CENTER FOR DRUG EVALUATION AND RESEARCH

APPLICATION NUMBER:

22-204

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

Date:	December 15, 2008
To:	Scott Monroe, MD, Director Division of Reproductive and Urologic Products
Thru:	Kristina C. Arnwine, PharmD, Team Leader Denise P. Toyer, PharmD, Deputy Director Division of Medication Error Prevention and Analysis
From:	Loretta Holmes, BSN, PharmD, Safety Evaluator Division of Medication Error Prevention and Analysis
Subject:	Proprietary Name Review
Drug Name:	Gelnique (Oxybutynin Chloride) Gel 10 %
Application Type/Number:	NDA 22-204
Applicant:	Watson Laboratories, Inc.
OSE RCM #:	2008-768

*** **Note: This review contains proprietary and confidential information that should not be released to the public.** ***

Contents

EXECUTIVE SUMMARY

The Division of Medication Error Prevention and Analysis has no objection to the use of the proprietary name, Gelnique, for this product. The results of the Proprietary Name Risk Assessment found that the proposed name, Gelnique, is not vulnerable to name confusion that could lead to medication errors.

The Division of Medication Error Prevention recognizes that Gelnique will represent a dual proprietary name. The Applicant currently markets a topical dosage form of oxybutynin under the proprietary name, Oxytrol, which is a 3.6 mg/24 hour transdermal patch. We generally discourage the use of two different proprietary names for the same active ingredient by the same manufacturer since confusion may arise if practitioners are not aware that Oxytrol and Gelnique contain the same active ingredient which could result in concomitant administration of both products. However, the findings of our FMEA indicate that it would be safer to use a dual proprietary name for this product.

1 BACKGROUND

1.1 INTRODUCTION

This review was written in response to a request from the Division of Reproductive and Urologic Products for assessment of the proposed proprietary name, Gelnique, regarding potential name confusion with other proprietary or established drug names. The container label, carton and insert labeling were provided but will be reviewed under separate cover.

1.2 REGULATORY HISTORY

The Applicant previously submitted the names (b) (4) (primary) and (b) (4) (alternate) for this product. In our review of those names (OSE Review 2006-578/2006-584, dated July 13, 2007), we did not recommend the use of the proposed proprietary name (b) (4) based on its orthographic similarity to Erygel and Oxyzal. We had no objections to the use of the proposed proprietary name, (b) (4), from a look-alike and/or sound-alike perspective. However, we objected to the use of a different or dual proprietary name ((b) (4) vs. Oxytrol) for the Oxybutynin products manufactured by Watson Laboratories. The Applicant withdrew the proposed proprietary names, (b) (4) and (b) (4), from consideration after our review was completed and decided to submit alternate names. Thus, the name Gelnique was submitted for review and comment.

DDMAC objected to the use of the proposed proprietary name, Gelnique, from a promotional perspective. However, per email from the Division on June 3, 2008, the Division did not concur. Thus, DMEPA will proceed with its review of the proposed proprietary name, Gelnique, in this review.

1.3 PRODUCT INFORMATION

Gelnique is the proposed proprietary name for Oxybutynin Chloride Gel. Gelnique is an (b) (4) anticholinergic agent indicated for the treatment of overactive bladder with symptoms of urge urinary incontinence, urgency, and frequency. The recommended dosage is the contents of one sachet applied once daily to dry, intact skin on the abdomen, upper arms/shoulders, or thighs. Application sites should be rotated. Application of Gelnique should not be made to the same site on consecutive days. Each sachet contains a one gram unit dose (100 mg/g) of oxybutynin chloride topical gel. Gelnique sachets will be packaged in cartons containing 30 sachets. At the mid-cycle meeting with the Division on August 25, 2008, we learned that this product is advantageous because it is less irritating to the skin than the Applicant's currently marketed Oxytrol transdermal patch.

2 METHODS AND MATERIALS

This section describes the methods and materials used by the Division of Medication Error Prevention and Analysis medication error staff conducting a proprietary name risk assessment (see 2.1 Proprietary Name Risk Assessment). The primary focus for the assessment is to identify and remedy potential sources of medication error prior to drug approval. The Division of Medication Error Prevention and Analysis 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. [1]

2.1 PROPRIETARY NAME RISK ASSESSMENT

FDA's Proprietary Name Risk Assessment considers the potential for confusion between the proposed proprietary name, Gelnique, and the proprietary and established names of drug products existing in the marketplace and those pending IND, BLA, NDA, and ANDA products currently under review by CDER.

