

**CENTER FOR DRUG EVALUATION AND
RESEARCH**

APPLICATION NUMBER:
202293Orig1s000

PROPRIETARY NAME REVIEW(S)

**Department of Health and Human Services
Public Health Service
Food and Drug Administration
Center for Drug Evaluation and Research
Office of Surveillance and Epidemiology
Office of Medication Error Prevention and Risk Management**

Proprietary Name Review

Date: October 4, 2013

Reviewer: Reasol S. Agustin, PharmD
Division of Medication Error Prevention and Analysis

Team Leader: Yelena Maslov, PharmD
Division of Medication Error Prevention and Analysis

Drug Name and Strength(s): Farxiga (Dapagliflozin) Tablets, 5 mg, 10 mg

Application Type/Number: NDA 202293

Applicant/Sponsor: Bristol-Myers Squibb

OSE RCM #: 2013-1654

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

CONTENTS

| | | |
|-----|--------------------------------|---|
| 1 | INTRODUCTION..... | 1 |
| 1.1 | Regulatory History | 1 |
| 1.2 | Product Information..... | 1 |
| 2 | RESULTS..... | 1 |
| 2.1 | Promotional Assessment | 1 |
| 2.2 | Safety Assessment..... | 1 |
| 3 | CONCLUSIONS | 3 |
| 3.1 | Comments to the Applicant..... | 4 |
| 4 | REFERENCES | 5 |
| | APPENDICES..... | 8 |

1 INTRODUCTION

This review evaluates the proposed proprietary name, Farxiga, from a safety and promotional perspective. The sources and methods used to evaluate the proposed name are outlined in the reference section and Appendix A respectively.

1.1 REGULATORY HISTORY

This is the second proposed name for this product. The first name, Forxiga, was denied due to the presence of a USAN Stem, Fo. The Applicant was notified via teleconference on August 26, 2013. Subsequently, the Applicant amended the proposed name and submitted, Farxiga on September 9, 2013.

1.2 PRODUCT INFORMATION

The following product information is provided in the September 9, 2013 proprietary name submission.

- Active Ingredient: Dapagliflozin
- Indication of Use: Indicated as adjunct to diet and exercise to improve glycemic control in adults with type 2 diabetes mellitus.
- Route of Administration: Oral
- Dosage Form: Tablets
- Strength: 5 mg and 10 mg
- Dose and Frequency: One tablet (5 mg or 10 mg) daily, regardless of meals
- How Supplied: Bottles of 30, 90, 500; Hospital Unit dose, Cartons of 100
- Storage: Store at 20°C to 25°C (68° to 77°F); excursions permitted to 15° to 30°C (59° to 86°F). [See USP Controlled Room Temperature].

2 RESULTS

The following sections provide information obtained and considered in the overall evaluation of the proposed proprietary name.

2.1 PROMOTIONAL ASSESSMENT

The Office of Prescription Drug Promotion OPDP determined the proposed name is acceptable from a promotional perspective. DMEPA and the Division of Metabolism and Endocrinology Products concurred with the findings of OPDP's promotional assessment of the proposed name.

2.2 SAFETY ASSESSMENT

The following aspects were considered in the safety evaluation of the name.

2.2.1 United States Adopted Names (USAN) SEARCH

The September 30, 2013 search of the United States Adopted Name (USAN) stems did not identify that a USAN stem is present in the proposed proprietary name.

2.2.2 Components of the Proposed Proprietary Name

The Applicant indicated in their submission that the proposed name, Farxiga, has no intended meaning. This proprietary name is comprised of a single word that does not contain any components (i.e. a modifier, route of administration, dosage form, etc.) that are misleading or can contribute to medication error.

2.2.3 FDA Name Simulation Studies

Seventy-one practitioners participated in DMEPA's prescription studies. The interpretations did not overlap with any currently marketed products nor did the misinterpretations sound or look similar to any currently marketed products or any products in the pipeline. Twenty-one of the 23 inpatient participants responded correctly and misinterpretation occurred with one participant misinterpreting the letter 'y' for 'g' (i.e. FarxiGa misinterpreted as FarxiYa) and another participant misinterpreting the letter 'a' for 'u' (i.e. Farxiga misinterpreted as FUrxiya). None of the 22 voice participants responded correctly and a common misinterpretation occurred with 20 participants misinterpreting the letter 'x' for 'z' (i.e. FarXiga misinterpreted as FarZiga, FarZeega, FarZega, etc). None of the 26 outpatient participants responded correctly and the most common misinterpretation occurred with 18 participants misinterpreting the letter 'r' for 'v' (i.e. FaRxiga misinterpreted as 'FaV). We have considered these variations in our look-alike and sound-alike searches and analysis (see Appendix B). Appendix C contains the results of the verbal and written prescription studies.

2.2.4 Comments from Other Review Disciplines at Initial Review

In response to the OSE, October 1, 2013 e-mail, the Division of Metabolism and Endocrinology Products (DMEP) did not forward any comments or concerns relating to the proposed proprietary name at the initial phase of the review.

2.2.5 Failure Mode and Effects Analysis of Similar Names

Appendix B lists possible orthographic and phonetic misinterpretations of the letters appearing in the proposed proprietary name, Farxiga. Table 1 lists the names with orthographic, phonetic, or spelling similarity to the proposed proprietary name, Farxiga identified by the primary reviewer, the Expert Panel Discussion (EPD), and other review disciplines.

| Table 1: Collective List of Potentially Similar Names (DMEPA, Expert Panel Discussion (EPD), Other Disciplines, and External Name Study) | | | | | |
|---|---------------|------------------------|---------------|--------------|---------------|
| <i>Name</i> | <i>Source</i> | <i>Name</i> | <i>Source</i> | <i>Name</i> | <i>Source</i> |
| Look Similar (n=33) | | | | | |
| Portia-21 | EPD | Fortical | EPD | Formica rufa | EPD |
| Fortaz | EPD | Firmagon | EPD | Tasigna | EPD |
| Tussigon | EPD | Fortesta | EPD | Fer-In-Sol | EPD |
| Trivora | EPD | Terazole 3, Terazole 7 | EPD | Fan Xie Ye | EPD |
| Loryna | EPD | Portagen | EPD | Forxco | EPD |
| Forxytu | EPD | Fortaz | EPD | Fergon | EPD |
| Ferriprox | EPD | Firazyr | EPD | Zonegran | EPD |
| Prexige | EPD | (b) (4) *** | EPD | Pradaxa | EPD |
| Xigris | EPD | Fermig | EPD | Forvel | EPD |
| Zytiga | EPD | Kariva | EPD | Zirgan | EPD |
| Zomig | EPD | Flamina | EPD | Fersivag | EPD |
| Sound Similar (n=1) | | | | | |
| Xofigo | EPD | | | | |
| Look and Sound Similar (n=3) | | | | | |
| Farxiga*** | EPD | Forbaxin | EPD | Forxiga*** | EPD |

Our analysis of the 37 names contained in Table 1 determined all 37 names will not pose a risk for confusion as described in Appendices D through E.

2.2.6 Communication of DMEPA’s Analysis at Midpoint of Review

DMEPA communicated our findings to the Division of Metabolism and Endocrinology Products via e-mail on October 2, 2013. At that time we also requested additional information or concerns that could inform our review. Per e-mail correspondence from the Division of Metabolism and Endocrinology Products on October 4, 2013, they stated no additional concerns with the proposed proprietary name, Farxiga.

