risk of medication errors. DMEPA is likely to recommend that the Licensee select an alternative proprietary name

and submit the alternate name to the Agency for DMEPA to review. However, in rare instances FMEA may identify plausible strategies that could reduce the risk of medication error of the currently proposed name. In that instance, DMEPA may be able to provide the Licensee with recommendations that reduce or eliminate the potential for error and, thereby, would render the proposed name acceptable.

In the event that DMEPA objects to the use of the proposed proprietary name, based upon the potential for confusion with another proposed (but not yet approved) proprietary name, DMEPA will provide a contingency objection based on the date of approval. Whichever product, the Agency approves first has the right to use the proprietary name, while DMEPA will recommend that the second product to reach approval seek an alternative name.

The threshold set for objection to the proposed proprietary name may seem low to the Licensee. However, the safety concerns set forth in criteria 1 through 5 are supported either by FDA regulation or by external healthcare authorities, including the Institute of Medicine (IOM), World Health Organization (WHO), Joint Commission on Accreditation of Hospitals (JCOAH), and the Institute for Safe Medication Practices (ISMP). These organizations have examined medication errors resulting from look- or sound-alike drug names and called for regulatory authorities to address the issue prior to approval. Additionally, DMEPA contends that the threshold set for the Proprietary Name Risk Assessment is reasonable because proprietary drug name confusion is a predictable and a preventable source of medication error that, in many instances, the Agency and/or Licensee can identify and rectify prior to approval to avoid patient harm.

Furthermore, post-marketing experience has demonstrated that medication errors resulting from drug name confusion are notoriously difficult to rectify post-approval. Educational and other post-approval efforts are low-leverage strategies that have had limited effectiveness at alleviating medication errors involving drug name confusion. Licensees have undertaken higher-leverage strategies, such as drug name changes, in the past but at great financial cost to the Licensee and at the expense of the public welfare, not to mention the Agency's credibility as the authority responsible for approving the error-prone proprietary name. Moreover, even after Licensees' have changed a product's proprietary name in the post-approval phase, it is difficult to eradicate the original proprietary name from practitioners' vocabulary, and as a result, the Agency has continued to receive reports of drug name confusion long after a name change in some instances. Therefore, DMEPA believes that post-approval efforts at reducing name confusion errors should be reserved for those cases in which the potential for name confusion could not be predicted prior to approval. (See Section 4 for limitations of the process).

Appendix B: Names Lacking Orthographic and/or Phonetic Similarity.

Name	Similarity to Dysport
Dymelor	Look
Delcort	Look
Dricort	Look
Dymenate	Look
Synercid	Look
Dyazide	Look

Appendix C: Proprietary or Established Names used only in Foreign Countries

Proprietary Name	Similarity to Dysport	Country	Description
Dyspamet	Look	Ireland, United Kingdom	cimetidine
Depotest 100	Look	Canada	testosterone cypionate
Dyspen	Look	Malaysia	mefenamic acid

Appendix D: Proprietary names with similarity to Dysport submitted to the Agency but did not receive approval

Proprietary Name	Similarity to Dysport	Status
(b) (4)	Look	Unapproved as of September 1980

Appendix E: Drug products that are discontinued and no generic equivalent is available

Proprietary Name (established name)	Similarity to Dysport	Status
Disipal (orphenadrine hydrochloride)	Sound	Discontinued

Appendix F: Potential confusing name with orthographic similarity to Dysport but lacking substantive overlapping product characteristics