For the proprietary name, Gelnique, the medication error staff of the Division of Medication Error Prevention and Analysis search a standard set of databases and information sources to identify names with orthographic and phonetic similarity (see Sections 2.1.1 for detail) and held a CDER Expert Panel discussion to gather professional opinions on the safety of the proposed proprietary name (see 2.1.1.2). The Division of Medication Error Prevention and Analysis also conducts internal CDER prescription analysis studies (see 2.1.2), and, when provided, external prescription analysis studies results are considered and incorporated into the overall risk assessment (see detail 2.1.3).

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 (see detail 2.1.4). The overall risk assessment is based on the findings of a Failure Modes and Effects Analysis (FMEA) of the proprietary name, and is focused on the avoidance of medication errors. FMEA is a systematic tool for evaluating a process and identifying where and how it might fail.[2] FMEA is used to analyze whether the drug names identified with look- or sound-alike similarity to the proposed name could cause confusion that subsequently leads to medication errors in the clinical setting. The Division of Medication Error Prevention and Analysis uses the clinical expertise of the medication error staff to anticipate the conditions of the clinical setting that the product is likely to be used in 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. As such, the staff considers the product characteristics associated with the proposed drug throughout the risk assessment, since 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 drug name include, but are not limited to established name of the proposed product, the proposed indication, 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

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[1] National Coordinating Council for Medication Error Reporting and Prevention. http://www.nccmerp.org/aboutMedErrors html. Last accessed 10/11/2007.

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

occur at any point in the medication use process, the Division of Medication Error Prevention and Analysis 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.[3]

2.1.1 Search Criteria

The medication error staff consider the spelling of the name, pronunciation of the name when spoken, and appearance of the name when scripted as outlined in Appendix A.

For this review, particular consideration was given to drug names beginning with the letter 'G' 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.[4,5]

To identify drug names that may look similar to Gelnique, the Staff also consider the orthographic appearance of the name on lined and unlined orders. Specific attributes taken into consideration include the length of the name (8 letters), upstrokes (two, capital letter 'G' and lowercase 'l'), downstrokes [two, capital letter 'G' (when scripted lowercase) and lowercase 'q'], cross-strokes (none), and dotted letters (one, 'i'). Additionally, several letters in Gelnique may be vulnerable to ambiguity when scripted, including the letter 'G' may appear as uppercase 'S' or 'Y'; lowercase 'e' appear as lowercase undotted 'i' or 'l'; lowercase 'l' appear as lowercase 'e', undotted 'i', or uncrossed 't'; lower case 'n' appear as lower case 'h', 'r', 's', 'u', 'v', or 'x'; lowercase 'i' appear as lowercase 'e' or 'l'; lower case 'q' appear as a lower case 'g' or lowercase 'y'; and lower case 'u' appear as a lowercase 'a', 'e', or 'n'. As such, the Staff also consider these alternate appearances when identifying drug names that may look similar to Gelnique.

When searching to identify potential names that may sound similar to Gelnique, the medication error staff search for names with similar number of syllables (two), stresses (GEL-nique or gel-NIQUE), and placement of vowel and consonant sounds. In addition, several letters in Gelnique may be subject to interpretation when spoken such as the letters "Gel" which may be interpreted as "Jel" and the letters "nique" which may be interpreted as "neek" or "neak". The Applicant's intended pronunciation of the proprietary name could not be expressly taken into consideration, as this was not provided with the proposed name submission.

The Staff also considers the product characteristics associated with the proposed drug throughout the identification of similar drug names, since the product characteristics of the proposed drug ultimately determine the use of the product in the clinical practice setting. For this review, the medication error staff were provided with the following information about the proposed product: the proposed proprietary name (Gelnique), the established name (Oxybutynin Chloride), proposed indication of use (treatment of overactive bladder with symptoms of urinary incontinence, urgency, and frequency), strength (10%), dose (1 gm unit dose sachet), frequency of administration (once daily), route (topical) and dosage form of the product (gel). Appendix A provides a more detailed listing of the product characteristics the medication error staff generally take into consideration.

Lastly, the medication error staff also consider the potential for the proposed name to inadvertently function as a source of error for reasons other than name confusion. Post-marketing experience has

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[3] Institute of Medicine. Preventing Medication Errors. The National Academies Press: Washington DC. 2006.

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

[5] Kondrack, G and Dorr, B. Automatic Identification of Confusable Drug Names. Artifical Inteligence in Medicine (2005)

demonstrated that proprietary names (or components of the proprietary name) can be a source of error in a variety of ways. As such, these broader safety implications of the name are considered and evaluated throughout this assessment and the medication error staff provide additional comments related to the safety of the proposed name or product based on their professional experience with medication errors.