3 CONCLUSIONS

The proposed proprietary name is acceptable from both a promotional and safety perspective.

*** This is proprietary and confidential information that should not be shared to the public.

If you have further questions or need clarifications, please contact Margarita Tossa, OSE project manager, at 301-796-4053.

3.1 COMMENTS TO THE APPLICANT

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

If any of the proposed product characteristics as stated in your September 9, 2013 submission are altered, the name must be resubmitted for review.

4 REFERENCES

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

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

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

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

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

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

4. *FDA Document Archiving, Reporting & Regulatory Tracking System [DARRTS]*

DARRTS is a government database used to organize Applicant and Sponsor submissions as well as to store and organize assignments, reviews, and communications from the 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. *U.S. Patent and Trademark Office* (<http://www.uspto.gov>)

USPTO provides information regarding patent and trademarks.

8. ***Clinical Pharmacology Online*** (www.clinicalpharmacology-ip.com)
Clinical Pharmacology contains full monographs for the most common drugs in clinical use, plus mini monographs covering investigational, less common, combination, nutraceutical and nutritional products. It also provides a keyword search engine.
9. ***Natural Medicines Comprehensive Databases*** (www.naturaldatabase.com)
Natural Medicines contains up-to-date clinical data on the natural medicines, herbal medicines, and dietary supplements used in the western world.
10. ***Access Medicine*** (www.accessmedicine.com)
Access Medicine® from McGraw-Hill contains full-text information from approximately 60 titles; it includes tables and references. Among the titles are: Harrison's Principles of Internal Medicine, Basic & Clinical Pharmacology, and Goodman and Gilman's The Pharmacologic Basis of Therapeutics.
11. ***USAN Stems*** (<http://www.ama-assn.org/ama/pub/about-ama/our-people/coalitions-consortiums/united-states-adopted-names-council/naming-guidelines/approved-stems.shtml>)
USAN Stems List contains all the recognized USAN stems.
12. ***Red Book*** (www.thomsonhc.com/home/dispatch)
Red Book contains prices and product information for prescription, over-the-counter drugs, medical devices, and accessories.
13. ***Lexi-Comp*** (www.lexi.com)
Lexi-Comp is a web-based searchable version of the Drug Information Handbook.
14. ***Medical Abbreviations*** (www.medilexicon.com)
Medical Abbreviations dictionary contains commonly used medical abbreviations and their definitions.
15. ***CVS/Pharmacy*** (www.CVS.com)
This database contains commonly used over the counter products not usually identified in other databases.
16. ***Walgreens*** (www.walgreens.com)
This database contains commonly used over the counter products not usually identified in other databases.
17. ***Rx List*** (www.rxlist.com)
RxList is an online medical resource dedicated to offering detailed and current pharmaceutical information on brand and generic drugs.

18. Dogpile (www.dogpile.com)

Dogpile is a [Metasearch](#) engine that searches multiple search engines including Google, Yahoo! and Bing, and returns the most relevant results to the search.

19. Natural Standard (<http://www.naturalstandard.com>)

Natural Standard is a resource that aggregates and synthesizes data on complementary and alternative medicine.

APPENDICES

Appendix A

FDA's Proprietary Name Risk Assessment considers the promotional and safety aspects of a proposed proprietary name. The promotional review of the proposed name is conducted by OPDP. OPDP evaluates proposed proprietary names to determine if they are overly fanciful, so as to misleadingly imply unique effectiveness or composition, as well as to assess whether they contribute to overstatement of product efficacy, minimization of risk, broadening of product indications, or making of unsubstantiated superiority claims. OPDP provides their opinion to DMEPA for consideration in the overall acceptability of the proposed proprietary name.

The safety assessment is conducted by DMEPA. DMEPA staff search a standard set of databases and information sources to identify names that are similar in pronunciation, spelling, and orthographically similar when scripted to the proposed proprietary name. Additionally, we consider inclusion of USAN stems or other characteristics that when incorporated into a proprietary name may cause or contribute to medication errors (i.e., dosing interval, dosage form/route of administration, medical or product name abbreviations, names that include or suggest the composition of the drug product, etc.). 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

Following the preliminary screening of the proposed proprietary name, DMEPA gathers to discuss their professional opinions on the safety of the proposed proprietary name. This meeting is commonly referred to the Center for Drug Evaluation and Research (CDER) Expert Panel discussion. DMEPA also considers other aspects of the name that may be misleading from a safety perspective. DMEPA staff conducts a prescription simulation studies using FDA health care professionals. When provided, DMEPA considers external proprietary name studies conducted by or for the Applicant/Sponsor and incorporates the findings of these studies into the overall risk assessment.

The DMEPA primary reviewer assigned to evaluate the proposed proprietary name is responsible for considering the collective findings, and provides an overall risk assessment of the proposed proprietary name. DMEPA bases the overall risk assessment on the findings of a Failure Mode and Effects Analysis (FMEA) of the proprietary name and misleading nature of the proposed proprietary name with a focus on the avoidance of medication errors.

DMEPA uses the clinical expertise of its staff to anticipate the conditions of the clinical setting where the product is likely to be used based on the characteristics of the proposed product. DMEPA considers the product characteristics associated with the proposed product throughout the risk assessment because the product characteristics of the proposed may provide a context for communication of the drug name and ultimately determine the use of the product in the *usual* clinical practice setting.

¹ National Coordinating Council for Medication Error Reporting and Prevention. <http://www.nccmerp.org/about/MedErrors.html>. Last accessed 10/11/2007.

Typical product characteristics considered when identifying drug names that could potentially be confused with the proposed proprietary name include, but are not limited to; established name of the proposed product, proposed indication of use, dosage form, route of administration, strength, unit of measure, dosage units, recommended dose, typical quantity or volume, frequency of administration, product packaging, storage conditions, patient population, and prescriber population. DMEPA considers how these product characteristics may or may not be present in communicating a product name throughout the medication use system. 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.²

The DMEPA considers the spelling of the name, pronunciation of the name when spoken, and appearance of the name when scripted. DMEPA compares the proposed proprietary name with the proprietary and established name of existing and proposed drug products and names currently under review at the FDA. DMEPA compares the pronunciation of the proposed proprietary name with the pronunciation of other drug names because verbal communication of medication names is common in clinical settings. DMEPA examines the phonetic similarity using patterns of speech. If provided, DMEPA will consider the Sponsor's intended pronunciation of the proprietary name. However, DMEPA also considers a variety of pronunciations that could occur in the English language because the Sponsor has little control over how the name will be spoken in clinical practice. The orthographic appearance of the proposed name is evaluated using a number of different handwriting samples. DMEPA applies expertise gained from root-cause analysis of postmarketing medication errors to identify sources of ambiguity within the name that could be introduced when scripting (e.g., "T" may look like "F," lower case 'a' looks like a lower case 'u,' etc). Additionally, other orthographic attributes that determine the overall appearance of the drug name when scripted (see Table 1 below for details).

² Institute of Medicine. Preventing Medication Errors. The National Academies Press: Washington DC. 2006.

Table 1. Criteria Used to Identify Drug Names that Look- or Sound-Similar to a Proposed Proprietary Name.

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

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

safety of the proposed proprietary name or product based on professional experience with medication errors.