Dysport	500 units/vial 300 units/ vial	Usual Dose: Inject 500 units in divided doses in affected muscles every 12 to 16 weeks as needed for cervical dystonia For glabellar lines, the dose is based on gender and muscle mass, with doses ranging from 50 units per muscle to 80 units per muscle
Failure Mode: Name confusion	Causes (could be multiple)	Effects
Dispermox (amoxicillin)	<p>Look-alike similarities include both names beginning with the same letter, 'D'.</p> <p>Both names have the letters 'D', 's', 'p', and 'r' in the same sequence and positions.</p> <p>The letter string 'per' in Dispermox looks similar to the letter string 'por' in Dysport.</p>	<p>Orthographic and product characteristic differences will minimize the potential for confusion that would lead to medication errors</p> <p><i>Rationale:</i></p> <p>Dispermox has 9 letters and appears longer when scripted when compared to Dysport which has 7 letters</p> <p>Dispermox only contains one upstroke letter (D) and one downstroke letter (p) compared to Dysport which has two upstroke letters (D and T) and two downstroke letters (y and p).</p> <p>The ending letter string 'mox' in Dispermox looks very different from the ending letter string 'ort' in Dysport.</p> <p>Dispermox is available as tablets for oral suspension and must be mixed with water prior to administration whereas Dysport is a lyophilized powder which must be reconstituted with 0.9% Sodium Chloride without preservative prior to intramuscular administration.</p> <p>Dispermox is available in 200 mg, 400 mg and 600 mg oral tablets for suspension compared to Dysport which will be available in the proposed strength of 500 units per vial.</p> <p>Dispermox is usually dosed three times a day for 7 to 14 days versus Dysport which is administered as a one time dose and repeated every 12 to 16 weeks as needed.</p> <p>The ordering healthcare provider will administer Dysport. In most cases, Dysport orders will not likely be processed or prepared by pharmacists. This minimizes the potential for proprietary name confusion at the pharmacy level.</p>

Dysport	500 units/vial 300 units/ vial	Usual Dose: Inject 500 units in divided doses in affected muscles every 12 to 16 weeks as needed for cervical dystonia For glabellar lines, the dose is based on gender and muscle mass, with doses ranging from 50 units per muscle to 80 units per muscle
Failure Mode: Name confusion	Causes (could be multiple)	Effects
Dynapen (dicloxacillin)	<p>Orthographic similarities include both names begin with the same first two letters 'Dy'.</p> <p>Both names have the same two downstroke letters, 'y' and 'p'.</p>	<p>Orthographic and product characteristic differences will minimize potential confusion that could lead to medication errors.</p> <p><i>Rationale:</i></p> <p>Dynapen has one upstroke letter 'D' compared to two upstroke letters 'D' and 't' in Dysport.</p> <p>The first four letters 'dyna' in Dynapen look orthographically different from the first four letters 'dysp' in Dysport.</p> <p>The ending letter string of Dynapen, 'pen' looks very different from the ending letter string, 'port' in Dysport due to the upstroke letter 't' at the end of Dysport.</p> <p>No overlapping strengths (62.5 mg/5 mL vs 500 units/vial and 300 units/vial)</p> <p>Dynapen is usually dosed at 250 mg to 500 mg every 6 hours for 7 to 14 days, compared to Dysport which is a 500 units/vial intramuscular product that is administered as a one time dose and repeated every 12 to 16 weeks as needed.</p> <p>The ordering healthcare provider will administer Dysport. In most cases, Dysport orders will not likely be processed or prepared by pharmacists. This minimizes the potential for proprietary name confusion at the pharmacy level.</p>

Dysport	500 units/vial 300 units/ vial	Usual Dose: Inject 500 units in divided doses in affected muscles every 12 to 16 weeks as needed for cervical dystonia For glabellar lines, the dose is based on gender and muscle mass, with doses ranging from 50 units per muscle to 80 units per muscle
Failure Mode: Name confusion	Causes (could be multiple)	Effects
Dry Sport (octisalate 5%, oxybenzone 4%, homosalate 10%, and octinoxate 7.5%)	Orthographic similarities include overlapping letters in the same sequence in both names; 'D', 'y', 's', 'p', 'o', 'r', and 't'. Dysport Dry Sport Last five letters of both names are identical: '-sport'. Phonetic similarities include both names contain two syllables and the second syllable of both names sound identical '-sport'. Numerical overlap in strength between the two products: 5% vs 500 units	Different product characteristics between these two names will minimize the potential for confusion that could contribute to medication errors. <i>Rationale:</i> Dry Sport is two words compared to Dysport which is one word. Dry Sport is an over-the-counter sunscreen product compared to Dysport which is a prescription product that will not be distributed in a retail pharmacy setting. Dry Sport contains multiple ingredients compared to Dysport which is a single ingredient biologic product. The units of measure for the product strengths are different for the two products: % vs units. Dysport will be administer by the ordering healthcare provider in either a clinic or hospital setting. In most cases, Dysport orders will not likely be processed or prepared by pharmacists. This minimizes the potential for proprietary name confusion at the pharmacy level.
Dofscort (clioquinol/ hydrocortisone)	Orthographic similarities include both names beginning with the letter 'D', both names ending in the letters 'ort' Both names appear similar in length when scripted	Lack of overlapping product characteristics will minimize the potential for confusion that may contribute to medication errors. <i>Rationale:</i> Dofscort is a combination product containing 3% clioquinol and 1% hydrocortisone which is applied topically twice a day. These product characteristics do not overlap with Dysport which will be available in two strengths, 300 units and 500 units and is injected intramuscularly every 12 to 16 weeks. Dysport will be administer by the ordering healthcare provider in either a clinic or hospital setting. In most cases, Dysport orders will not likely be processed or prepared by pharmacists. This minimizes the potential for proprietary name confusion at the pharmacy level.