2.1.1.1 Databases and Information Sources

The proposed proprietary name, Gelnique, was provided to the medication error staff to conduct a search 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 Gelnique using the criteria outlined in 2.1.1. A standard description of the databases used in the searches is provided in Section 7. To complement the process, the medication error 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 medication error staff review the USAN stem list to determine if any USAN stems are present within the proprietary name. The findings of the individual Safety Evaluators were then pooled and presented to the Expert Panel.

2.1.1.2 CDER Expert Panel Discussion

An Expert Panel Discussion is held by the Division of Medication Error Prevention and Analysis to gather CDER professional opinions on the safety of the product and the proprietary name, Gelnique. Potential concerns regarding drug marketing and promotion related to the proposed names are also discussed. This group is composed of the Division of Medication Error Prevention and Analysis Staff and representatives from the Division of Drug Marketing, Advertising, and Communications (DDMAC).

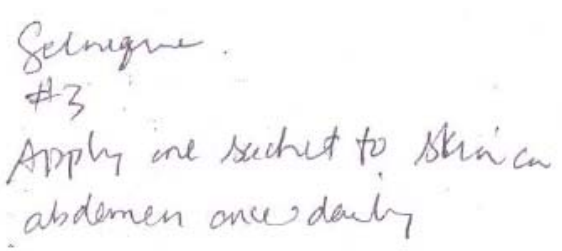
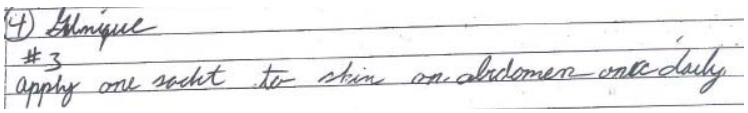
The pooled results of the medication error staff were presented to the Expert Panel for consideration. Based on the clinical and professional experiences of the Expert Panel members, the Panel may recommend the addition of names, additional searches by the Safety Evaluator to supplement the pooled results,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

2.1.2 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 Gelnique 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 a total of 123 healthcare professionals (pharmacists, physicians, and nurses), and attempts to simulate the prescription ordering process. The results are used by the Safety Evaluator to identify any orthographic or phonetic vulnerability of the proposed name to be misinterpreted by healthcare practitioners.

In order to evaluate the potential for misinterpretation of Gelnique 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 prescriptions are optically scanned and one prescription is delivered to a random sample of 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 the medication error staff.

Figure 1. Gelnique Prescription Study (conducted on June 9, 2008)

HANDWRITTEN PRESCRIPITON AND MEDICATION ORDER	VERBAL PRESCRIPTION
Outpatient Prescription:  	"Gelnique, Number 3, Apply one sachet to skin on abdomen once daily"
Inpatient Medication Order :  	

2.1.3 External Proprietary Name Risk Assessment

For this product, the Applicant submitted an independent risk assessment of the proposed proprietary name conducted by (b) (4) The Division of Medication Error Prevention and Analysis conducts an independent analysis and evaluation of the data provided, and responds to the overall findings of the assessment. When the external proprietary name risk assessment identifies potentially confusing names that were not captured in the Division of Medication Error Prevention and Analysis medication error staff's database searches or in the Expert Panel Discussion, these names are included in the Safety Evaluator's Risk Assessment and analyzed independently by the Safety Evaluator to determine if the potentially confusing name could lead to medication errors in usual practice settings.

After the Safety Evaluator has determined the overall risk assessment of the proposed name, the Safety Evaluator compares the findings of their overall risk assessment with the findings of the proprietary name risk assessment submitted by the Applicant. The Safety Evaluator then determines whether the Division of Medication Error Prevention and Analysis risk assessment concurs or differs with the findings. When the proprietary name risk assessments differ, we provide a detailed explanation of these differences.

2.1.4 Safety Evaluator Risk Assessment of the Proposed Proprietary Name

Based on the criteria set forth in Section 2.1.1, the Safety Evaluator applies their individual expertise gained from evaluating medication errors reported to FDA to conduct a Failure Mode and Effects Analysis and provide an overall risk 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, we seek to evaluate the potential for a proposed name to be confused with another drug name as a result of the name confusion and 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

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

medication errors due to look- or sound-alike 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 a FMEA of the proposed name, the Safety Evaluator must analyze the use of the product at all points in the medication use system. Because the proposed product is not yet marketed, the Safety Evaluator anticipates the use of the product in the usual practice settings by considering the clinical and product characteristics listed in Appendix A. 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 evaluation, and studies, and identifies potential failure modes by asking: "Is the name Gelnique 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 Gelnique 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 names possess similarity that would cause confusion at any point in the medication use system and the name is eliminated from further review.