1. Database and Information Sources

DMEPA searches the internet, several standard published drug product reference texts, and FDA databases to identify existing and proposed drug names that may sound-alike or look-alike to the proposed proprietary name. A standard description of the databases used in the searches is provided in the reference section of this review. To complement the process, the DMEPA 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 reviews the USAN stem list to determine if any USAN stems are present within the proprietary name. The individual findings of multiple safety evaluators are pooled and presented to the CDER Expert Panel. DMEPA also evaluates if there are characteristics included in the composition that may render the name unacceptable from a safety perspective (abbreviation, dosing interval, etc.).

2. Expert Panel Discussion

DMEPA gathers CDER professional opinions on the safety of the proposed product and discussed the proposed proprietary name (Expert Panel Discussion). The Expert Panel is composed of Division of Medication Errors Prevention (DMEPA) staff and representatives from the Office of Prescription Drug Promotion (OPDP). We also consider input from other review disciplines (OND, ONDQA/OBP). The Expert Panel also discusses potential concerns regarding drug marketing and promotion related to the proposed names.

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

3. FDA Prescription Simulation Studies

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

In order to evaluate the potential for misinterpretation of the proposed proprietary name in handwriting and verbal communication of the name, inpatient medication orders and/or outpatient prescriptions are written, each consisting of a combination of marketed and unapproved drug products, including the proposed name. These orders are optically

scanned and one prescription is delivered to a random sample of 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 record their interpretations of the orders which are recorded electronically.

4. Comments from Other Review Disciplines

DMEPA requests the Office of New Drugs (OND) and/or Office of Generic Drugs (OGD), ONDQA or OBP for their comments or concerns with the proposed proprietary name, ask for any clinical issues that may impact the DMEPA review during the initial phase of the name review. Additionally, when applicable, at the same time DMEPA requests concurrence/non-concurrence with OPDP's decision on the name. The primary Safety Evaluator addresses any comments or concerns in the safety evaluator's assessment.

The OND/OGD Regulatory Division is contacted a second time following our analysis of the proposed proprietary name. At this point, DMEPA conveys their decision to accept or reject the name. The OND or OGD Regulatory Division is requested to provide any further information that might inform DMEPA's final decision on the proposed name.

Additionally, other review disciplines opinions such as ONDQA or OBP may be considered depending on the proposed proprietary name.

5. Safety Evaluator Risk Assessment of the Proposed Proprietary Name

The primary Safety Evaluator applies his/her individual expertise gained from evaluating medication errors reported to FDA, considers all aspects of the name that may be misleading or confusing, conducts a Failure Mode and Effects Analysis, and provides an overall decision on acceptability dependent on their risk assessment of name confusion. Failure Mode and Effects Analysis (FMEA) is a systematic tool for evaluating a process and identifying where and how it might fail.³ When applying FMEA to assess the risk of a proposed proprietary name, DMEPA seeks to evaluate the potential for a proposed proprietary name to be confused with another drug name because of name confusion and, thereby, cause errors to occur in the medication use system. FMEA capitalizes on the predictable and preventable nature of medication errors associated with drug name confusion. FMEA allows the Agency to identify the potential for medication errors due to orthographically or phonetically similar drug names prior to approval, where actions to overcome these issues are easier and more effective than remedies available in the post-approval phase.

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

³ Institute for Healthcare Improvement (IHI). Failure Mode and Effects Analysis. Boston. IHI:2004.

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

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

“Is the proposed proprietary name convincingly similar to another drug name, which may cause practitioners to become confused at any point in the usual practice setting? And are there any components of the name that may function as a source of error beyond sound/look-alike?”

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

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

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

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

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

- a. OPDP finds the proposed proprietary name misleading from a promotional perspective, and the Review Division concurs with OPDP’s findings. The Federal Food, Drug, and Cosmetic Act provides that labeling or advertising can misbrand a product if misleading representations are made or suggested by statement, word, design, device, or any combination thereof, whether through a PROPRIETARY name or otherwise [21 U.S.C 321(n); See also 21 U.S.C. 352(a) & (n)].
- b. 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)].

- c. FMEA identifies the potential for confusion between the proposed proprietary name and other proprietary or established drug name(s), and demonstrates that medication errors are likely to result from the drug name confusion under the conditions of usual clinical practice.
- d. The proposed proprietary name contains an USAN (United States Adopted Names) stem.
- e. DMEPA identifies a potential source of medication error within the proposed proprietary name. For example, the proprietary name may be misleading or, inadvertently, introduce ambiguity and confusion that leads to errors. Such errors may not necessarily involve confusion between the proposed drug and another drug product but involve a naming characteristic that when incorporated into a proprietary name, may be confusing, misleading, cause or contribute to medication errors.

If DMEPA objects to a proposed proprietary name on the basis that drug name confusion could lead to medication errors, the primary Safety Evaluator uses the FMEA process to identify strategies to reduce the risk of medication errors. DMEPA generally recommends that the Sponsor select an alternative proprietary name and submit the alternate name to the Agency for review. However, in rare instances FMEA may identify plausible strategies that could reduce the risk of medication error of the currently proposed name. In that instance, DMEPA may be able to provide the Sponsor with recommendations that reduce or eliminate the potential for error and, thereby, would render the proposed name acceptable.

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

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

Furthermore, post-marketing experience has demonstrated that medication errors resulting from drug name confusion are notoriously difficult to rectify post-approval. Educational and other post-approval efforts are low-leverage strategies that have had limited effectiveness at alleviating medication errors involving drug name confusion. Sponsors have undertaken higher-leverage strategies, such as drug name changes, in the

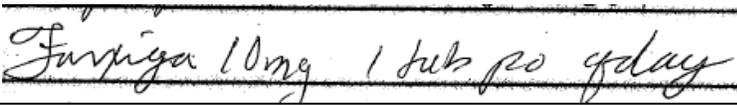
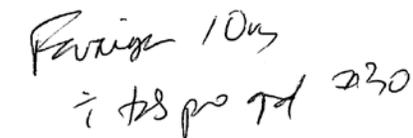
past but at great financial cost to the Sponsor and at the expense of the public welfare, not to mention the Agency's credibility as the authority responsible for approving the error-prone proprietary name. Moreover, even after Sponsors' have changed a product's proprietary name in the post-approval phase, it is difficult to eradicate the original proprietary name from practitioners' vocabulary, and as a result, the Agency has continued to receive reports of drug name confusion long after a name change in some instances. Therefore, DMEPA believes that post-approval efforts at reducing name confusion errors should be reserved for those cases in which the potential for name confusion could not be predicted prior to approval.

