CENTER FOR DRUG EVALUATION AND RESEARCH

APPLICATION NUMBER:

22-308

PROPRIETARY NAME REVIEW(S)

Department of Health and Human Services

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Food and Drug Administration

Center for Drug Evaluation and Research

Office of Surveillance and Epidemiology

Date:	March 25, 2009
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Subject:	Proprietary Name Review
Drug Name(s):	Besivance (Besifloxacin Ophthalmic Suspension) 0.6%
Application Type/Number:	NDA 22-308
Applicant/Applicant:	Bausch and Lomb, Inc.
OSE RCM #:	2009-107

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EXECUTIVE SUMMARY

The Applicant has proposed the proprietary name, Besivance, for Besifloxacin Ophthalmic Suspension 0.6%. The proposed product is a fluoroquinolone antibiotic indicated for the treatment of bacterial conjunctivitis. We analyzed a total of 32 names to determine if they could be confused with Besivance. The results of the Proprietary Name Risk Assessment found that the proposed name, Besivance, is not vulnerable to name confusion that could lead to medication errors. Thus, DMEPA has no objection to the use of the proprietary name Besivance for this product. The Division of Anti-Infective and Ophthalmology Products concurs with this assessment.

However, if any of the approved product characteristics as stated in this review are altered, 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 In the event that our Risk Assessment finding is rescinded, the evaluation of the name on resubmission is independent of the previous Risk Assessment, and as such, the conclusions on re-review of the name are subject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. If the approval of this application is delayed beyond 90 days from the signature date of this review, the proposed name must be resubmitted for evaluation.

1 BACKGROUND

1.1 INTRODUCTION

This review is in response to a request from the Division of Anti-Infective and Ophthalmology Products for an assessment of the proposed proprietary name, Besivance, regarding potential name confusion with other proprietary or established drug names in normal practice settings.

1.2 REGULATORY HISTORY

The Division of Medication Error and Analysis objected to the Applicant's original proposed proprietary name, Optura, in OSE Review 2008-415, dated September 23, 2008, because this name was found to be vulnerable to name confusion that could lead to medication errors with Optivar and Optive. In response, the Applicant submitted a new request for a proprietary name review dated January 8, 2009. The Applicant's first choice for the proprietary name for Besifloxacin Ophthalmic Suspension is Besivance (intended pronunciation: \be"si 'van(t) sə\). DMEPA's risk assessment of the proposed proprietary name, Besivance, is the subject of this review.

1.3 PRODUCT INFORMATION

Besivance (Besifloxacin) is an 8-chloro fluoroquinolone anti-infective ophthalmic suspension indicated for the treatment of bacterial conjunctivitis. The recommended dose is one drop in the affected eye(s) three times a day for 7 days. It is available as a sterile ophthalmic suspension at a concentration of 0.6% base (6 mg/mL), in 2 mL and 5 mL bottles. The 2 mL bottle is a sample.

2 METHODS AND MATERIALS

This section describes the methods and materials used by DMEPA 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. 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. [1]

2.1 PROPRIETARY NAME RISK ASSESSMENT

FDA's Proprietary Name Risk Assessment considers the potential for confusion between the proposed proprietary name, Besivance, 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 CDER.

For the proprietary name, Besivance, DMEPA staff 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 an CDER Expert Panel discussion to gather professional opinions on the safety of the proposed proprietary name (see 2.1.1.2). DMEPA normally conducts internal FDA prescription analysis studies and, when provided, external prescription analysis studies results are considered 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 (see detail 2.1.2). The overall risk assessment is based on the findings of a Failure Mode 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. DMEPA 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 occur at any point in the medication use process, DMEPA 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]

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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.

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

2.1.1 Search Criteria

The DMEPA 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 'B' 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 Besivance, the staff also considers the other orthographic appearance of the name on lined and unlined orders. Specific attributes taken into consideration include the number of words in the name (one), the length of the name (nine letters), upstrokes (one, capital letter 'B'), downstrokes (none), cross-strokes (none), and dotted letters (one, lower case 'i'). Several letters in Besivance may be vulnerable to ambiguity when scripted, including the letter 'B' may appear as 'R,'; lower case 'e' may appear as a lower case 'a', 'i', 'o', or 'u'; lower case 's' may appear as lower case 'g'; lower case 'iv' may appear as 'u' or 'i'; lower case 'iva' may appear as a lower case 'ra'; and lower case 'ce' may appear as a lower case 'ci'. Additionally, if the letter 'B' is not capitalized, lower case 'b' may appear as upper case 'V' or lower case 'v'. As such, the staff also considers these alternate appearances when identifying drug names that may look similar to Besivance.

When searching to identify potential names that may sound similar to Besivance, the DMEPA staff searches for names with similar number of syllables (three), stresses (BE-si-vance, be-SI-vance and be-si-VANCE), and placement of vowel and consonant sounds. As such, the staff also considers these alternate pronunciations when identifying drug names that may sound similar to Besivance. The Applicant's intended pronunciation of the proprietary name (\be"si 'van(t) sə\) was provided with the request for a proprietary name review submission, and is also taken into consideration.

The staff also consider 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, DMEPA staff were provided with the following information about the proposed product: the proposed proprietary name (Besivance), the established name (Besifloxacin), proposed indication (treatment of bacterial conjunctivitis), strength (0.6%), frequency of administration (three times a day for 7 days), route of administration (topical ophthalmic), and dosage form of the product (ophthalmic suspension). Appendix A provides a more detailed listing of the product characteristics DMEPA staff generally take into consideration.

Lastly, the DMEPA 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 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 DMEPA 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 Database and Information Sources

The proposed proprietary name, Besivance, was provided to DMEPA 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 Besivance 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 DMEPA staff uses 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, DMEPA 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 FDA Expert Panel Discussion

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

The pooled results of the DMEPA 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 Besivance 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 122 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 Besivance in handwriting and verbal communication of the name, an inpatient medication order and an outpatient prescription 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 122 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. Besivance Study (conducted on January 30, 2009)

HANDWRITTEN MEDICATION ORDER	VERBAL PRESCRIPTION
Inpatient Medication Order 1: Besivance 0.6% Instill 1 drop into affected eye(s) tid.	"Besivance 0.6%, Instill 1 drop into affected

Inpatient Medication Order 2:	eyes(s) tid"
Bepivance 0.6% #1 Instill 1 drop into affected eye(s) TID	

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 a consulting firm. The medication error staff 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 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 medication error staff's 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 Comments from the Division of Anti-Infective and Ophthalmology Products

DMEPA requests the regulatory division in the Office of New Drugs responsible for the application for their comments and/or clinical/other concerns on the proposed proprietary name at the initial phase of the name review. Additionally, when applicable, at the same time DMEPA requests concurrence/non-concurrence with DDMAC's decision on the name. Any comments or concerns are addressed in the safety evaluator's assessment.

The Review Division is contacted a second time following our analysis of the proposed name. At this point, DMEPA conveys their decision to accept or reject the name. The regulatory division is requested to concur /not concur with DMEPA's final decision.

2.1.5 Safety Evaluator Risk Assessment of the Proposed Proprietary Name

Based on the criteria set forth in Section 2.1, the Safety Evaluator Risk Assessment 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.[4] When applying FMEA to assess the risk of a proposed proprietary name, DMEPA seeks 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

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

of medication errors associated with drug name confusion. FMEA allows the Agency to identify the potential for medication errors due to look- or sound-alike drug names prior to approval, where actions to overcome these issues are easier and more effective then remedies available in the post-approval phase.

In order to perform an 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 Besivance 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 Besivance 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 posses 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.

DMEPA will object to the use of proposed proprietary name when the 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. 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 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. DMEPA staff identifies 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 and another drug product.

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 is awarded approval first has the right to the use the name, while DMEPA will recommend that the second product to reach approval seek an alternative name.

If none of these conditions are met, then DMEPA will not object to the use of the proprietary name. If any of these conditions are met, then DMEPA 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 IOM, WHO, Joint Commission, and ISMP, who 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, DMEPA 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 Applicant's 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, 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 limitations of the process).

If DMEPA 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. DMEPA is likely to recommend that the Applicant 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, and so DMEPA may be able to provide the Applicant with recommendations that reduce or eliminate the potential for error would render the proposed name acceptable.

2.1.6 Drug Utilization Data Sources and Methods

We utilized SDI's Physician Drug and Diagnosis Audit to examine the intended physician dosing for Beconase AQ, Nasonex, Flonase, Ciloxan, and Ocuflox. Using PDDA, we obtained counts of the number of "occurances" (mentions by a physician) for an intended patient instruction of "as directed". All other patient instructions were combined into an "other instructions" category. Data were obtained for the calendar years 2007 through 2009, inclusive. A complete description of the PDDA database is provided in Appendix J.