Dysport	500 units/vial 300 units/ vial	Usual Dose: Inject 500 units in divided doses in affected muscles every 12 to 16 weeks as needed for cervical dystonia For glabellar lines, the dose is based on gender and muscle mass, with doses ranging from 50 units per muscle to 80 units per muscle
Failure Mode: Name confusion	Causes (could be multiple)	Effects
Dexacort (dexamethasone sodium phosphate)	Orthographic similarities include: Both names begin with the letter 'D' and both names end with the letter string, 'ort'.	Orthographic differences along with differing product characteristics should minimize the potential for confusion them may contribute to medication errors. <i>Rationale:</i> Dysport has two downstroke letters, 'y' and 'p' which Dexacort does not have making the two names appear different when scripted. Dexacort is a oral inhaler and a nasal inhaler, each of which contains 0.1 mg dexamethasone phosphate per inhalation and is administered twice a day. The different dosage form (powder for inhalation), routes of administration (oral and nasal), frequency of administration (twice a day) and strengths (0.1 mg) do not overlap with the dosage form (injection) and strengths (500 units and 300 units) , route of administration (intramuscular), or frequency of administration (once every 12 to 16 weeks) of Dysport. Although there is numerical overlap in potential dosing instructions, 0.1 mg vs 0.1 mL, Dexacort is available in a single strength, and therefore, prescribers are not likely to include a strength on orders for Dexacort (i.e., Inhale 2 puffs by mouth twice a day). The ordering healthcare provider will administer Dysport In most cases, Dysport orders will not likely be processed or prepared by pharmacists. This minimizes the potential for proprietary name confusion at the pharmacy level.
Clozapine	Orthographic similarities include: Beginning letter 'd' in dysport when written in lower case, can appear similar to the lower case letters 'cl' when scripted. Clozapine may have two downstroke letters 'z' and 'p' like the two downstroke letters 'y' and 'p' in Dysport depending on how the letter 'z' is scripted.	Different product characteristics along with orthographic differences will minimize the potential for confusion between the names. <i>Rationale:</i> Clozapine is available in 50 mg and 100 mg tablets. The initial dose is titrated upward from 25 mg per day in daily 25 mg increments until a maintenance dose between 100 mg to 600 mg administered in divided doses is achieved. Although there may be numerical overlap between the total daily dose of clozapine, 500 mg and the total dose of Dysport (500 units), divided dosage schedules are necessary to clozapine, therefore, prescribers will likely write a 500 mg dose of clozapine as clozapine 250 mg by mouth twice a day, so the numerical overlap does not present much risk for confusion. Even if Dysport was ordered using a dose of 250 units, it would be administered by the ordering healthcare provider, which further minimizes the risk of confusion between the two products.