Appendix B: Letters and Letter Strings with Possible Orthographic or Phonetic Misinterpretation

| Letters in Name, Farxiga | Scripted May Appear as | Spoken May Be Interpreted as |
|-----------------------------|------------------------------|------------------------------|
| 'F' | T | PF, Ph, V |
| lower case 'f' | T | |
| lower case 'a' | e, i, cl, d, o, u | Any vowel |
| lower case 'r' | s, n, e, v | |
| lower case 'x' | a, d, f, k, n, p, r, t, v, y | ks, kz, s, z |
| lower case 'i' | e, l | y, ea, ee |
| lower case 'g' | q, j, s, y | k, j |
| lower case 'a' | d, o, u | Any vowel |
| Letter strings | | |
| None | | |

Appendix C: Prescription Simulation Samples and Results

Figure 1. Farxiga Study (Conducted on September 13, 2013)

| Handwritten Requisition Medication Order | Verbal Prescription |
|--|--|
| <p>Medication Order:</p>  <p>Outpatient Prescription:</p>  | <p>Farxiga 10 mg</p> <p>1 tab po qd</p> <p>#30</p> |

FDA Prescription Simulation Responses (Aggregate 1 Rx Studies Report)

Study Name: Farxiga

As of Date 10/1/2013

190 People Received Study

71 People Responded

Study Name: Farxiga

| | Total | 26 | 22 | 23 | |
|-----------------|------------|-------|-----------|-------|--|
| INTERPRETATION | OUTPATIENT | VOICE | INPATIENT | TOTAL | |
| FARAIGE | 1 | 0 | 0 | 1 | |
| FARIGE | 1 | 0 | 0 | 1 | |
| FARIGZ | 1 | 0 | 0 | 1 | |
| FARIYZ | 1 | 0 | 0 | 1 | |
| FARSIGA | 0 | 1 | 0 | 1 | |
| FARXIGA | 0 | 0 | 20 | 20 | |
| FARXIGA 10 MG | 0 | 0 | 1 | 1 | |
| FARXIYA | 0 | 0 | 1 | 1 | |
| FARZEEGA | 0 | 1 | 0 | 1 | |
| FARZEGA | 0 | 1 | 0 | 1 | |
| FARZIGA | 0 | 11 | 0 | 11 | |
| FARZIGA TABLETS | 0 | 1 | 0 | 1 | |
| FARZIKA | 0 | 1 | 0 | 1 | |
| FARZIQA | 0 | 1 | 0 | 1 | |
| FAUAIYZ | 1 | 0 | 0 | 1 | |
| FAVAIGE | 2 | 0 | 0 | 2 | |
| FAVAIGEN | 1 | 0 | 0 | 1 | |
| FAVAIGS | 2 | 0 | 0 | 2 | |

| | | | | |
|----------|---|---|---|---|
| FAVAIGZ | 1 | 0 | 0 | 1 |
| FAVHIGZ | 1 | 0 | 0 | 1 |
| FAVIGA | 1 | 0 | 0 | 1 |
| FAVNIGE | 1 | 0 | 0 | 1 |
| FAVNIGN | 1 | 0 | 0 | 1 |
| FAVNIYZ | 1 | 0 | 0 | 1 |
| FAVRIGE | 1 | 0 | 0 | 1 |
| FAVRIGL | 1 | 0 | 0 | 1 |
| FAVRIGN | 1 | 0 | 0 | 1 |
| FAVRIGS | 1 | 0 | 0 | 1 |
| FAVRIGZ | 2 | 0 | 0 | 2 |
| FAVXIGR | 1 | 0 | 0 | 1 |
| FAXIGI | 1 | 0 | 0 | 1 |
| FAXIGZ | 1 | 0 | 0 | 1 |
| FAXIYZ | 1 | 0 | 0 | 1 |
| FORSEAGA | 0 | 1 | 0 | 1 |
| FURXIGA | 0 | 0 | 1 | 1 |
| PHARZYGA | 0 | 1 | 0 | 1 |
| VARZEGA | 0 | 1 | 0 | 1 |
| VARZIGA | 0 | 2 | 0 | 2 |

Appendix D: Proprietary names not likely to be confused or not used in usual practice settings for the reasons described.

| Proprietary Name | | Active Ingredient | Similarity to Farxiga | Failure preventions |
|------------------|----------------------------------|--|-----------------------|---|
| 1 | Farxiga | Dapagliflozin | Look and Sound alike | This name is the subject of this review. |
| 2 | Forxiga | Dapagliflozin | Look and Sound like | This is the initial proposed proprietary name for Dapagliflozin. Proposed Proprietary Name contains a USAN stem, fo-. |
| 3 | Portia-28 | Levonorgestrel and Ethinyl estradiol | Look alike | The pair have sufficient orthographic differences |
| 4 | Tussigon | Homatropine Methylbromide and Hydrocodone Bitartrate | Look alike | The pair have sufficient orthographic differences |
| 5 | Trivora | Levonorgestrel and Ethinyl estradiol | Look alike | The pair have sufficient orthographic differences |
| 6 | Loryna | Drospirenone and Ethinyl estradiol | Look like | The pair have sufficient orthographic differences |
| 7 | Ferriprox | Deferiprone | Look alike | The pair have sufficient orthographic differences |
| 8 | Xigris | Drotrecogin Alfa | Look alike | The pair have sufficient orthographic differences |
| 9 | Terazole 3 Terazole 7 | Terconazole Vaginal | Look alike | The pair have sufficient orthographic differences |
| 10 | Zonegran | Zonisamide | Look alike | The pair have sufficient orthographic differences |
| 11 | Pradaxa | Dabigatran | Sound alike | The pair have sufficient orthographic differences |
| 12 | Kariva | Desogestrel and Ethinyl estradiol | Look alike | The pair have sufficient orthographic differences |
| 13 | Zirgan | Ganciclovir Ophthalmic | Look alike | The pair have sufficient orthographic differences |
| 14 | Zomig | Zolmitriptan | Look alike | The pair have sufficient orthographic differences |
| 15 | Flamina | Soya Isoflavones | Look alike | International product marketed in Thailand |

| | | | | |
|-----------|-------------------|--------------------------|-------------|--|
| 16 | Portagen | Nutritional supplement | Look alike | Product is not a drug. It is a nutritional (food) supplement |
| 17 | Xofigo | Radium Ra 223 Dichloride | Sound alike | The pair have sufficient phonetic differences |
| 18 | (b) (4) | | | |
| 19 | Fan Xie Ye | Senna | Look alike | Product is not a drug. It is a herbal tea. |
| 20 | Fersivag | Lisinopril | Look alike | International product marketed in Mexico |
| 21 | Fermig | Sumatriptan succinate | Look alike | International product marketed in Mexico |
| 22 | Forvey | Frovatriptan succinate | Look alike | International product marketed in Spain |

Appendix E: Risk of medication errors due to product confusion minimized by dissimilarity of the names and/ or use in clinical practice for the reasons described.

| | <p>Proposed name: <i>Farxiga</i> (Dapagliflozin) Dosage form and Strength(s): Oral tablets: 5 mg and 10 mg Usual dose: One tablet (5 mg or 10 mg) by mouth daily, regardless of meals.</p> | <p>Failure Mode: Incorrect Product Ordered/ Selected/Dispensed or Administered because of Name confusion Causes (could be multiple)</p> | <p>Prevention of Failure Mode In the conditions outlined below, the following combination of factors, are expected to minimize the risk of confusion between these two names</p> |
|-----------------|---|---|---|
| <p>1</p> | <p>Firmagon (Degarelix) Dosage Form and Strength: Reconstituted solution for subcutaneous injection: 80 mg and 120 mg Usual dose: Initial: 240 mg subcutaneously (given as 2 injections of 120 mg). Maintenance: 80 mg subcutaneously every 28 days.</p> | <p>Orthographic similarity: Both names begin with the letter ‘F’ and contain the letter ‘r’ and downstroke ‘g’ in the same position.</p> | <p>Orthographic difference: The letters ‘a’/ ‘i’ and letter strings ‘xi’ / ‘ma’ appear orthographically different when scripted. In addition, Firmagon contains an additional letter ‘n’ at the end of the name, making it appear longer than Farxiga. Strength: There is no numerical overlap or similarity between the strengths. Frequency: Farxiga is prescribed as daily vs. Firmagon is prescribed every 28 days or now.</p> |