In the second stage of the Risk Assessment, all potential failure modes are evaluated 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 ultimately not be a source of medication errors in the usual practice setting, the name is eliminated 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 that an alternate proprietary name be used. In rare instances, the FMEA findings may provide other risk-reduction strategies, such as product reformulation to avoid an overlap in strength or an alternate modifier designation may be recommended as a means of reducing the risk of medication errors resulting from drug name confusion.

The Division of Medication Error Prevention and Analysis will object to the use of a proposed proprietary name when one or more of the following conditions are identified in the Safety Evaluator's 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 trade name or otherwise. [21 U.S.C 321(n); see also 21 U.S.C. 352(a) & (n)].
2. The Division of Medication Error Prevention and Analysis 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 potential for confusion between the proposed proprietary name and other proprietary or established drug names, 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 stem, particularly in a manner that is contradictory to the USAN Council's definition.
5. Medication error staff identify a potential source of medication error within the proposed proprietary name. 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 another drug product.

In the event that the Division of Medication Error Prevention and Analysis object to the use of the proposed proprietary name, based upon the potential for confusion with another proposed (but not yet approved) proprietary name, we will provide a contingency objection based on the date of approval: whichever product is awarded approval first has the right to the use the name, while we will recommend that the second product to reach approval seek an alternative name.

If none of these conditions are met, then we will not object to the use of the proprietary name. If any of these conditions are met, then we will object to the use of the proprietary name. The threshold set for objection to the proposed proprietary name may seem low to the Applicant; 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, World Health Organization, Joint Commission, and Institute for Safe Medication Practices, have examined medication errors resulting from look- or sound-alike drug names and called for Regulatory Authorities to address the issue prior to approval.

Furthermore, the Division of Medication Error Prevention and Analysis contends that the threshold set for the Proprietary Name Risk Assessment is reasonable because proprietary drug name confusion is a predictable and preventable source of medication error that, in many instances, can be identified and remedied prior to approval to avoid patient harm.

Additionally, post-marketing experience has demonstrated that medication errors resulting from drug name confusion are notoriously difficult to remedy post-approval. Educational efforts and so on are low-leverage strategies that have proven to have limited effectiveness at alleviating the medication errors involving drug name confusion. Higher-leverage strategies, such as drug name changes, have been undertaken in the past; but at great financial cost to the Applicant, and at the expense of the public welfare, not to mention the Agency's credibility as the authority responsible for the approving the error-prone proprietary name. Moreover, even after Applicants have changed a product's proprietary name in the post-approval phase, it is difficult to eradicate the original proprietary name from practitioner's vocabulary, and as such, the Agency has continued to receive reports of drug name confusion long after a name change in some instances. Therefore, we believe 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 (e.g. new form introduced like Lamisil) (see limitations of the process in Section 4).

If the Division of Medication Error Prevention and Analysis objects to a proposed proprietary name on the basis that drug name confusion could lead to medication errors, the FMEA process is used to identify strategies to reduce the risk of medication errors. The Division of Medication Error Prevention and Analysis is likely to recommend that the Applicant select an alternative proprietary name and submit the alternate name to the Agency for the Division of Medication Error Prevention and Analysis to review. However, in rare instances FMEA may identify plausible strategies that could reduce the risk of medication error of the currently proposed name, and so we may be able to provide the Applicant with recommendations that reduce or eliminate the potential for error would render the proposed name acceptable.

2.1.5 Dual Proprietary Name

The Division of Medication Error Prevention and Analysis conducted a FMEA in order to determine the risks associated with the use of a two different proprietary names for Oxybutynin Transdermal Patch and Oxybutynin Chloride Gel marketed by this manufacturer.

3 RESULTS

3.1 PROPRIETARY NAME RISK ASSESSMENT

3.1.1 Database and Information Sources

The search identified 23 names as having some similarity to the name Gelnique.

Twenty of the 23 names were thought to look like Gelnique, which include: Galangal, Gelusil, Selepen, Solaquin, Selegiline, Gelfilm, Gel-Tin, Gel-Kam (nonprescription), Gel-Kam (prescription), Salagen, Gemtuzumab, Glyquin, Glinsuna, Glucagon, Gelargin, Gelpirin, Gleevec, Eldopaque, Seroquel, and Sinequan. Two names, Angeliq and Garlique, were thought to sound like Gelnique. One name, Seasonique, was thought to look and sound similar to Gelnique.