3 RESULTS

3.1 PROPRIETARY NAME RISK ASSESSMENT

3.1.1 Database and Information Sources

The Division of Medication Error Prevention and Analysis' searches identified fourteen names.

Nine of the fourteen names were thought to look like Besivance: Lumenhance, Desenex, Benicar, Multihance, Keri Advanced, Benisone, Beconase, Fosavance, and Glucovance

Three of the fourteen names were thought to look and sound like Besivance: Vesicare, Besivance, and Kepivance.

The remaining two names were thought to sound like Besivance: BeneFIX, and Mesavant.

The Division of Medication Error Prevention and Analysis did not identify any United States Adopted Names (USAN) stems in the name, Besivance, as of February 4, 2009.

3.1.2 Expert Panel Discussion

The Expert Panel reviewed the pool of names identified by DMEPA staff (see section 3.1.1. above) and noted no additional names thought to have orthographic or phonetic similarity to Besivance. The Expert Panel inquired about the total days supply that would be provided by the 2 mL sample. The ONDQA reviewer for this NDA was contacted in order to determine the number of drops in a 2 mL sample of this product. This reviewer stated that each mL contains approximately 20 drops, so a 2 mL sample will contain approximately 40 drops. The Expert Panel also expressed concern regarding the potential for development of antimicrobial resistance if a patient were to not complete the full 7 days of anti-infective therapy. Theoretically, a patient could receive a 2 mL sample and not be motivated to fill their prescription for the balance necessary to complete the 7-day course of therapy if they experience resolution of their symptoms before they fill their prescription for the 5 mL bottle. If a patient is prescribed this product to treat an infection in one eye, 21 drops (1 drop in the affected eye 3 times a day for 7 days) would be required, so a 2 mL sample provides a sufficient quantity to treat one affected eye. DAIOP was contacted for comments regarding this issue. The response from DAIOP indicated that it is common to have a physician sample which is not a full course of therapy since the usual reason for giving a physician sample of an anti-infective is to have the patient start treatment as soon as possible, knowing that it will take some time to have a prescription filled. DMEPA acknowledges DAIOP's response and we note that our concern regarding this drug product has been addressed.

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

3.1.3 FDA Prescription Analysis Studies

A total of twenty-three (23) practitioners responded. Eighteen (18) of the participants interpreted the name correctly as "Besivance," with correct interpretation occurring in 100% (n=6) of the inpatient written study responses and 86% (n=12) of the outpatient written study responses. Two (2) participants in the outpatient study misinterpreted the drug name as 'Beswance'. The name 'Besivance' was misinterpreted in 100% (n=3) of the Rx voice study responses. None of the names identified in the FDA Prescription Studies are marketed 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] twenty (20) drug names were identified by [redacted] and evaluated for potential orthographic and phonetic similarities. b(4)

The following 20 names were identified by [redacted] Betavent, Bravisol, Viravan-S, Estrace, Glucovance, Invanz, Silace, Vanceril, Vesicare, Essian, Balziva, Betapace, Essian H.S, Kepivance, Visudyne, Vynase, Visine, Visine A.C., Visine L.R., and Visine-A. Three of these 20 names (Glucovance, Kepivance, and Vesicare) were also identified in DMEPA searches or during the Expert Panel Discussion, and are analyzed as Safety Evaluator Risk Assessment (see Section 3.1.6). The remaining seventeen (17) names identified by the [redacted] tudy were also analyzed by DMEPA to determine if these drug names could be confused with Besivance and if the drug name confusion would likely result in a medication error. b(4)

The results of [redacted] research support the use of 'Besivance' as a proprietary name for the proposed drug product, Besifloxacin Ophthalmic Suspension. b(4)

3.1.5 Comments from the Division of Anti-Infective and Ophthalmology Products

In response to the OSE February 2, 2009, e-mail, DAIOP did not forward any comments and/or clinical/other concerns on the proposed name at the initial phase of the name review.

DMEPA notified DAIOP via e-mail that we had found no objections to the proposed proprietary name, Besivance, on February 12, 2009. Per e-mail correspondence from the Division of Anti-Infective and Ophthalmology Products on March 3, 2009, they indicated they concur with our assessment of the proposed name, Besivance.

3.1.6 Drug Utilization Data

We obtained and evaluated drug utilization data in order to further analyze the risk of medication error due to name confusion between the potentially confusing name 'Beconase AQ' and the proposed proprietary name 'Besivance'.

Estimates of the number of prescriptions dispensed in the U.S. by retail pharmacies for Nasonex, Flonase and Beconase AQ, was obtained. Overall, the dispensing for these three nasal corticosteroids has declined by [redacted], falling from [redacted] prescriptions in 2006 to [redacted] prescriptions in 2008. Only Nasonex showed an increase in use with the number of prescriptions dispensed rising from [redacted] prescriptions in 2006 to [redacted] prescriptions in 2008. b(4)

Table 1. Estimated number of prescriptions dispensed for Nasonex, Flonase and Beconase AQ by retail pharmacies, 2006 - 2008

	2006		2007		2008	
	TRxs	%	TRxs	%	TRxs	%
Total						
Nasonex	[redacted]					
Flonase						
Beconase AQ						

b(4)

In order to evaluate if Beconase AQ and other currently marketed fluoroquinolone antibiotic ophthalmic products are being prescribed with the instructions "as directed", we examined the instructions for use for Beconase AQ, as well as other nasal corticosteroids such as Nasonex and Flonase, and two approved

fluoroquinolone antibiotics, Ciloxan and Ocuflox. The results of this data query are presented in Table 2. For each drug product examined, the yearly total of "As Directed" patient instructions was [redacted] or less. Ciloxan had the highest percentage of "As Directed" mentions with [redacted] during year 2007. Beconase AQ was not associated with a patient instruction of "As Directed" during the three years examined.

b(4)

Table 2. Proportion of mentions for "As Directed" patient instructions for Nasonex, Flonase, ciloxan, Ocuflox and Beconase AQ by U.S. office based physicians, 2007-2009

	2006		2007		2008	
	Mentions (000)	Share %	Mentions (000)	Share %	Mentions (000)	Share %
Nasonex						
Other Instructions						
as directed						
Unspecified						
Flonase						
Other Instructions						
as directed						
Unspecified						
Ciloxan						
Other Instructions						
as directed						
Unspecified						
Ocuflox						
Other Instructions						
as directed						
Unspecified						
Beconase AQ						
Other Instructions						
Unspecified						

b(4)

3.1.7 Safety Evaluator Risk Assessment

Independent searches by the primary Safety Evaluator identified one additional name, Beconase AQ, thought to look similar to Besivance. Thus, a total of thirty-two (32) names were analyzed to determine if the drug names could be confused with Besivance and if the drug name confusion would likely result in a medication error.

Failure mode and effect analysis was then applied to determine if the proposed name, Besivance, could potentially be confused with any of the 32 names and lead to medication errors. This analysis determined that the name similarity between Besivance and the identified names was unlikely to result in medication errors with 31of the 32 products identified for the reasons presented in Appendices C through I. The remaining name, Beconase AQ, is discussed in Section 4.1.

4 DISCUSSION

4.1 PROPRIETARY NAME RISK ASSESSMENT

We analyzed thirty-two (32) proprietary and established drug names with some similarity to the proposed name, Besivance. Failure Mode and Effect Analysis (FMEA) was applied to all thirty-two names to determine if any of these names are vulnerable to name confusion that could lead to medication errors with Besivance.

DMEPA identified the one of the thirty-two names 'Beconase AQ' as a potentially confusing name due to its orthographic similarity to the proposed name, Besivance, particularly if the modifier 'AQ' is dropped during the writing of an order or prescription. Additionally, the proposed proprietary name 'Besivance' and the trade name 'Beconase AQ' can both be prescribed as "three times a day" or "as directed" which can also lead to confusion and increase the risk of medication error. However, after further analysis, the findings of our FMEA indicate that the name Beconase AQ is not vulnerable to name confusion. See Section 4.1.1 for a detailed discussion of the name 'Beconase AQ'.