| | <p>Proposed name: <i>Farxiga</i> (Dapagliflozin) Dosage form and Strength(s): Oral tablets: 5 mg and 10 mg Usual dose: One tablet (5 mg or 10 mg) by mouth daily, regardless of meals.</p> | <p>Failure Mode: Incorrect Product Ordered/ Selected/Dispensed or Administered because of Name confusion Causes (could be multiple)</p> | <p>Prevention of Failure Mode In the conditions outlined below, the following combination of factors, are expected to minimize the risk of confusion between these two names</p> |
|---|--|--|--|
| 2 | <p>Prexige (Lumiracoxib) Dosage Form and Strength: Oral: 200 mg and 400 mg Usual dose: 200 mg to 400 mg by mouth once daily.</p> | <p>Orthographic similarity: Booth names contain the letter string ‘xig’ in similar positions and the ending letter ‘a’ / ‘e’ appear orthographically similar when scripted. Dosage form and route of administration: Both are available as oral dosage forms Frequency: Both are prescribed as daily.</p> | <p>Orthographic difference: The beginning letter strings ‘Far’ / ‘Pre’ appear orthographically different when scripted. Strength: There is no numerical overlap or similarity between the strengths.</p> |
| 3 | <p>Fortesta (Testosterone) Dosage Form and Strength: Transdermal gel: 10 mg per actuation Usual dose: 10 mg to 70 mg (1 to 7 actuation) daily</p> | <p>Orthographic similarity: The beginning letter strings ‘Far’ / ‘For’ and ‘xig’ / ‘tes’ appear orthographically similar when scripted. Strength: There is numerical overlap between the strengths and dose (10 mg) Frequency: Both are prescribed as daily.</p> | <p>Orthographic difference: Fortesta contains an additional upstroke ‘t’ which is absent in Farxiga, giving the names different shapes and making Fortesta longer than Farxiga.</p> |

| | <p>Proposed name: <i>Farxiga</i> (Dapagliflozin)</p> <p>Dosage form and Strength(s): Oral tablets: 5 mg and 10 mg</p> <p>Usual dose: One tablet (5 mg or 10 mg) by mouth daily, regardless of meals.</p> | <p>Failure Mode: Incorrect Product Ordered/ Selected/Dispensed or Administered because of Name confusion</p> <p>Causes (could be multiple)</p> | <p>Prevention of Failure Mode</p> <p>In the conditions outlined below, the following combination of factors, are expected to minimize the risk of confusion between these two names</p> |
|-----------------|--|--|--|
| <p>4</p> | <p>Firazyr (Icatibant Acetate)</p> <p>Dosage form and Strength(s): Subcutaneous solution: 30 mg/3 mL</p> <p>Usual dose: 30 mg subcutaneously. Additional doses may be administered at intervals of at least 6 hours if response is inadequate</p> | <p>Orthographic similarity: Both names begin with the letter ‘F’ and contain the letter ‘r’ in similar positions. In addition, the letters ‘g’ / ‘y’ appear orthographically similar when scripted.</p> | <p>Orthographic difference: The letters ‘a’ / ‘i’ and letter strings ‘xi’ / ‘az’ appear orthographically different when scripted.</p> <p>Strength and Dose: There is no numerical overlap or similarity between the strengths or dose.</p> <p>Frequency: Farxiga is prescribed daily vs. Firazyr is prescribed now.</p> |
| <p>5</p> | <p>Fer-In-Sol (Ferrous sulfate)</p> <p>Dosage Form and Strength: Oral solution: 15 mg/mL</p> <p>Usual dose: 37.5 mg to 75 mg (2.5 mL to 5 mL) by mouth daily.</p> | <p>Orthographic similarity: The beginning letter strings ‘Far’ / ‘Fer’ and ‘ga’ / ‘so’ appear orthographically similar when scripted.</p> <p>Dosage form and route of administration: Both are available as oral dosage forms.</p> <p>Strength and Dose: There is numerical overlap between the strength and dose (5 mg vs. 5 mL)</p> <p>Frequency: Both are prescribed daily.</p> | <p>Orthographic difference: The letter strings ‘xi’ / ‘in’ appears orthographically different when scripted. Fer-in-sol contains an additional upstroke ‘l’ which is absent in Farxiga, giving the names different shapes.</p> |

| | <p>Proposed name: <i>Farxiga</i> (Dapagliflozin) Dosage form and Strength(s): Oral tablets: 5 mg and 10 mg Usual dose: One tablet (5 mg or 10 mg) by mouth daily, regardless of meals.</p> | <p>Failure Mode: Incorrect Product Ordered/ Selected/Dispensed or Administered because of Name confusion Causes (could be multiple)</p> | <p>Prevention of Failure Mode In the conditions outlined below, the following combination of factors, are expected to minimize the risk of confusion between these two names</p> |
|---|--|---|---|
| 6 | <p>Fergon (Ferrous Gluconate) Dosage Form and Strength: Oral tablet: 240 mg Usual dose: 1 tablet daily</p> | <p>Orthographic similarity: The beginning letter strings ‘Far’ / ‘Fer’ appear orthographically similar when scripted. Dosage form and route of administration: Both are available as oral tablets. Frequency: Both are prescribed daily.</p> | <p>Orthographic difference: The letter strings ‘xiga’ / ‘gon’ appear orthographically different when scripted. Strength: Multiple vs. single. Farxiga is available in multiple strengths which need to be specified for a complete prescription. There is no numerical overlap or similarity between the strengths. Frequency:</p> |
| 7 | <p>Zytiga (Abiraterone Acetate) Dosage form and Strength(s): Oral tablet: 250 mg Usual dose: 1000 mg (4 tablet) by mouth once daily in combination with Prednisone twice daily.</p> | <p>Orthographic similarity: The ending letter strings ‘xiga’ / ‘tiga’ appear orthographically similar when scripted. Dosage form and route of administration: Both are available as oral tablets Frequency: Both are prescribed daily.</p> | <p>Orthographic difference: Zytiga contains an additional downstroke ‘y’ which is absent in Farxiga giving the names different shapes. Strength: Multiple vs. single. Farxiga is available in multiple strengths which need to be specified for a complete prescription. There is no numerical overlap or similarity between the strengths.</p> |

| | | | |
|---|---|--|---|
| | <p>Proposed name: Farxiga (Dapagliflozin)</p> <p>Dosage form and Strength(s): Oral tablets: 5 mg and 10 mg</p> <p>Usual dose: One tablet (5 mg or 10 mg) by mouth daily, regardless of meals.</p> | <p>Failure Mode: Incorrect Product Ordered/ Selected/Dispensed or Administered because of Name confusion</p> <p>Causes (could be multiple)</p> | <p>Prevention of Failure Mode</p> <p>In the conditions outlined below, the following combination of factors, are expected to minimize the risk of confusion between these two names</p> |
| 8 | <p>Forbaxin* (Methocarbamol)</p> <p>Dosage form and Strength(s): Oral tablet: 750 mg</p> <p>Usual dose: 1500 mg (2 tablets) 4 times daily for the first 48-72 hours. Then 750 mg (1 tablet) every 4 hours or 1500 mg (2 tablets) 3 times daily.</p> <p><i>*Product is discontinued with generic available.</i></p> | <p>Orthographic similarity: The beginning letter strings ‘Far’ / ‘For’ appears orthographically similar when scripted.</p> <p>Dosage form and route of administration: Both are available as oral tablets.</p> | <p>Orthographic difference: Farxiga contains a downstroke ‘g’ in position 6 which is absent in Forbaxin and Forbaxin contains an upstroke ‘b’ in position 4, giving the names different shapes and making the ending letter strings ‘xiga’ / ‘baxin’ appear orthographically different when scripted.</p> <p>Strength: Multiple vs. single. Farxiga is available in multiple strengths which need to be specified for a complete prescription. There is no numerical overlap or similarity between the strengths.</p> |

This is a representation of an electronic record that was signed electronically and this page is the manifestation of the electronic signature.