Dysport	500 units/vial 300 units/ vial	Usual Dose: Inject 500 units in divided doses in affected muscles every 12 to 16 weeks as needed for cervical dystonia For glabellar lines, the dose is based on gender and muscle mass, with doses ranging from 50 units per muscle to 80 units per muscle
Failure Mode: Name confusion	Causes (could be multiple)	Effects
Drysol (aluminum chloride hexahydrate)	Orthographic similarities include: Both names begin with the same letter 'D' and both names contain the letter 'y'. Both names end in an upstroke letter 'l' vs 't'.	Orthographic differences and different product characteristics will minimize the potential for confusion between the names. <i>Rationale:</i> Drysol contains only one downstroke letter, 'y' compared to two downstroke letters, 'y' and 'p' in Dysport. The ending letter string of Drysol, 'sol' looks very different from the ending letter string, 'ort' in Dysport. Drysol is available in a 20% topical solution and is applied once daily at bedtime for up to one week. The dose is then decreased to one application every other night or one to two times per week as needed. This is very different from Dysport which is available in a 300 unit and 500 unit vial and is administered intramuscularly every 12 to 16 weeks by a healthcare provider. The ordering healthcare provider will administer Dysport. In most cases, Dysport orders will not likely be processed or prepared by pharmacists. This minimizes the potential for proprietary name confusion at the pharmacy level.

Dysport	500 units/vial 300 units/ vial	Usual Dose: Inject 500 units in divided doses in affected muscles every 12 to 16 weeks as needed for cervical dystonia For glabellar lines, the dose is based on gender and muscle mass, with doses ranging from 50 units per muscle to 80 units per muscle
Failure Mode: Name confusion	Causes (could be multiple)	Effects
Desferal (deferroxamine mesylate)	Orthographic similarities include: Overlapping numerical strengths: 500 mg vs 500 units	Orthographic differences and different product characteristics will minimize the potential for confusion between the names. <i>Rationale:</i> Orthographic similarities are very limited: both names begin with the letter 'D' and both names end in an upstroke letter ('t' vs 'l'). Orthographic differences include three upstroke letters, 'D', 'f', and 'l', in Desferal vs two upstroke letters and two downstroke letters, 'y' and 'p', in Dysport vs one or zero downstroke letters in Desferal depending on how the letter 'f' is scripted. The letters 'port' in Dysport look very different from the letters 'feral' in Desferal when scripted. Additionally, despite overlapping numerical strengths, the two products have different units of measure (units vs milligrams), and their frequency of administration are different: 500 units injected intramuscularly in affected muscles every 12 weeks to 16 weeks as need for cervical dystonia for Dysport vs Desferal which is administered as 1 gram initially, then 500 mg intramuscularly every four hours for 2 doses, followed by 500 mg every 4 to 12 hours based on clinical response. The ordering healthcare provider will administer Dysport. In most cases, Dysport orders will not likely be processed or prepared by pharmacists. This minimizes the potential for proprietary name confusion at the pharmacy level.

Dysport	500 units/vial 300 units/ vial	Usual Dose: Inject 500 units in divided doses in affected musles every 12 to 16 weeks as needed for cervical dystonia For glabellar lines, the dose is based on gender and muscle mass, with doses ranging from 50 units per muscle to 80 units per muscle
Failure Mode: Name confusion	Causes (could be multiple)	Effects
Depocyt (cytarabine) liposomal 10 mg/mL in 5 mL vials	Orthographic similarities include: Overlapping numerical strengths: 50 mg vs 500 units	Orthographic differences and different product characteristics will minimize the potential for confusion between the names. Rationale: Limited orthographic similarities include both names begin with the letter 'D' and end in the letter 't', and both names contain the letters 'p', 'o', and 'y'. Both names have two downstroke letters 'p' and 'y' and two upstroke letters 'D' and 't'. However, the position of the two downstroke letters is different between the two names and the beginning portion of both names, 'Dys' vs 'Dep', look very different when scripted. Additionally, despite the overlapping numbers in the doses (50 vs 500), the frequency (every 12 to 16 weeks vs every 14 days for two cycles) and route of administration (intramuscular vs intrathecal), are very different for the two products. Dysport will be administered by the ordering healthcare provider. In most cases, Dysport orders will not likely be processed or prepared by pharmacists. This minimizes the potential for proprietary name confusion at the pharmacy level.