4.1.1 Beconase AQ

DMEPA identified Beconase AQ as being orthographically similar to the proposed name, Besivance. This similarity is increased if the modifier 'AQ' is dropped when the product is prescribed. If the modifier 'AQ' is dropped when Beconase AQ is prescribed, the orthographic similarity of the names 'Beconase' and 'Besivance' is increased due to the following orthographic characteristics:

- Similar length of names (Beconase vs. Besivance): 8 letters vs. 9 letters.
- The beginning of both names is 'Be'.
- The ending of both names appears similar when scripted ('se' versus 'ce').
- The first letter 'B' is the only upstroke for both names, and there are zero downstrokes or cross-strokes in either name.
- Besivance contains one dotted letter 'i' versus zero dotted letters in Beconase, however, the dot in the 'i' in Besivance can either be omitted or obliterated by script written above the name on an order, or by a low resolution/quality fax prescription.

Furthermore, both products are available only as single-strength products and they both could potentially be prescribed with the same instructions for use "as directed." When the strength of the product is omitted during prescribing and the instructions for use states to administer the product "as directed", the risk of medication error due to name confusion is increased.

In order to evaluate the likelihood that Besivance and Beconase AQ will be prescribed with the instructions "as directed", data were obtained using SDI's PDDA, a monthly survey of 3,200 office-based physicians. Although PDDA data are helpful to understand how drug products are prescribed by physicians, the small sample size and the relatively low usage of these products limits the ability to identify trends in the data. Due to the low sample size used to generate the "as directed" projections, these data should not be trended over time and should be viewed with caution as estimates below 100,000 uses per year will have wide confidence intervals. Furthermore, PDDA data only provide insight to the physician's intended usage of the product, but do not reflect how the prescription is actually labeled when or if it is ultimately dispensed to the patient.

The percentage rates for the frequency of intended usage of following products with the instructions "as directed" was obtained using SDI's PDDA, and ranged from 0% to 3.6% for the nasal corticosteroids (Beconase AQ, Nasonex, and Flonase) and two of the approved fluoroquinolone antibiotic ophthalmic

products (Ciloxan and Ocuflox). DMEPA anticipates that the prescribing of Besivance for use "as directed" will be within this range as well.

DMEPA believes that the risk of name confusion leading to medication error is minimal when the following factors are considered:

- The anticipated low incidence of Besivance being prescribed with the instructions for use "as directed."
- The relatively low drug usage for the drug product, Beconase AQ.
- Differences in product characteristics for Besivance vs. Beconase AQ, including dose (1 drop vs. 2 sprays, dosage form (ophthalmic suspension vs. nasal spray), route of administration (topical ophthalmic vs. intranasal), frequency (3 times daily vs. 2 times daily), duration of use (finite duration of 7 days vs. an indefinite or unspecified duration) will help to differentiate these two products.

Thus, the findings of the FMEA process for all thirty-two names indicate that the proposed name is not vulnerable to name confusion that could lead to medication errors. Additionally, the results of the proposed name risk assessment conducted by [redacted] upport the use of 'Besivance' as a proprietary name for this drug product. b(4)

5 CONCLUSIONS

The Proprietary Name Risk Assessment findings indicate that the proposed name, Besivance, is not vulnerable to name confusion that could lead to medication errors in the current marketplace. Thus we have no objections to the name, Besivance, for this product. The Division of Anti-Infective and Ophthalmology Products concurs with this assessment. Additionally, DDMAC does not object to the proposed name, Besivance, from a promotional perspective.

However, if any of the approved product characteristics as stated in this review are altered, 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. If the approval of this application is delayed beyond 90 days from the signature date of this review, the proposed name must be resubmitted for evaluation.

6 RECOMMENDATIONS

6.1 COMMENTS TO THE DIVISION

We would appreciate feedback on the final outcome of this review. We would be willing to meet with the Division for further discussion, if needed. Please copy DMEPA on any communication to the Applicant with regard to this review. If you have further questions or need clarifications, please contact Marlene Hammer, project manager, at 301-796-0757.

6.2 COMMENTS TO THE APPLICANT

We have completed our review of the proposed proprietary name, Besivance, and have concluded that it is acceptable.

The proposed proprietary name, Besivance, will be re-reviewed 90 days prior to the approval of the NDA. If we find the name unacceptable following the re-review, we will notify you.

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://csi.micromedex.com)*

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://factsandcomparisons.com)*

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 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)*

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

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

Provides information regarding patent and trademarks.

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

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 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)*

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)*

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.lexi.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 DMEPA staff consider the spelling of the name, pronunciation of the name when spoken, and appearance of the name when scripted. DMEPA also compare the spelling of the proposed proprietary name with the proprietary and proper 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 DMEPA 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 DMEPA 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 DMEPA compare the pronunciation of the proposed proprietary name with the pronunciation of other drug names. If provided, DMEPA 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, DMEPA also considers 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 Upstokes 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: **FDA Prescription Study Responses**

Inpatient Medication Order	Outpatient Medication Order	Voice Prescription
Besivance	Besivance	Besabev
Besivance	Besivance	Beseven
Besivance	Besivance	Desobev
Besivance	Besivance	
Besivance	Besivance	
Besivance	Besivance	
	Besivance	
	Besivance	
	Besivance	
	Besivance	
	Besivance	
	Besivance	
	Beswance	
	Beswance	

Appendix C: Names lacking convincing look-alike and/or sound-alike similarities with Besivance

Proprietary Name	Similarity to Besivance [Look, Sound, or NS (not specified due to minimal similarity)]	Source ([redacted] or DMEPA)
Keri Advanced	Look	DMEPA
Multihance	Look	DMEPA
Benicar	Look	DMEPA
Desenex	Look	DMEPA

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Proprietary Name	Similarity to Besivance [Look, Sound, or NS (not specified due to minimal similarity)]	Source ([redacted] or DMEPA)
Lumenhance	Look	DMEPA
Balziva	Sound	
Bravisol	Sound	
Essian	Sound	
Essian H.S.	Sound	
Estrace	NS	
Invanz	NS	
Silace	NS	
Vanceril	NS	
Viravan-S	Sound	
Visine	Sound	
Visine A.C.	Sound	
Visine L.R.	Sound	
Visine-A	Sound	
Visudyne	Sound	

b(4)

b(4)

Appendix D: Proprietary name which is the subject of this review

Failure Mode: Name confusion	Causes (could be multiple)	Effects
Besivance (Besifloxacin)	Identical orthographic and phonetic features	Medication error will not occur since this name is owned by the Applicant **(Bausch and Lomb, Inc.)** and is the proposed proprietary name for the product which is the subject of this Application *(name identified on Pharma In-Use Search database, Saegis).*

Appendix E: Product names that have never been marketed.

Proprietary Name	Similarity to Besivance	Status of product name
Mesavant***	Look	DMEPA found this name unacceptable (OSE reviews: 2006-0034 and 2006-576). The NDA for this drug product was approved with a different name (Lialda).

Appendix F: Proprietary names used only in Foreign Countries

Proprietary Name	Similarity to Besivance	Country
Fosavance (alendronate/cholecalciferol) Availabe in the U.S. as Fosamax Plus D; no generic available.	Look	Canada and multiple other countries

Appendix G: Products withdrawn from the market and no generic is available.

Proprietary Name	Similarity to Besivance
Benisone (betamethasone 17-benzoate) Withdrawn in 1992	Look
Beconase (betamethasone diproprionate) 0.042 mg/actuation, Nasal Inhalation Aerosol Withdrawn in 2004 [Chlorofluorocarbon (CFC)-containing product]	Look

Appendix H: Products with no numeric overlap in strength, dose, and route of administration.

Product Name with potential for confusion	Similarity to Proposed Proprietary Name	Dosage Form Strength	Usual Dose
Besivance (Besifloxacin)	**N/A**	**Topical ophthalmic 0.6%**	**1 drop in affected eye(s) 3 times a day for 7 days**
Glucovance (glyburide/metformin)	Look	Tablets: 1.25 mg/250 mg 2.5 mg/500 mg 5 mg/500 mg	1 or 2 tablets orally once or twice a day
BeneFIX (coagulation factor IX)	Sound	Lyophilized Powder for Injection: 250 IU 500 IU 1000 IU 2000 IU IU=international units	Dose: weight in kg X desired factor IX increase in % or IU/dL X reciprocal of observed recovery in IU/kg per IU/dL. Infuse intravenously over several minutes.
Vesicare (solifenacin)	Look and Sound	Tablets: 5 mg and 10 mg	1 or 2 tablets orally once daily
Kepivance (palifermin)	Look and Sound	Lyophilized Powder for Injection: 6.25 mg vial	60 mcg/kg/day administered as an intravenous bolus injection once daily for 3 consecutive days before and 3 consecutive days after myelotoxic therapy for a total of 6 doses.
Betapace (Sotalol hydrochloride)	Look	Tablets: 80 mg 120 mg 160 mg 240 mg	80 mg to 320 mg twice daily
Vyvanse (Lisdexamphetamine)		Capsule: 20 mg, 30 mg, 40 mg, 50 mg, 60 mg, 70 mg	30 mg to 70 mg once daily in the morning