/s/

REASOL AGUSTIN
10/04/2013

YELENA L MASLOV
10/07/2013

**Department of Health and Human Services
Public Health Service
Food and Drug Administration
Center for Drug Evaluation and Research
Office of Surveillance and Epidemiology
Office of Medication Error Prevention and Risk Management**

Proprietary Name Review

Date: December 5, 2011

Reviewer(s): Lissa C. Owens, PharmD
Division of Medication Error Prevention and Analysis

Team Leader Carlos Mena-Grillasca, RPh
Division of Medication Error Prevention and Analysis

Division Director Carol Holquist, RPh
Division of Medication Error Prevention and Analysis

Drug Name/Strength(s): Forxiga (Dapagliflozin) Tablets, 5 mg and 10 mg

Application Type/Number: NDA 202293

Applicant/sponsor: Bristol-Myers Squibb

OSE RCM #: 2011-3563

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

CONTENTS

| | | |
|-----|--------------------------------|---|
| 1 | INTRODUCTION..... | 1 |
| 1.1 | Product Information..... | 1 |
| 2 | RESULTS..... | 1 |
| 2.1 | Promotional Assessment..... | 1 |
| 2.2 | Safety Assessment..... | 1 |
| 3 | CONCLUSIONS..... | 4 |
| 3.1 | Comments to the Applicant..... | 4 |
| 4 | REFERENCES..... | 5 |
| | APPENDICES..... | 7 |

1 INTRODUCTION

This review evaluates the proposed proprietary name, Forxiga, from a safety and promotional perspective. The sources and methods used to evaluate the proposed name are outlined in the reference section and Appendix A respectively.

1.1 PRODUCT INFORMATION

Forxiga (Dapagliflozin) is a sodium-glucose co-transporter 2 (SGLT2) inhibitor, indicated as an adjunct to diet and exercise to improve glycemic control in adults with type 2 diabetes mellitus. The usual recommended dose is one 10 mg tablet taken by mouth once daily and it will be available as a yellow 5 mg round tablet and a yellow 10 mg diamond-shaped tablet, packaged in bottles of 30 or 90 tablets and bottles of 500 tablets and in hospital unit dose cartons of 100.

The sponsor's intended pronunciation for the proposed proprietary name Forxiga is "fork-ZEE-guh".

2 RESULTS

The following sections provide the information obtained and considered in the evaluation of the proposed proprietary name.

2.1 PROMOTIONAL ASSESSMENT

OPDP determined the proposed name is acceptable from a promotional perspective. DMEPA and the Division of Metabolism and Endocrinology Products concurred with the findings of DDMAC's promotional assessment of the proposed name.

2.2 SAFETY ASSESSMENT

The following aspects of the name were considered in the overall evaluation.

2.2.1 United States Adopted Names (USAN) SEARCH

The United States Adopted Name (USAN) stem search conducted on October 31, 2011, identified that a USAN stem is not present in the proposed proprietary name.

2.2.2 Components of the Proposed Proprietary Name

The proposed name is comprised of a single word that does not contain components (e.g. medical abbreviation, dosage form, frequency of administration, etc) that are misleading or can contribute to medication error.

2.2.3 FDA Name Simulation Studies

Forty-one practitioners responded to DMEPA's prescription studies with none of the responses overlapping with currently marketed drug names. Twenty-eight participants interpreted the name correctly, with all responses occurring in the written studies. All participants in the voice study misinterpreted the name. Common misinterpretation include the letters 's' (n=6) and 'z' (n=3) for 'x', and the letter 'e' (n=8) for 'i'.

See Appendix C for the complete listing of interpretations from the verbal and written prescription studies.

2.2.4 Comments from Other Review Disciplines

In response to the OSE, November 3, 2011 e-mail, the Division of Metabolism and Endocrinology Products (DMEP) had no objections or comments relating to the proposed name at the initial phase of the name review.

2.2.5 Failure Mode and Effects Analysis of Similar Names

Table 1 lists the names with orthographic, phonetic, or spelling similarity to the proposed proprietary name, Forxiga (see Appendix B). These names were identified by the primary reviewer, the Expert Panel Discussion (EPD), and other review disciplines. The Applicant submitted an external study performed by (b) (4) however, (b) (4) did not identify any significant look-alike or sound-alike drug names in their evaluation.

Table 1: Collective List of Potentially Similar Names (DMEPA, EPD and Other Disciplines)

| Look Similar | | Sound Similar | | Look and Sound Similar | |
|--------------|--------|---------------|--------|------------------------|--------|
| Name | Source | Name | Source | Name | Source |
| Parcopa | FDA | Phoslyra | FDA | Forxiga*** | FDA |
| Furoxone | FDA | Forfivo*** | FDA | Tarceva | FDA |
| Tasigna | FDA | Forfivo XL*** | FDA | Potiga | FDA |
| Jenloga | FDA | Torsilax | FDA | Fortesta | FDA |
| Farxen | FDA | (b) (4)*** | FDA | | |
| Foradil | FDA | | | | |
| Feridex | FDA | | | | |
| Formica Rufa | FDA | | | | |
| Fergon | FDA | | | | |
| Portagen | FDA | | | | |
| Femogen | FDA | | | | |
| Pergonal | FDA | | | | |
| Periguard | FDA | | | | |
| Perigel | FDA | | | | |
| Forane | FDA | | | | |
| Fortaz | FDA | | | | |

Table 1: Collective List of Potentially Similar Names (DMEPA, EPD and Other Disciplines)

| Look Similar | | Sound Similar | | Look and Sound Similar | |
|--------------|-----|---------------|--|------------------------|--|
| Fortesta | FDA | | | | |
| Paremyd | FDA | | | | |
| Zytiga | FDA | | | | |
| (b) (4) *** | FDA | | | | |
| Fonergin | FDA | | | | |
| Faringen | FDA | | | | |
| (b) (4) | FDA | | | | |
| Forteo | FDA | | | | |
| Fortical | FDA | | | | |
| Folotyn | FDA | | | | |
| Torisel | FDA | | | | |
| Fosagen | FDA | | | | |
| Faringel | FDA | | | | |
| Foragin | FDA | | | | |
| Tarimyl | FDA | | | | |
| Taripel | FDA | | | | |
| Xofigo*** | FDA | | | | |
| Amitiza | FDA | | | | |
| Eraxis | FDA | | | | |
| Exalgo | FDA | | | | |
| Fortamet | FDA | | | | |

Our analysis of the forty-six names contained in Table 1 considered the information obtained in the previous sections along with the product characteristics for these names. We determined the forty-six names will not pose a risk for confusion as described in Appendix D through F.