Additionally, the Division of Medication Error Prevention and Analysis did not identify any USAN stems in the name Gelnique as of November 24, 2008.

3.1.2 Expert Panel Discussion

The Expert Panel reviewed the pool of names identified by the Division of Medication Error Prevention and Analysis staff (see section 3.1.1. above) and did not note any additional names thought to have orthographic or phonetic similarity to Gelnique and have the potential for confusion.

DDMAC objected to the use of the proposed name from a promotional perspective. According to DDMAC:

> *"DDMAC objects to the proposed trade name "Gelnique" because it overstates the efficacy of the product by misleadingly implying it is superior over other medications indicated for the treatment of overactive bladder. Gelnique easily evokes the word "unique" defined as "being the only existing one of its type or, more generally, unusual or special in some way" (http://dictionary.cambridge.org/define.asp?key=86631&dict=CALD; accessed 5/20/08). Therefore, the proposed trade name implies that this drug product is "unique" or special in comparison with other drug products approved for the treatment of overactive bladder. Without substantial evidence to support that this product is unique or special over all other drugs approved for the same indication, the proposed trade name is misleading.*
>
> *Please note that the Federal Food Drug and Cosmetic Act provides that labeling or advertising can misbrand a product if misleading representations are made, whether through a proposed trade name or otherwise; this includes suggestions that a drug is better, more effective, useful in a broader range of conditions or patients, safer, has fewer, or lower incidence of, or less serious side effects or contraindications than has been demonstrated by substantial evidence or substantial clinical experience. [21 U.S.C 321(n); see also 21 U.S.C. 352(a) & (n); 21 CFR 202.1(e)(5)(i);(e)(6)(i)]."*

However, per email from the Division on June 3, 2008, the Division did not concur.

3.1.3 FDA Prescription Analysis Studies

A total of 28 practitioners responded. Three respondents (n=3) interpreted the name correctly. The remaining respondents (n=25) misinterpreted the name. One participant in the written outpatient study misinterpreted the name as Selegiline, an established name for several currently marketed brand name and generic drug products. See Appendix B for the complete listing of interpretations from the verbal and written prescription studies.

3.1.4 External Name Studies

In the proposed name risk assessment submitted by the Applicant, [redacted] (b) (4) identified and evaluated one name, Garlique, thought to have look-alike similarity with the proposed proprietary name, Gelnique.

Garlique was also identified by the Expert Panel as having phonetic similarities to Gelnique. (b) (4) did not evaluate any dual proprietary name issues concerning this product.

3.1.5 Safety Evaluator Risk Assessment of Proposed Proprietary Name

3.1.5.1 FMEA of Gelnique

Independent searches by the primary Safety Evaluator did not identify any additional names thought to look or sound similar to Gelnique and represent a potential source of drug name confusion. As such, a total of 23 names were analyzed to determine if the drug names could be confused with Gelnique, and if the drug name confusion would likely result in a medication error. Additionally, the primary Safety Evaluator noted the proposed name, Gelnique, incorporates the product dosage form "gel" in the name. DMEPA typically discourages the incorporation of the dosage form into the name as this may limit the use of the same proprietary name or render it misleading if a different dosage form of the product is developed in the future. However, in this case, the use of "gel" in the proprietary name is acceptable because it is the beginning portion of the name and does not readily convey the finished dosage form. Therefore, it is unlikely to impact future use of the name should a different dosage form be developed. Additionally, we have identified currently marketed products with names that begin with "Gel" but they are not gel dosage forms.

Failure modes and effects analysis was applied to determine if the proposed name, Gelnique, could potentially be confused with any of the 23 names and lead to medication errors. This analysis determined that the name similarity between Gelnique and the identified names was unlikely to result in medication errors for all 23 products for the reasons described/outlined in Appendices C through I.

3.1.5.2 FMEA of Dual Proprietary name

The FMEA conducted for this current review determined that failure modes can occur with the use of either one or two proprietary names. However, when a single name is used, it is less likely an error will be detected due to product characteristic similarities between Gelnique and Oxytrol. This issue is discussed in Section 4 of this review.

4 DISCUSSION

4.1 GELNIQUE

We evaluated 23 names for their potential similarity to Gelnique. The results of the FMEA for the name Gelnique found the proposed name, Gelnique, is not vulnerable to name confusion that could lead to medication errors from a sound-alike and look-alike perspective.