Appendix I: Single strength products with multiple differentiating product characteristics

Product name with potential for confusion	**Similarity to Proposed Proprietary Name**	**Strength**	**Usual Dose (if applicable)**	**Other differentiating product characteristics Besivance vs. product**
Besivance (Besifloxacin) Ophthalmic Suspension	**N/A**	**0.6 %**	**1 drop in affected eye(s) 3 times a day for 7 days**	**N/A**
Betavent (Carbetapentane Citrate and Guaifenesin)	Sound	(20 mg Carbetapentane Citrate and 100 mg Guaifenesin per 5mL)	Complete product information not available (unapproved, marketed product; still listed in Red Book, but no information on Company's website).	Dose: 1 drop vs. teaspoonful Dosage Form: ophthalmic suspension vs. oral syrup Route of administration: topical ophthalmic vs. oral

Appendix J: Drug Utilization Database Descriptions

SDI Physician Drug & Diagnosis Audit (PDDA)

SDI's Physician Drug & Diagnosis Audit (PDDA) is a monthly survey designed to provide descriptive information on the patterns and treatment of diseases encountered in office-based physician practices in the U.S. The survey consists of data collected from approximately 3,100 office-based physicians representing 29 specialties across the United States that report on all patient activity during one typical workday per month. These data may include profiles and trends of diagnoses, patients, drug products mentioned during the office visit and treatment patterns. The data are then projected nationally by physician specialty and region to reflect national prescribing patterns.

SDI uses the term "drug occurrences" to refer to the number of times a product has been reported on a patient information form during an office-based patient visit for that period. It is important to note that a "drug occurrence" does not necessarily result in a prescription being generated. A "drug occurrence" can result from a prescription written, a sample given, a recommendation for OTC products, recommendation with sample, a product dispensed or administered in the office, a hospital order, a nursing home order or a combination of these.

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/s/

Lori Cantin
3/25/2009 10:31:54 AM
DRUG SAFETY OFFICE REVIEWER

Kristina Arnwine
3/25/2009 04:45:54 PM
DRUG SAFETY OFFICE REVIEWER

Denise Toyer
3/26/2009 06:25:39 PM
DRUG SAFETY OFFICE REVIEWER

Carol Holquist
3/27/2009 09:44:26 AM
DRUG SAFETY OFFICE REVIEWER

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:	September 23, 2008
To:	Wiley Chambers, MD, Acting Director Division of Anti-Infective and Ophthalmologic Products
Thru:	Kristina Arnwine, PharmD, Acting Team Leader Denise Toyer, PharmD, Deputy Director Carol Holquist, RPh, Director Division of Medication Error Prevention and Analysis
From:	Carlos M Mena-Grillasca, RPh, Safety Evaluator Division of Medication Error Prevention and Analysis
Subject:	Proprietary Name, Label and Labeling Review
Drug Name:	Optura (Besifloxacin Hydrochloride Ophthalmic Suspension) 0.6% as base
Application Type/Number:	IND 64-335 NDA 22-308
Applicant:	Bausch & Lomb
OSE RCM #:	2008-415

CONTENTS

EXECUTIVE SUMMARY

The results of the Proprietary Name Risk Assessment indicate that the proposed name, Optura, is vulnerable to name confusion that could lead to medication errors with Optivar and Optive (See section 4 for full discussion). As such the Division of Medication Error Prevention and Analysis objects to the use of the proprietary name, Optura, for this product and recommends an alternative proprietary name be submitted for consideration.

The results of the Label and Labeling Risk Assessment found that the presentation of information and design of the proposed carton labeling and container labels are vulnerable to confusion that could lead to medication errors. The Medication Error Prevention and Analysis staff believes the risks we have identified can be addressed prior to approval and provide recommendations in Section 5.2 that aim at reducing the risk of medication errors.

1 BACKGROUND

1.1 INTRODUCTION

This consult was written in response to a request from the Division of Anti-Infective and Ophthalmologic Products to evaluate the product for its potential to contribute to medication errors. The proposed proprietary name, Optura, is evaluated to determine if the name could be potentially confused with other proprietary or established drug names. Additionally, the product design, container label, carton and insert labeling is evaluated to identify areas that could lead to medication errors.

1.2 PRODUCT INFORMATION

Optura (besifloxacin hydrochloride) is an 8-chloro fluoroquinolone anti-infective ophthalmic suspension indicated for the treatment of bacterial conjunctivitis. The recommended dose is one drop in the affected eye(s) three times a day for 7 days. It is available as a sterile ophthalmic suspension at a concentration of 0.6% base (6 mg/mL), in 2 mL and 5 mL bottles.

2 METHODS AND MATERIALS

This section describes the methods and materials used by the Division of Medication Error Prevention and Analysis staff conducting a proprietary name risk assessment (see 2.1 Proprietary Name Risk Assessment) and label, labeling, and/or packaging risk assessment (see 2.2 Label and Labeling Risk Assessment). The primary focus for both of the assessments 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, Optura, and the proprietary and established names of drug products existing in the marketplace and those products with pending IND, NDA, and ANDA currently under review by the Agency.

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[1] National Coordinating Council for Medication Error Reporting and Prevention. http://www.nccmerp.org/aboutMedErrors.html. Last accessed 08/08/2008.

For the proprietary name, Optura, the medication error staff of the Division of Medication Error Prevention and Analysis searched 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 (EPD) to gather professional opinions on the safety of the proposed proprietary name (see 2.1.1.2). We also conduct internal FDA prescription analysis studies (see 2.1.2), and, when provided, external prescription analysis study results are considered and incorporated into the overall risk assessment (see 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 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. We use 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 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 occur at any point in the medication use process, we consider 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 considers 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 'O' 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]

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

[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)

To identify drug names that may look similar to Optura, 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 (6 letters), upstrokes (two, capital letter 'O' and lower case letter 't'), down strokes (one, lower case letter 'p'), cross-strokes (one, lower case letter 't'), and dotted letters (none). Additionally, several letters in Optura may be vulnerable to ambiguity when scripted, including the capital letter 'O' may appear as 'A' and the combination of 'Cl'; lower case 'p' may appear as lower case 'g' or 'q'; lower case 't' may resemble a lower case 'l', 'e', and 'x'; lower case 'u' and 'a' may appear as lower case 'a', 'u', 'e', or 'o'; and lower case 'r' may look like 'v', 's', or 'n'. As such, the Staff also considers these alternate appearances when identifying drug names that may look similar to Optura.

When searching to identify potential names that may sound similar to Optura, the medication error staff search for names with similar number of syllables (3), stresses (OP-tur-a, op-TUR-a or op-tur-A) and placement of vowel and consonant sounds. In addition, several letters in Optura may be subject to interpretation when spoken; including the letter 'O' may be interpreted as 'A', 'p' may be interpreted as 'b', 'u' may be interpreted as 'o', 'r' may be interpreted as 'v', and 'a' may be interpreted as 'o'. The Sponsor'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 consider 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 (Optura), the established name (besifloxacin hydrochloride), proposed indication (treatment of bacterial conjunctivitis), strength (0.6% base), dose (1 drop), frequency of administration (three times a day for 7 days), route (topical ophthalmic) and dosage form of the product (ophthalmic suspension). Appendix A provides a more detailed listing of the product characteristics the medication error staff generally takes into consideration.

Lastly, the medication error staff also considers the potential for the proposed name to inadvertently function as a source of error for reasons other than name confusion. Post-marketing experience has demonstrated that proprietary names 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 provides additional comments related to the safety of the proposed name or product based on their professional experience with medication errors.

2.1.1.1 Database and Information Sources

The proposed proprietary name, Optura, 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 Optura 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 uses 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 reviews 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 medication error prevention and analysis staff to gather CDER professional opinions on the safety of the product and the proprietary name, Optura. Potential concerns

regarding drug marketing and promotion related to the proposed names are also discussed. This group is composed of Division of Medication Error Prevention and Analysis staff with backgrounds in pharmacy and nursing.