DMEPA communicated these findings to the Division of Metabolism and Endocrinology Products via e-mail on November 4, 2011. At that time we also requested additional information or concerns that could inform our review. Per e-mail correspondence from the Division of Metabolism and Endocrinology Products, they stated no additional concerns with the proposed proprietary name, Forxiga.

3 CONCLUSIONS

DMEPA concludes the proposed proprietary name is acceptable from both a promotional and safety perspective.

3.1 COMMENTS TO THE APPLICANT

We have completed our review of the proposed proprietary name, Forxiga, and have concluded that this name is acceptable at this time.

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

If any of the proposed product characteristics as stated in your September 23, 2011 submission are altered, DMEPA rescinds this finding and the name must be resubmitted for review.

4 REFERENCES

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

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

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

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

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

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

4. ***FDA Document Archiving, Reporting & Regulatory Tracking System [DARRTS]***

DARRTS is a government database used to organize Applicant and Sponsor submissions as well as to store and organize assignments, reviews, and communications from the review divisions.

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

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

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

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

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

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

8. ***U.S. Patent and Trademark Office*** (<http://www.uspto.gov>)
USPTO provides information regarding patent and trademarks.
9. ***Clinical Pharmacology Online*** (www.clinicalpharmacology-ip.com)
Clinical Pharmacology contains full monographs for the most common drugs in clinical use, plus mini monographs covering investigational, less common, combination, nutraceutical and nutritional products. It also provides a keyword search engine.
10. ***Data provided by Thomson & Thomson's SAEGIS™ Online Service, available at*** (www.thomson-thomson.com)
The Pharma In-Use Search database contains over 400,000 unique pharmaceutical trademarks and trade names that are used in about 50 countries worldwide. The data is provided under license by IMS HEALTH.
11. ***Natural Medicines Comprehensive Databases*** (www.naturaldatabase.com)
Natural Medicines contains up-to-date clinical data on the natural medicines, herbal medicines, and dietary supplements used in the western world.
12. ***Access Medicine*** (www.accessmedicine.com)
Access Medicine® from McGraw-Hill contains full-text information from approximately 60 titles; it includes tables and references. Among the titles are: Harrison's Principles of Internal Medicine, Basic & Clinical Pharmacology, and Goodman and Gilman's The Pharmacologic Basis of Therapeutics.
13. ***USAN Stems*** (<http://www.ama-assn.org/ama/pub/about-ama/our-people/coalitions-consortiums/united-states-adopted-names-council/naming-guidelines/approved-stems.shtml>)
USAN Stems List contains all the recognized USAN stems.
14. ***Red Book Pharmacy's Fundamental Reference***
Red Book contains prices and product information for prescription, over-the-counter drugs, medical devices, and accessories.
15. ***Lexi-Comp*** (www.lexi.com)
Lexi-Comp is a web-based searchable version of the Drug Information Handbook.
16. ***Medical Abbreviations Book***
Medical Abbreviations Book contains commonly used medical abbreviations and their definitions.

APPENDICES

Appendix A

FDA's Proprietary Name Risk Assessment considers the promotional and safety aspects of a proposed proprietary name. The promotional review of the proposed name is conducted by DDMAC. DDMAC evaluates proposed proprietary names to determine if they are overly fanciful, so as to misleadingly imply unique effectiveness or composition, as well as to assess whether they contribute to overstatement of product efficacy, minimization of risk, broadening of product indications, or making of unsubstantiated superiority claims. DDMAC provides their opinion to DMEPA for consideration in the overall acceptability of the proposed proprietary name.

The safety assessment is conducted by DMEPA. DMEPA staff search a standard set of databases and information sources to identify names that are similar in pronunciation, spelling, and orthographically similar when scripted to the proposed proprietary name. Additionally, we consider inclusion of USAN stems or other characteristics that when incorporated into a proprietary name may cause or contribute to medication errors (i.e., dosing interval, dosage form/route of administration, medical or product name abbreviations, names that include or suggest the composition of the drug product, etc.). 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

Following the preliminary screening of the proposed proprietary name, DMEPA gathers to discuss their professional opinions on the safety of the proposed proprietary name. This meeting is commonly referred to the Center for Drug Evaluation and Research (CDER) Expert Panel discussion. DMEPA also considers other aspects of the name that may be misleading from a safety perspective. DMEPA staff conducts a prescription simulation studies using FDA health care professionals. When provided, DMEPA considers external proprietary name studies conducted by or for the Applicant/Sponsor and incorporates the findings of these studies into the overall risk assessment.

The DMEPA primary reviewer assigned to evaluate the proposed proprietary name is responsible for considering the collective findings, and provides an overall risk assessment of the proposed proprietary name. DMEPA bases the overall risk assessment on the findings of a Failure Mode and Effects Analysis (FMEA) of the proprietary name and misleading nature of the proposed proprietary name with a focus on the avoidance of medication errors.

DMEPA uses the clinical expertise of its staff to anticipate the conditions of the clinical setting where the product is likely to be used based on the characteristics of the proposed product. DMEPA considers the product characteristics associated with the proposed product throughout the risk assessment because the product characteristics of the

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

proposed may provide a context for communication of the drug name and ultimately determine the use of the product in the *usual* clinical practice setting.

Typical product characteristics considered when identifying drug names that could potentially be confused with the proposed proprietary name include, but are not limited to; established name of the proposed product, proposed indication of use, dosage form, route of administration, strength, unit of measure, dosage units, recommended dose, typical quantity or volume, frequency of administration, product packaging, storage conditions, patient population, and prescriber population. DMEPA considers how these product characteristics may or may not be present in communicating a product name throughout the medication use system. 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.² The product characteristics considered for this review appears in Appendix B1 of this review.

The DMEPA considers the spelling of the name, pronunciation of the name when spoken, and appearance of the name when scripted. DMEPA compares the proposed proprietary name with the proprietary and established name of existing and proposed drug products and names currently under review at the FDA. DMEPA compares the pronunciation of the proposed proprietary name with the pronunciation of other drug names because verbal communication of medication names is common in clinical settings. DMEPA examines the phonetic similarity using patterns of speech. If provided, DMEPA will consider the Sponsor’s intended pronunciation of the proprietary name. However, DMEPA also considers a variety of pronunciations that could occur in the English language because the Sponsor has little control over how the name will be spoken in clinical practice. The orthographic appearance of the proposed name is evaluated using a number of different handwriting samples. DMEPA applies expertise gained from root-cause analysis of postmarketing medication errors to identify sources of ambiguity within the name that could be introduced when scripting (e.g., “T” may look like “F,” lower case ‘a’ looks like a lower case ‘u,’ etc). Additionally, other orthographic attributes that determine the overall appearance of the drug name when scripted (see Table 1 below for details).

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 | | |
|---------------------------|--|---|----------------------------|
| | <i>Potential Causes of Drug Name Similarity</i> | <i>Attributes Examined to Identify Similar Drug Names</i> | <i>Potential Effects</i> |
| | Similar spelling | Identical prefix | • Names may appear similar |

² Institute of Medicine. Preventing Medication Errors. The National Academies Press: Washington DC. 2006.

| | | | |
|-------------|-------------------------|--|--|
| Look-alike | | Identical infix Identical suffix Length of the name Overlapping product characteristics | 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/Similar shape Upstrokes Down strokes Cross-strokes 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 |

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

1. Database and Information Sources

DMEPA searches the internet, several standard published drug product reference texts, and FDA databases to identify existing and proposed drug names that may sound-alike or look-alike to the proposed proprietary name. A standard description of the databases used in the searches is provided in the reference section of this review. To complement the process, the DMEPA 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 reviews the USAN stem list to determine if any USAN stems are present within the proprietary name. The individual findings of multiple safety evaluators are pooled and presented to the CDER Expert Panel. DMEPA also evaluates if there are characteristics included in the composition that may render the name unacceptable from a safety perspective (abbreviation, dosing interval, etc.).