4.2 USE OF TWO DIFFERENT PROPRIETARY NAMES VS. A SINGLE PROPRIETARY NAME

Since this Applicant currently markets a topical dosage form (transdermal patch) of Oxybutynin under the proprietary name "Oxytrol", we conducted an additional FMEA to evaluate the potential for medication errors due to the use of two different proprietary names for these two Oxybutynin products.

Our FMEA analysis determined that if marketed under a single proprietary name, the overlaps in product characteristics between Oxytrol and Gelnique offer more opportunities for medication errors to occur and these errors have a low detectability. Trying to distinguish between the products when marketed under one name could be difficult because of similarities such as: availability in a single strength, topical administration, same indication of use, and both products are packaged in unit-of-use cartons/boxes which can be prescribed as a "one month" or "30 day" supply. Although there are differences between the two products, these differences could get confused. Under one name, practitioners would have to be aware that the transdermal patch is administered two times per week versus the gel which is administered once

daily. Although practitioners could be educated on these differences, they are more likely to confuse these differences if the products are marketed under one name. Should confusion occur (e.g., the frequency of administration for one product is confused with the other) the drug could get dispensed and the error may not be readily detected. The detectability of this type of error is lower with the use of a single proprietary name.

Conversely, the use of a dual proprietary name decreases the likelihood of confusion because the names Oxytrol and Gelnique would be associated with two different products and each product has a different set of characteristics. Although there is a potential for concomitant administration of both Gelnique and Oxytrol when using two proprietary names, there are currently numerous branded and generic Oxybutynin products. Thus, healthcare providers' awareness that there are multiple products on the market increases the likelihood of detectability and prevention of concomitant administration.

5 CONCLUSIONS

The Division of Medication Error Prevention and Analysis has no objection to the use of the proprietary name, Gelnique, for this product. Although the Applicant currently markets a topical dosage form of Oxybutynin under the proprietary name, Oxytrol, and Gelnique will represent a dual proprietary name, we have no objections since the findings of the FMEA indicate that, in this case, it is safer to use a dual proprietary name for this product.

6 RECOMMENDATIONS

6.1 COMMENTS TO THE DIVISION

We would appreciate feedback on the final outcome of this consult. We would be willing to meet with the Division for further discussion, if needed. Please copy the Division of Medication Error Prevention and Analysis on any correspondence to the Applicant pertaining to this issue. If you have further questions or need clarifications, please contact Cherye Milburn, OSE Project Manager, at 301-796-2084.

6.2 COMMENTS TO THE APPLICANT

A. Proprietary Name

We have completed our review of the proposed proprietary name, Gelnique, and have concluded that it is acceptable. If **any** of the proposed product characteristics are altered prior to approval of the marketing application, the proprietary name should be resubmitted for review.

7 REFERENCES

1. Micromedex Integrated Index (http://weblern/)

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

2. Phonetic and Orthographic Computer Analysis (POCA)

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. This is a database which was created for the Division of Medication Error Prevention and Analysis, FDA.

3. Drug Facts and Comparisons, online version, St. Louis, MO (http://weblern/)

Drug Facts and Comparisons is a compendium organized by therapeutic Course; 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 and Technical Support 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 and generic drugs and therapeutic biological products; prescription and over-the-counter human drugs and therapeutic biologicals, discontinued drugs and "Chemical Type 6" approvals.

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

Provides a compilation of approved drug products with therapeutic equivalence evaluations.

8. WWW location http://www.uspto.gov.

Provides information regarding patent and trademarks.

9. Clinical Pharmacology Online (http://weblern/)

Contains full monographs for the most common drugs in clinical use, plus mini monographs covering investigational, less common, combination, nutraceutical and nutritional products. 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 proprietary names that are used in about 50 countries worldwide. The data is provided under license by IMS HEALTH.

11. Natural Medicines Comprehensive Databases (http://weblern/)

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

12. Stat!Ref (http://weblern/)

Contains full-text information from approximately 30 texts. 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)

List contains all the recognized USAN stems.

14. Red Book Pharmacy's Fundamental Reference

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

15. Lexi-Comp (www.pharmacist.com)

A web-based searchable version of the Drug Information Handbook.

16. Medical Abbreviations Book

Contains commonly used medical abbreviations and their definitions.