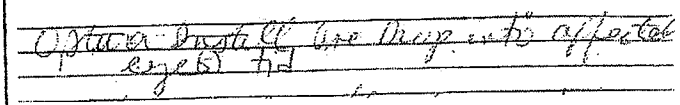
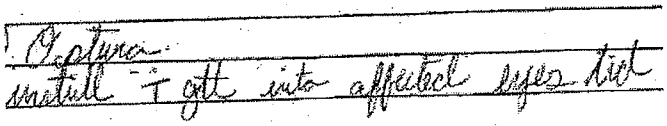
The pooled results of the medication error staff were presented to the Expert Panel for consideration. Based on the clinical and professional experiences of the Expert Panel members, the Panel may recommend the addition of names, additional searches by the Safety Evaluator to supplement the pooled results, 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 Optura 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 124 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 Optura in handwriting and verbal communication of the name, two inpatient medication orders were 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 124 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. Optura Study (conducted on April 9, 2008)

HANDWRITTEN PRESCRIPITON AND MEDICATION ORDER	VERBAL PRESCRIPTION
Inpatient Medication Order #1: 	Optura Instill 1 drop into affected eye tid.
Inpatient Medication Order #2: 	

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 the consulting firm, [redacted] The medication error staff 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 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.

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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 medication error staff's 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 Risk Assessment applies their individual expertise gained from evaluating medication errors reported to FDA to conduct a Failure Modes 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 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 an 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 Optura 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 Optura 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 possesses 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

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

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.

We 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. 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 identifies 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 and another drug product.

In the event that we 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 of 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 Sponsor; however, the safety concerns set forth in criteria 1 through 5 are supported either by FDA Regulation or by external healthcare authorities, including the IOM, WHO, JCAHO, and ISMP, which 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, we contend 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 Sponsor, 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 a Sponsor 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 (see limitations of the process).

If we object 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. We are likely to recommend that the Sponsor select an alternative proprietary name and submit the alternate name to the Agency for us 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 Sponsor with recommendations that reduce or eliminate the potential for error and would render the proposed name acceptable.

2.2 LABEL AND LABELING RISK ASSESSMENT

The label and labeling of a drug product are the primary means by which practitioners and patients (depending on configuration) interact with the pharmaceutical product. The container labels and carton labeling communicate critical information including proprietary and established name, strength, form, container quantity, expiration, and so on. The insert labeling is intended to communicate to practitioners all information relevant to the approved uses of the drug, including the correct dosing and administration.

Given the critical role that the label and labeling has in the safe use of drug products, it is not surprising that 33 percent of medication errors reported to the USP-ISMP Medication Error Reporting Program may be attributed to the packaging and labeling of drug products, including 30 percent of fatal errors.[7]

Because the Division of Medication Error Prevention and Analysis staff analyze reported misuse of drugs, we are able to use this experience to identify potential errors with all medication similarly packaged, labeled or prescribed. We use FMEA and the principles of human factors to identify potential sources of error with the proposed product labels and insert labeling, and provided recommendations that aim at reducing the risk of medication errors.

For this product the Sponsor submitted on May 30, 2008 the following labels and insert labeling for the Division of Medication Error Prevention and Analysis review (see Appendices I, J, K, and L for images):

- Sample Container Label (2 mL)
- Trade Container Label (5 mL)
- Sample Carton Labeling (2 mL)
- Trade Carton Labeling (5 mL)
- Prescribing Information (no image)

[7] Institute of Medicine. Preventing Medication Errors. The National Academies Press: Washington DC. 2006. p275.

3 RESULTS

3.1 PROPRIETARY NAME RISK ASSESSMENT

3.1.1 Database and Information Sources

The search retrieved sixteen names. Eleven of the 16 names were thought to look like Optura. These include: Aptivus, Optiray, Optiva, Epivir, Septra, Optison, Apidra, Opana, Optanza, Optivar, and Optein. Four names (Oporia, Opteron, Opturem, and Optima) were thought to look and sound similar to Optura.

In addition, the staff identified the name Optura as that of a Canon camera and also as being trademarked in various countries (e.g. Canada, Japan, France).

The proposed proprietary name, Optura, does not contain a USAN stem as of the last date searched, August 8, 2008.

3.1.2 Expert Panel Discussion

The Expert Panel reviewed the pool of names identified by Division of Medication Error Prevention and Analysis (see section 3.1.1. above), and noted no additional names thought to have orthographic or phonetic similarity to Optura.

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

3.1.3 FDA Prescription Analysis Studies

A total of 31 practitioners participated, however, 32 responses were evaluated as one participant provided two interpretations to the study name. The majority of the participants (n=26) interpreted the name correctly as "Optura". All the remaining responses misinterpreted the drug name. See Appendix B for the complete listing of interpretations from the verbal and written prescription studies.

3.1.4 External Name Studies

b(4)

In the proposed name risk assessment submitted by the Applicant, the [redacted] identified and evaluated a total of 18 drug names thought to have some potential for confusion with the name Optura. Three of the 18 names (Optiray, Optivar and Septra) were also identified in the Division of Medication Error Prevention and Analysis Staff searches or Expert Panel Discussion.

The remaining 15 names identified by [redacted] were not previously identified by the Division of Medication Error Prevention and Analysis Staff. Five names (Cardura, Opticrom, Riadura, Sanctura, and Ovidrel) were thought by practitioners to look and/or sound similar to Optura. Nine names were identified by [redacted] as having some similarity (phonetic or orthographic) to Optura: Optef, Operand, Opium, Optase, Opticare, Optimark, Outgro, Posture, and Pura. The remaining name (Optra) is marketed in India and Pakistan. Optra is a brand name for the antibiotic ofloxacin in India, marketed in 200 mg and 400 mg oral tablets for administration every 12 hours. In Pakistan, Optra is a brand name for the bronchodilator ipratropium bromide available in a 40 mcg/actuation metered dose inhaler and administered four times daily.

b(4)

3.1.5 Safety Evaluator Risk Assessment

Independent searches by the primary Safety Evaluator identified an additional name (Optive) thought to look similar to Optura and represent a potential source of drug name confusion. As such, a total of 31 names were analyzed to determine if the drug names could be confused with Optura and if the drug name confusion would likely result in a medication error.

All of the identified names were determined to have some orthographic and/or phonetic similarity to Optura, and thus determined to present some risk for confusion. Failure modes and effects analysis (FMEA) was then applied to determine if the proposed name, Optura, could potentially be confused with any of the 31 names and lead to medication error.

This analysis determined that the name similarity between Optura and the identified names was unlikely to result in medication errors for twenty nine out of thirty one products. See Appendices C through H for our evaluation of the 29 products identified.

The FMEA determined that the remaining two names, Optivar and Optive, are vulnerable to confusion and medication errors due to orthographic and/or phonetic similarities in addition to overlapping product characteristics (see section 4 below for full discussion).

3.2 LABEL AND LABELING RISK ASSESSMENT

Upon review of the container labels, carton and insert labeling, the Division of Medication Error Prevention and Analysis notes inconsistency in the nomenclature and strength representation (i.e. besifloxacin 0.6% vs. besifloxacin hydrochloride 0.6% as base).

3.2.1 Container Label

On the container label for the sample bottle (2 mL) the strength per mL, storage and the usual dosage information have been omitted.

The container labels for the sample (2 mL) and retail bottles (5 mL) are cluttered with US Patent Numbers.

3.2.2 Carton Labeling

The Applicant uses a large graphic in the principal display panel. This graphic is the most prominent item on the carton labeling. However, the statement "For Ophthalmic Use Only" is relegated to a less prominent location on the side panel.

3.2.3 Prescribing Information

The total drug content and bottle size (i.e. 5 mL in a 7.5 mL bottle) are included in the How Supplied section.

4 DISCUSSION

4.1 PROPRIETARY NAME RISK ASSESSMENT

We analyzed thirty one proprietary names for their similarity to Optura using Failures Mode and Effect Analysis (FMEA). Our analysis determined that two names, Optivar and Optive, are vulnerable to name confusion that could lead to medication errors with Optura. These concerns are described in detail below.

4.1.1 Optivar

b(4)

Both DMEPA and [redacted] identified Optivar as being orthographically and/or phonetically similar to the proposed name, Optura.

The names Optura and Optivar are close in length (six letters vs. seven letters, respectively). The beginning of both names are Opt- and the ending of both names appears similar when scripted (-ra versus -ar), particularly due to reverse similarity. The middle letter 'u' in Optura could be confused with the middle letters 'iv' in Optivar. Upstrokes ('O' and 't'), downstroke ('p'), and cross-stroke ('t') in the same positions increase the similarity. The dot in the 'i' can be omitted or obliterated by the crossed 't' or by a

low resolution/quality fax prescription. Furthermore, in the prescription analysis studies three responses misinterpreted the name Optura as Optiva, which is similar to the name Optivar. [redacted] evaluation states that Optivar "has an additional letter 'i' in the middle of the name and an additional letter 'r' at the end of the name", which is misleading as it suggests that there are 2 additional letters in the name Optivar when compared with Optura when there is only one additional letter. In addition, [redacted] does not address the fact that the middle letters 'iv' in Optivar can be confused with the letter 'u' in Optura when scripted and the reverse similarity of the endings ('ra' vs. 'ar'). b(4)

OPTURA

OPTIVAR

Both products, Optura and Optivar, share a number of product characteristics: same prescriber population (ophthalmologists and general practitioners), same route of administration (intraocular), same dose (one drop), and same class (Rx).

Differing product characteristics between Optura and Optivar include the indication of use (bacterial conjunctivitis vs. itching associated with allergic conjunctivitis), strength (0.6% vs. 0.05%), dosage forms (ophthalmic suspension vs. ophthalmic solution), and frequency of administration (three times a day vs. twice daily). However, the indication of use is not a differentiating product characteristic as it is not usually included in a prescription. Moreover, the strength can also be omitted from a prescription since both products are only available in a single strength and the prescription can be dispensed to the patient without the strength. To healthcare providers the dosage form is not a significant differentiating characteristic especially when both products are ophthalmic. Familiarity with dosing schedules (in this case 3 times a day vs. 2 times a day) can help differentiate two look-alike medications; however the frequency of administration for Optura and Optivar are common for ophthalmic drops in general and would not necessarily reduce the risk of medication errors by differentiating both products.

Therefore, in addition to the increased potential for orthographic confusion, the aforementioned overlapping and similar product characteristics coupled with the weak differentiating characteristics enhance the risk of medication errors between Optura and Optivar.

4.1.2 Optive

Optive is orthographically similar to the proposed name, Optura. Optive was not identified in the risk assessment performed by the consulting firm [redacted] b(4)

The names Optura and Optive have the same length (six letters). The beginning of both names are Opt- and the ending of both names appears similar when scripted ('ur' versus 'iv', and 'a' versus 'e'). Upstrokes ('O' and 't'), downstroke ('p'), and cross-stroke ('t') in the same positions increase the similarity. The dot in the 'i' can be omitted or obliterated by the crossed 't' or by a low resolution/quality fax prescription. Additionally, in the prescription analysis studies three responses misinterpreted the name Optura as Optiva, which is similar to the name Optive.

OPTURA

OPTIVE

Both names, Optura and Optive, share a number of product characteristics: same prescriber population (ophthalmologists and general practitioners), same route of administration (intraocular), and same dose (one drop vs. one to two drops).

Differing product characteristics between Optura and Optive include the indication of use (bacterial conjunctivitis vs. lubricant for dry eyes), strength (0.6% vs. 0.5% Carboxymethylcellulose / 0.9% glycerin), frequency of administration (three times a day vs. as often as necessary), dosage form (ophthalmic suspension vs. ophthalmic solution), and class (Rx vs. OTC). However, the indication of use is not a differentiating product characteristic as it is not usually included in a prescription. Moreover, the strength can also be omitted from the prescription since both products are only available in a single strength and the prescription can be dispensed to the patient without the strength. To healthcare providers the dosage form is not a significant differentiating characteristic especially when both products are ophthalmic. Although Optura is an Rx and Optive is an OTC this is not a differentiating product characteristic as both drugs share the same prescriber population and it is common for ophthalmologists and general practitioners to prescribe over the counter products.

Therefore, in addition to the increased potential for orthographic confusion, the aforementioned overlapping and similar product characteristics coupled with the weak differentiating product characteristics enhance the risk of medication errors between Optura and Optive.

4.2 LABEL AND LABELING RISK ASSESSMENT

Our analysis noted inconsistency in the nomenclature and strength representation (i.e. besifloxacin 0.6% vs. besifloxacin hydrochloride 0.6% as base) throughout the labels and labeling. The applicant should follow USP guidelines to allow for consistency in the naming format of the drug product (USP, General Chapter Nomenclature <1121>).

Our review noted the use of a large graphic on the carton labeling that precludes the use of this area for more relevant information (e.g. "For Ophthalmic Use Only").

We noted the inclusion of both drug content and bottle size. Bottle size is not relevant information for the prescriber or consumer and could potentially create confusion.

5 CONCLUSIONS & RECOMMENDATIONS

The Proprietary Name Risk Assessment findings indicate that the proposed name, Optura, is vulnerable to name confusion with Optivar and Optive which could lead to medication errors. As such, the Division of Medication Error Prevention and Analysis objects to the use of the proprietary name, Optura, for this product. The applicant should submit two alternate proprietary names and identify their primary and secondary choices.

The Label and Labeling Risk Assessment findings indicate that the presentation of information and design of the proposed carton and container labels introduces vulnerability that can lead to confusion and medication errors. The medication error prevention staff believes the risks we have identified can be addressed prior to approval and provides recommendations in Section 5.2 that aim at reducing the risk of medication errors.

5.1 COMMENTS TO THE DIVISION

Based upon our risk assessment of the proprietary name, the Division of Medication Error Prevention and Analysis does not recommend the proprietary name, Optura, because of the potential confusion with Optivar and Optive. In addition, based on our assessment of the labels and labeling, we have identified areas needed of improvement. We have provided recommendations in Section 5.2 and request this information be forwarded to the Applicant.

We would appreciate feedback of the final outcome of this review. 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 communication to the Applicant with regard to this review. If you have further questions or need clarifications, please contact Darrell Jenkins, OSE project manager, at 301-796-2084.

5.2 COMMENTS TO THE APPLICANT

A. Proprietary Name

The findings of our Proprietary Name Risk Assessment indicate that the proposed name, Optura, is vulnerable to name confusion that could lead to medication errors with Optivar and Optive. As such, the Division of Medication Error Prevention and Analysis objects to the use of the proprietary name, Optura, for this product. These concerns are described in detail below. We recommend the Applicant submit two alternate proprietary names and identify their primary and secondary choice.

1. Optivar

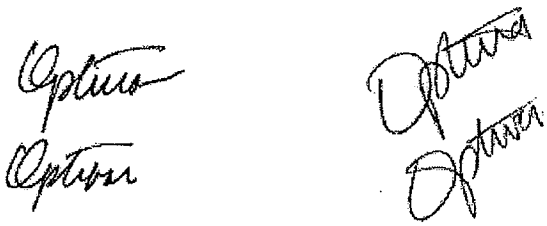
b(4)

Both DMEPA and [redacted] identified Optivar as being orthographically and/or phonetically similar to the proposed name, Optura.

The names Optura and Optivar are close in length (six letters vs. seven letters, respectively). The beginning of both names are Opt- and the ending of both names appears similar when scripted (-ra versus -ar), particularly due to reverse similarity. The middle letter 'u' in Optura could be confused with the middle letters 'iv' in Optivar. Upstrokes ('O' and 't'), downstroke ('p'), and cross-stroke ('t') in the same positions increase the similarity. The dot in the 'i' can be omitted or obliterated by the crossed 't' or by a low resolution/quality fax prescription. [redacted] valuation states that Optivar "has an additional letter 'i' in the middle of the name and an additional letter 'r' at the end of the name", which is misleading as it suggests that there are 2 additional letters in the name Optivar when compared with Optura when there is only one additional letter. In addition, [redacted] does not address the fact that the middle letters 'iv' in Optivar can be confused with the letter 'u' in Optura when scripted and the reverse similarity of the endings ('ra' vs. 'ar').

b(4)

b(4)



OPTURA
OPTIVAR

Both products, Optura and Optivar, share a number of product characteristics: same prescriber population (ophthalmologists and general practitioners), same route of administration (intraocular), same dose (one drop), and same class (Rx).

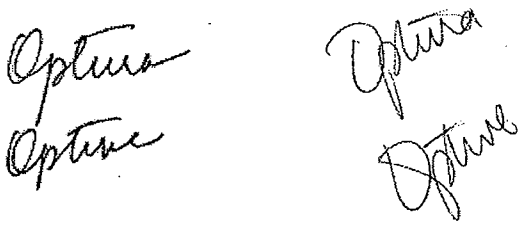
Differing product characteristics between Optura and Optivar include the indication of use (bacterial conjunctivitis vs. itching associated with allergic conjunctivitis), strength (0.6% vs. 0.05%), dosage forms (ophthalmic suspension vs. ophthalmic solution), and frequency of administration (three times a day vs. twice daily). However, the indication of use is not a differentiating product characteristic as it is not usually included in a prescription. Moreover, the strength can also be omitted from a prescription since both products are only available in a single strength and the prescription can be dispensed to the patient without the strength. To healthcare providers the dosage form is not a significant differentiating characteristic especially when both products are ophthalmic. Familiarity with dosing schedules (in this case 3 times a day vs. 2 times a day) can help differentiate two look-alike medications; however the frequency of administration for Optura and Optivar are common for ophthalmic drops in general and would not necessarily reduce the risk of medication errors by differentiating both products.