APPENDICES

Appendix A:

The medication error staff consider the spelling of the name, pronunciation of the name when spoken, and appearance of the name when scripted. The Division of Medication Error Prevention and Analysis also compare 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. The medication error staff also examine 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* dissimilarly spelled drug name pairs to appear very similar to one another and the similar appearance of drug names when scripted has lead to medication errors. The medication error staff apply their 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), along with other orthographic attributes that determine the overall appearance of the drug name when scripted (see detail in Table 1 below). Additionally, since verbal communication of medication names is common in clinical settings, the medication error staff compare the pronunciation of the proposed proprietary name with the pronunciation of other drug names. If provided, the Division of Medication Error Prevention and

Analysis will consider the Applicant's intended pronunciation of the proprietary name. However, because the Applicant has little control over how the name will be spoken in practice, we also consider a variety of pronunciations that could occur in the English language.

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	• 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 Downstrokes Cross-stokes Dotted letters Ambiguity introduced by scripting letters Overlapping product characteristics	• 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	• Names may sound similar when pronounced and lead to drug name confusion in verbal communication

Appendix B: Prescription Study Responses

Outpatient Prescription	Voice Prescription	Inpatient Medication Order
Selegiline	Delmick	Glinique
Selnegine	Gelnec	Gabinique
Selnegine	Gelnique	Galinque
Selnegrin	Gelnique	Galmique
Selneqine	Jonique	Gelnique
Selneque		Gelnique (Gulnique)
Selnequine		Glinique
Selnequine		Glinique
Selnigrie		Glinique
Selnique		
Selnique		
Selnique		
Selnique		
Selniquine		

Appendix C: Names lacking convincing look-alike and/or sound-alike similarities to Gelnique

Name	Similarity to Gelnique
Gelfilm	Look
Gel-Tin	Look
Gel-Kam (Nonprescription)	Look
Gel-Kam (Prescription)	Look
Gemtuzumab	Look
Gleevec	Look
Eldopaque	Look
Glinsuna***	Look
Seasonique	Look and Sound

Appendix D: Name of non-drug product

Name	Similarity to Gelnique	Comments
Galangal	Look	This is the name of an herb that is also an ingredient in numerous herbal products. It is unlikely that this herb would be ordered on a prescription.

Appendix E: Foreign name

Name	Similarity to Gelnique	Country	Comment
Gelargin (Fluocinolone Acetonide)	Look	Czech Republic	We were unable to find product characteristic information.

*** **Note: This review contains proprietary and confidential information that should not be released to the public.*****

Appendix F: Discontinued Product

Name	Similarity to Gelnique	Comment
Gelpirin (Acetaminophen/ Aspirin/Caffeine)	Look	This is a discontinued nonprescription product. The year of last recorded sales was 2000[7]. This name is unlikely to be written on a prescription.

Appendix G: Products with no numerical overlap in strength and dose.

Gelnique (Oxybutynin Chloride)		**Strength: 10%**	**Usual dose: Apply a 1 gram unit dose sachet once daily to dry, intact skin on the abdomen, upper arms/shoulders, or thighs.**
Product name with potential for confusion	**Similarity to Gelnique**	**Strength**	**Usual Dose (if applicable)**
Selegiline (generic tablets and capsules available) Branded products: Eldepryl Zelapar Emsam	Look	5 mg tablets 5 mg capsules 1.25 mg orally disintegrating tablets 6 mg/24 hr transdermal patch 9 mg/24 hr transdermal patch 12 mg/24 hr transdermal patch	Varies, depending on the product: 5 mg tablet or capsule twice daily; 1.25 mg to 2.5 mg orally disintegrating tablet once daily; 6 mg/24 hr to 12 mg/24 hr transdermal patch once daily
Seroquel (Quetiapine)	Look	Tablets: 25 mg, 50 mg, 100 mg, 200 mg, 300 mg, and 400 mg	Dosage range: 300 mg to 800 mg per day in 2 or 3 divided doses

[7] Data provided by Thomson & Thomson's SAEGIS ™ Online Service, available at www.thomson-thomson.com. Accessed June 4, 2008.

Appendix H: Single strength products with multiple differentiating product characteristics