Therefore, in addition to the increased potential for orthographic confusion, the aforementioned overlapping and similar product characteristics coupled with the weak differentiating characteristics enhance the risk of medication errors between Optura and Optivar.

2. ***Optive***

Optive is orthographically similar to the proposed name, Optura. Optive was not identified in the risk assessment performed by the consulting firm [redacted] b(4)

The names Optura and Optive have the same length (six letters). The beginning of both names are Opt- and the ending of both names appears similar when scripted ('ur' versus 'iv', and 'a' versus 'e'). Upstrokes ('O' and 't'), downstroke ('p'), and cross-stroke ('t') in the same positions increase the similarity. The dot in the 'i' can be omitted or obliterated by the crossed 't' or by a low resolution/quality fax prescription.



OPTURA
OPTIVE

Both names, Optura and Optive, share a number of product characteristics: same prescriber population (ophthalmologists and general practitioners), same route of administration (intraocular), and same dose (one drop vs. one to two drops).

Differing product characteristics between Optura and Optive include the indication of use (bacterial conjunctivitis vs. lubricant for dry eyes), strength (0.6% vs. 0.5% Carboxymethylcellulose / 0.9% glycerin), frequency of administration (three times a day vs. as often as necessary), dosage form (ophthalmic suspension vs. ophthalmic solution), and class (Rx vs. OTC). However, the indication of use is not a differentiating product characteristic as it is not usually included in a prescription. Moreover, the strength can also be omitted from the prescription since both products are only available in a single strength and the prescription can be dispensed to the patient without the strength. To healthcare providers the dosage form is not a significant differentiating characteristic especially when both products are ophthalmic. Although Optura is an Rx and Optive is an OTC this is not a differentiating product characteristic as both drugs share the same prescriber population and it is common for ophthalmologists and general practitioners to prescribe over the counter products.

Therefore, in addition to the increased potential for orthographic confusion, the aforementioned overlapping and similar product characteristics coupled with the weak differentiating product characteristics enhance the risk of medication errors between Optura and Optive.

B. Labels and Labeling

1. Container Labels

a. To address the inconsistency in representing the product strength (i.e. besifloxacin hydrochloride 0.6% as base vs. besifloxacin 0.6%), the applicant should follow USP guidelines for the naming format of the drug product (USP, General Chapter Nomenclature <1121>). The recommended naming format is besifloxacin 0.6% and besifloxacin ophthalmic suspension 0.6%, as applicable.

b. Replace the patent numbers on the 2 mL container label with the storage and usual dosage information.

2. Carton Labeling

a. To address the inconsistency in representing the product strength (i.e. besifloxacin hydrochloride 0.6% as base vs. besifloxacin 0.6%), the applicant should follow USP guidelines for the naming format of the drug product (USP, General Chapter Nomenclature <1121>). The recommended naming format is besifloxacin 0.6% and besifloxacin ophthalmic suspension 0.6%, as applicable.

b. Relocate the "For Ophthalmic Use Only" information to the principal display panel so that it is prominently displayed. To allow adequate space, decrease the prominence of the graphic representation on the principal display panel. This will also allow for the established name and strength to be increased in size.

3. Prescribing Information

To address the inconsistency in representing the product strength (i.e. besifloxacin hydrochloride 0.6% as base vs. besifloxacin 0.6%), the applicant should follow USP guidelines for the naming format of the drug product (USP, General Chapter Nomenclature <1121>). The recommended naming format is besifloxacin 0.6% and besifloxacin ophthalmic suspension 0.6%, as applicable.

6. REFERENCES

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

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://factsandcomparisons.com)

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 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 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. U.S. Patent and Trademark Office (http://www.uspto.gov)

Provides information regarding patent and trademarks.

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

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 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)*

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)*

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.lexi.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 considers 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 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* 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 (i.e. "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 compares the pronunciation of the proposed proprietary name with the pronunciation of other drug names. If provided, we will consider the Sponsor's intended pronunciation of the proprietary name. However, because the Sponsor 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	• Names may look similar when scripted, and lead to drug name confusion in written communication

		by scripting letters Overlapping product characteristics	
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:

CDER Prescription Study Responses

Inpatient Medication Order #1	Inpatient Medication Order #2	Voice Prescription
Optura	Optiva	Optura
Optura	Optura	Optura
Optura	Optiva	Optra
Optura	Optura	Optura
Optura	Optura	Optura
Optura	Optiva	Optura
Optura	Optuna	
Optura	Optivia	
Optura	optura	
Optura		
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Appendix C: Proprietary names not identified as a drug.

Proprietary name	Similarity to Optura	Product Description
Optiva	Look	IV Catheter
Optima	Look and Sound	Contact lenses
Pura	Look and Sound [redacted]	Beauty product line (collagen)

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Appendix D: Proprietary names used only in Foreign Countries.

Proprietary name	Similarity to Optura	Country
Opturem (Ibuprofen)	Look and Sound	Germany, Denmark
Opteron (Ticlopidine HCl)	Look and Sound	Italy
Optra (Ofloxacin) (Ipratropium bromide)	Look and/or Sound [redacted]	India, Pakistan

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Appendix E: Products withdrawn from the market and not likely to be written in prescriptions.

Proprietary name	Similarity to Optura	Reason for exclusion
Optef (Hydrocortisone ophthalmic suspension)	Look and Sound [redacted]	Discontinued
Optein (Multivitamins, minerals and phytonutrients)	Look	Discontinued

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Appendix F: Products with no overlap in strength and dose.

Product name with potential for confusion	Similarity to Proposed Proprietary Name	Strength	Usual Dose (if applicable)
Optura (Besifloxacin Hydrochloride ophthalmic suspension)	**N/A**	**Strengths:** 0.6% as base (6 mg/mL)	**Usual dose:** One drop in affected eye(s) three times a day for 7 days.
Optiray (Loversol)	Look	Injection: 34%, 51%, 64%, 68%, and 74%	Lowest necessary for adequate visualization (note: used in radiography)
Epivir (Lamivudine)	Look	Tablets: 150 mg, 300 mg Oral Solution: 10 mg/mL	Tablets: 300 mg daily or twice daily Oral solution: 4 mg/kg twice daily
Optison (Perflutren Protein Type A Microspheres Injectable Suspension, USP)	Look	Injection: 0.22±0.11 mg perflutren /mL	0.5 mL increments to achieve adequate visualization (note: used in ultrasound imaging)
Opana (Oxymorphone hydrochloride)	Look	Tablets: 5 mg, 10 mg Injection: 1 mg/mL	Tablets: 10 mg to 20 mg every 4 to 6 hours Injection: 1 mg to 1.5 mg IM or SQ every 4 to 6 hours or IV starting at 0.5 mg
Cardura (Doxazosin mesylate)	Look and/or Sound [redacted]	Tablets: 1 mg, 2 mg, 4 mg, and 8 mg	One tablet daily
Operand (Povidone Iodine, USP) (Chlorhexidine gluconate)	Look [redacted]	*Povidone Iondine, USP:* Topical solution, gel, douch, whirlpool concentrate, periwash kit: 10% Scrub solution: 7.5% *Chlorhexidine gluconate:* Solution: 2%, 4%	As often as necessary for disinfection (douch: vaginal irritation and itching)

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Appendix G: Single strength products with multiple differentiating product characteristics.

Product name with potential for confusion	**Similarity to Proposed Proprietary Name**	**Strength**	**Usual Dose (if applicable)**	**Other differentiating product characteristics**
Optura (Besifloxacin Hydrochloride ophthalmic suspension)	**N/A**	**0.6% as base (6 mg/mL)**	**1 drop in the affected eye(s) three times a day for 7 days**	**N/A**
Apidra (Insulin glulisine [rDNA origin] injection)	Look	100 Units/mL sterile solution for injection	Individualized dose three times a day (with meals)	*Dose* (1 drop vs. individualized Units) *Dosage Form* (ophthalmic suspension vs. injection) *Route of Administration* (topical ophthalmic vs. subcutaneous) *Storage Conditions* (pharmacy shelf vs. pharmacy refrigerator)
Aptivus (Tipranavir)	Look	Capsules: 250 mg Oral Solution: 100 mg/mL	Capsules: 500 mg twice daily (co-administered with ritonavir) Oral solution: based on body weight or surface area not to exceed adult dose	*Dose* (1 drop vs. 2 capsules or individualized mL) *Dosage Form* (ophthalmic suspension vs. capsules and oral solution) *Route of Administration* (topical ophthalmic vs. oral) *Frequency* (three times daily vs. twice daily)
Outgro (Benzocaine)	Look [redacted]	20% w/v topical solution	Three to four times a day	*Dose* (1 drop vs. sufficient quantity) *Drug Class* (Rx vs. OTC) *Storage Conditions* (pharmacy shelf vs. over the counter shelf) *Route of Administration* (topical ophthalmic vs. topical) *Dosage Form* (ophthalmic suspension vs. topical solution)
Oporia (Lasofoxifene tartrate; non-approvable status)	Look and Sound	0.25 mg oral tablet	1 tablet daily	*Dosage form* (ophthalmic suspension vs. tablet) *Route of Administration* (topical ophthalmic vs. oral) *Frequency* (three times daily vs. daily)

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Appendix G: Single strength products with multiple differentiating product characteristics (continued).

Product name with potential for confusion	**Similarity to Proposed Proprietary Name**	**Strength**	**Usual Dose (if applicable)**	**Other differentiating product characteristics**
Optura (Besifloxacin Hydrochloride ophthalmic suspension)	**N/A**	**0.6% as base (6 mg/mL)**	**1 drop in the affected eye(s) three times a day for 7 days**	**N/A**
Optanza (Disufenton sodium; proposed name)	Look	400 mg/mL sterile solution for infusion	151 mL/hour (2265 mg) IV infusion over one hour, then up to 64 mL/hour (960 mg) over the next 71 hours	*Dose* (1 drop vs. 151 mL or 64 mL) *Frequency* (three times daily vs. hourly infusion) *Route of Administration* (topical ophthalmic vs. intravenous) *Context of Use* (dispensed to patient vs. emergency room, not dispensed to patient) *Dosage Form* (ophthalmic suspension vs. injection) *Storage Conditions* (pharmacy shelf vs. refrigerated)
Optase (Trypsin/Balsam Peru/Castor Oil)	Look and Sound [redacted]	Trypsin USP 0.12mg, Balsam Peru 87 mg, Castor Oil USP 788 mg topical gel	One application as needed twice daily or more	*Dose* (1 drop vs. as needed) *Dosage Form* (ophthalmic suspension vs. topical gel) *Route of Administration* (topical ophthalmic vs. topical)
Septra (Sulfamethoxazole/Trimethoprim)	Look	Tablets: 400 mg sulfamethoxazole/ 80 mg trimethoprim Suspension: 200 mg sulfamethoxazole/40 mg trimethoprim per 5 mL	Varies per indication (Range: 1 to 5 tablets or 2.5 to 50 mL every 6 to 12 hours)	*Dose* (1 drop vs. 1 to 5 tablets or 2.5 to 50 mL) *Route of Administration* (topical ophthalmic vs. oral) *Dosage Form* (ophthalmic suspension vs. tablet and oral suspension) *Frequency* (three times daily vs. every 6 or every 12 hours)
Opium	Look [redacted]	10% oral liquid	0.3 to 1 mL every 2 to 6 hours (maximum of 6 mL/day)	*Dose* (1 drop vs. 0.3 mL to 1 mL) *Drug Schedule* (non-controlled vs. CII) *Dosage Form* (ophthalmic suspension vs. liquid) *Route of Administration* (topical ophthalmic vs. oral)

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Appendix G: Single strength products with multiple differentiating product characteristics (continued).

Product name with potential for confusion	**Similarity to Proposed Proprietary Name**	**Strength**	**Usual Dose (if applicable)**	**Other differentiating product characteristics**
Optura (Besifloxacin Hydrochloride ophthalmic suspension)	**N/A**	**0.6% as base (6 mg/mL)**	**1 drop in the affected eye(s) three times a day for 7 days**	**N/A**
Ovidrel (Choriogonadotropin Alfa)	Look and/or Sound [redacted]	250 mcg/0.5 mL sterile liquid for injection	One dose of 250 mcg SQ one day following the last dose of the follicle stimulating agent	*Dose* (1 drop vs. 250 mcg) *Route of Administration* (topical ophthalmic vs. subcutaneous) *Dosage Form* (ophthalmic suspension vs. injection) *Storage Conditions* (pharmacy shelf vs. refrigerated) *Frequency* (three times daily vs. once)
Optimark (Gadoversetamide)	Look [redacted]	330.9 mg/mL sterile solution for injection	0.2 mL/kg at a rate of 1 to 2 mL/sec IV (note: for use in MRI)	*Dose* (1 drop vs. 1 to 2 mL) *Context of Use* (dispensed to patient vs. radiology department) *Dosage Form* (ophthalmic suspension vs. injection) *Route of Administration* (topical ophthalmic vs. intravenous) *Frequency* (three times daily vs. once)
Posture (Tricalcium phosphate)	Look and Sound [redacted]	600 mg elemental calcium and 266 mg phosphorus oral tablets	2 tablets once daily	*Dose* (1 drop vs. 2 tablets) *Drug Class* (Rx vs. OTC) *Storage Conditions* (pharmacy shelf vs. over the counter shelf) *Dosage form* (ophthalmic suspension vs. tablet) *Route of Administration* (topical ophthalmic vs. oral) *Frequency* (three times daily vs. once daily)
Riadura (Auronofin)	Look and/or Sound [redacted]	3 mg oral capsule	2 capsules daily or 1 capsule twice a day	*Dose* (1 drop vs. 1 to 2 capsules) *Dosage form* (ophthalmic suspension vs. capsule) *Route of Administration* (topical ophthalmic vs. oral) *Frequency* (three times daily vs. once or twice daily)

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Appendix G: Single strength products with multiple differentiating product characteristics (continued).

Product name with potential for confusion	**Similarity to Proposed Proprietary Name**	**Strength**	**Usual Dose (if applicable)**	**Other differentiating product characteristics**
Optura (Besifloxacin Hydrochloride ophthalmic suspension)	**N/A**	**0.6% as base (6 mg/mL)**	**1 drop in the affected eye(s) three times a day for 7 days**	N/A
Sanctura (Trospium chloride)	Look and/or Sound [redacted]	20 mg oral tablet	One tablet twice daily	*Route of Administration* (topical ophthalmic vs. oral) *Dosage Form* (ophthalmic suspension vs. tablet) *Frequency* (three times daily vs. twice daily)
Opticare (Dietary supplement)	Look [redacted]	Multivitamins, minerals and phytonutrients oral capsule	One capsule daily	*Drug Class* (Rx vs. OTC) *Storage Conditions* (pharmacy shelf vs. over the counter shelf) *Dosage Form* (ophthalmic suspension vs. capsule) *Route of Administration* (topical ophthalmic vs. oral) *Frequency* (three times daily vs. once daily)

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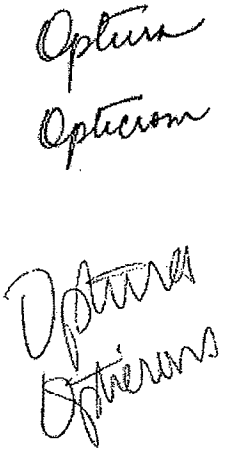
Appendix H: Potential confusing names with same prescriber population and route of administration.

Failure Mode: Name confusion	**Causes (could be multiple)**	**Effects**
Optura (Besifloxacin Hydrochloride ophthalmic suspension)	**0.6% as base (6 mg/mL)**	**Usual dose:** One drop in affected eye(s) three times a day for 7 days.
Opticrom (Cromolyn Sodium) *Product Characteristics* Indication: Vernal keratoconjuctivitis, conjunctivitis and keratitis Dosage form: sterile solution Strength: 4% Frequency of adm.: 4 to 6 times a day at regular intervals Usual dose: 1 to 2 drops in each eye Route: topical ophthalmic Class: Rx	Same root name (Opt-) Same route of administration (intraocular) Overlap in indication (bacterial conjunctivitis vs. vernal conjunctivitis, conjunctivitis and keratitis) Similar dosage form (ophthalmic suspension vs. ophthalmic solution) Similar dose (1 drop vs. 1 to 2 drops) Same class (Rx) Single strength (0.6% vs. 4%)	Medication errors unlikely to occur in usual practice setting. *Rationale*: The risk for medication error is minimized by the orthographic differences in the names. The marked difference in the ending of the names (3 letters vs. 5 letters) makes Opticrom appear longer. The dotted 'i' in the middle of the name and the long 'm' versus the short 'a' at the end of the names also helps to differentiate the name pair. 

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