Product name with potential for confusion	Similarity to Gelnique	Strength	Usual Dose (if applicable)	Other differentiating product characteristics
Proposed name: **Gelnique (Oxybutynin) Topical Gel**	**NA**	**10%**	**Usual dose: Apply a 1 gram unit dose sachet once daily to dry, intact skin on the abdomen, upper arms/shoulders, or thighs.**	**NA**
Gelusil *Nonprescription*	Look	Chewable Tablets: Aluminum Hydroxide 200 mg, Magnesium Hydroxide 200 mg, and Simethicone 25 mg per tablet	2 to 4 tablets one hour after meals and at bedtime; take no more than 12 tablets in a 24 hour period.	*Dose*: (2 to 4 tablets vs. one sachet or 1 gm sachet) *Dosage Form*: (tablet vs. gel) *Route of administration*: (oral vs. topical) *Frequency of administration*: (after meals and at bedtime vs. once daily)
Selepen (Selenium)	Look	Injection: 40 mcg/mL	Added to total parenteral nutrition: 20 mcg to 40 mcg per day; 100 mcg/day for 31 days	*Dose:* (20 mcg to 40 mcg or 100 mcg vs. one sachet or 1 gm sachet) *Route of administration*: (intravenous vs. topical) *Dosage form*: (solution for injection vs. gel)
Angeliq (Drospirenone 0.5 mg and estradiol 1 mg) Tablets	Sound	0.5 mg/1 mg tablets	One tablet orally, once daily	*Route of administration*: (oral vs. topical) *Dosage Form*: (tablet vs. gel)
Solaquin (Hydroquinone) *Nonprescription*	Look	Topical Cream: 2%	Apply to affected area(s) twice daily	*Frequency of administration*: (twice daily vs. once daily) *Method of access*: Nonprescription vs. prescription
Glyquin (Hydroquinone)	Look	Topical Cream: 4%	Apply to affected area(s) twice daily	*Frequency of administration*: (twice daily vs. once daily)
Glucagon	Look	Powder for injection: 1 mg	1 mg intramuscularly, intravenously, or subcutaneously	*Route of administration:* (intramuscularly, intravenously, or subcutaneously) *Dosage Form*: (powder for injection vs. gel) *Frequency of administration:* (one time vs. once daily)
Garlique *Nonprescription*	Look and Sound	Tablets: Calcium 26 mg, Iron 3 mg, garlic bulb powder (not less than 5,000 mcg of allicin yield) 400 mg	1 tablet daily	*Dosage Form*: (tablet vs. gel) *Route of administration*: (oral vs. topical) *Method of access*: Nonprescription vs. prescription

Appendix I: Potential confusing name with numerical overlap in strength or dose

Gelnique **(Oxybutynin Chloride)**	**10%**	**Usual dose: Apply a 1 gram unit dose sachet once daily to dry, intact skin on the abdomen, upper arms/shoulders, or thighs.**
Failure Mode: Name confusion	**Causes (could be multiple)**	**Effects**
Salagen (Pilocarpine Hydrochloride) Tablets: 5 mg and 7.5 mg *Indication*: Dry mouth due to salivary gland hypofunction; Sjogren's syndrome *Dose*: 15 mg to 30 mg per day in 3 or 4 divided doses	Orthographic similarity ("Sal" vs. "Gel") and ("gen" vs. "que") Potential numerical overlap in dose of Salagen vs. strength of Gelnique. The number "10" overlaps with a 10 mg dose of Salagen and the 10% strength of Gelnique)	Medication errors unlikely to occur due to orthographic differences between the names in addition to differences in product characteristic. *Rationale*: The middle letter "a" in Salagen does not look similar to the middle letters "ni" in Gelnique. Although there is a potential for numerical overlap in the dose of Salagen and the strength of Gelnique, the products have differentiating characteristics such as route of administration (oral vs. topical), dosage form (tablet vs. gel), and frequency of administration (two or three times per day vs. once daily). A prescription for either product would likely contain information pertaining to one or more of these differentiating product characteristics that would distinguish the two and minimize the potential for medication errors.
Sinequan (Doxepin Hydrochloride) Capsules: 10 mg, 25 mg, 50 mg, 75 mg, 100 mg, and 150 mg Oral concentrate: 10 mg/mL *Indication*: Depression *Dose*: 75 mg to 300 mg per day in one or two divided doses	Orthographic similarity ("Si" vs. "Ge") and ("nequ" vs. "niqu") Potential numerical overlap in the strength of Sinequan and Gelnique. The number "10" overlaps with the 10 mg strength of Sinequan and the 10% strength of Gelnique).	Orthographic differences between the names as well as product characteristic differences minimize the likelihood of medication errors in the usual practice setting. *Rationale:* The upstroke letter "l" in Gelnique and the ending letters "an" in Sinequan help to differentiate the name pair. Although there is a potential for numerical overlap in the strengths of Sinequan and Gelnique, the products have differentiating characteristics such as route of administration (oral vs. topical) and dosage form (capsule and oral concentrate vs. gel). A prescription for either product would likely contain information pertaining to one or more of these differentiating product characteristics that would distinguish the two and minimize the potential for medication errors.

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