2. Expert Panel Discussion

DMEPA gathers CDER professional opinions on the safety of the proposed product and discussed the proposed proprietary name (Expert Panel Discussion). The Expert Panel is composed of Division of Medication Errors Prevention (DMEPA) staff and representatives from the Division of Drug Marketing, Advertising, and Communications (DDMAC). We also consider input from other review disciplines (OND, ONDQA/OBP). The Expert Panel also discusses potential concerns regarding drug marketing and promotion related to the proposed names.

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

3. FDA Prescription Simulation Studies

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

In order to evaluate the potential for misinterpretation of the proposed proprietary name in handwriting and verbal communication of the name, inpatient medication orders and/or outpatient prescriptions are written, each consisting of a combination of marketed and unapproved drug products, including the proposed name. These orders are optically scanned and one prescription is delivered to a random sample of 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 record their interpretations of the orders which are recorded electronically.

4. Comments from Other Review Disciplines

DMEPA requests the Office of New Drugs (OND) and/or Office of Generic Drugs (OGD), ONDQA or OBP for their comments or concerns with the proposed proprietary

name, ask for any clinical issues that may impact the DMEPA review during 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. The primary Safety Evaluator addresses any comments or concerns in the safety evaluator's assessment.

The OND/OGD Regulatory Division is contacted a second time following our analysis of the proposed proprietary name. At this point, DMEPA conveys their decision to accept or reject the name. The OND or OGD Regulatory Division is requested to provide any further information that might inform DMEPA's final decision on the proposed name.

Additionally, other review disciplines opinions such as ONDQA or OBP may be considered depending on the proposed proprietary name.

5. Safety Evaluator Risk Assessment of the Proposed Proprietary Name

The primary Safety Evaluator applies his/her individual expertise gained from evaluating medication errors reported to FDA, considers all aspects of the name that may be misleading or confusing, conducts a Failure Mode and Effects Analysis, and provides an overall decision on acceptability dependent on their risk assessment of name confusion. Failure Mode and Effects Analysis (FMEA) is a systematic tool for evaluating a process and identifying where and how it might fail.³ When applying FMEA to assess the risk of a proposed proprietary name, DMEPA seeks to evaluate the potential for a proposed proprietary name to be confused with another drug name because of name confusion and, thereby, cause errors to occur in the medication use system. FMEA capitalizes on the predictable and preventable nature of medication errors associated with drug name confusion. FMEA allows the Agency to identify the potential for medication errors due to orthographically or phonetically similar drug names prior to approval, where actions to overcome these issues are easier and more effective than remedies available in the post-approval phase.

In order to perform an FMEA of the proposed name, the primary Safety Evaluator must analyze the use of the product at all points in the medication use system. Because the proposed product is has not been marketed, the primary Safety Evaluator anticipates the use of the product in the usual practice settings by considering the clinical and product characteristics listed in Appendix B1 of this review. The Safety Evaluator then analyzes the proposed proprietary name in the context of the usual practice setting and works to identify potential failure modes and the effects associated with the failure modes.

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

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

³ Institute for Healthcare Improvement (IHI). Failure Mode and Effects Analysis. Boston. IHI:2004.

practice setting? And Are there any components of the name that may function as a source of error beyond sound/look-alike”

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

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

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

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

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

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

product but involve a naming characteristic that when incorporated into a proprietary name may be confusing, misleading, cause or contribute to medication errors.

If DMEPA objects to a proposed proprietary name on the basis that drug name confusion could lead to medication errors, the primary Safety Evaluator uses the FMEA process to identify strategies to reduce the risk of medication errors. DMEPA generally recommends that the Sponsor select an alternative proprietary name and submit the alternate name to the Agency for review. However, in rare instances FMEA may identify plausible strategies that could reduce the risk of medication error of the currently proposed name. In that instance, DMEPA may be able to provide the Sponsor with recommendations that reduce or eliminate the potential for error and, thereby, would render the proposed name acceptable.

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

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

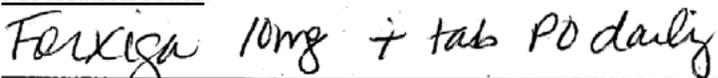
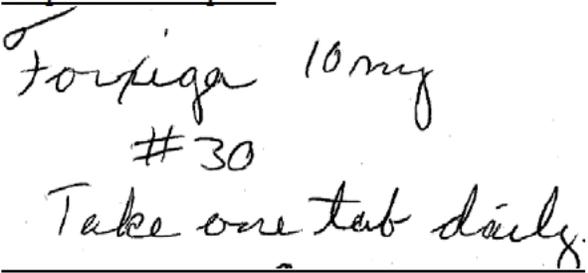
Furthermore, post-marketing experience has demonstrated that medication errors resulting from drug name confusion are notoriously difficult to rectify post-approval. Educational and other post-approval efforts are low-leverage strategies that have had limited effectiveness at alleviating medication errors involving drug name confusion. Sponsors have undertaken higher-leverage strategies, such as drug name changes, 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 Sponsors' have changed a product's proprietary name in the post-approval phase, it is difficult to eradicate the original proprietary name from practitioners' vocabulary, and as a result, the Agency has continued to receive reports of drug name confusion long after a name change in some instances. Therefore, DMEPA believes that post-approval efforts at reducing name confusion errors should be reserved for those cases in which the potential for name confusion could not be predicted prior to approval.

Appendix B: Letters with Possible Orthographic or Phonetic Misinterpretation

| Letters in Name, Forxiga | Scripted May Appear as | Spoken May Be Interpreted as |
|-----------------------------|---|------------------------------|
| Capital 'F' | 'T' | 'Pf' or 'Ph' |
| lower case 'o' | Any Vowel | 'Oh' |
| lower case 'r' | 's', 'n', 'e', 'v' | -- |
| lower case 'x' | 'a', 'd', 'skinny f', 'k', 'n', 'p', 'r', 't', 'v', 'y' | 'ks', 'kz', 's', 'z' |
| lower case 'i' | 'e' | Any Vowel |
| lower case 'g' | 'q', 'j', 's' | 'k', 'j' |
| lower case 'a' | Any vowel, 'el', 'cl', 'ci', 'd' | Any Vowel |

Appendix C: Prescription Simulation Samples and Results

Figure 1. Forxiga Study (Conducted on October 7, 2011)

| Handwritten Requisition Medication Order | Verbal Prescription |
|--|--|
| <p><u>MedicationOrder:</u> </p> <p><u>OutpatientPrescription:</u> </p> | <p>Forxiga 10 mg #30 Take one tablet daily</p> |

FDA Prescription Simulation Responses.

| | Total | 13 | 11 | 17 |
|-----------------------|------------------|--------------|-------------------|--------------|
| INTERPRETATION | INPATIENT | VOICE | OUTPATIENT | TOTAL |
| FARXIGA | 1 | 0 | 0 | 1 |
| FORISCA | 0 | 1 | 0 | 1 |
| FORSECA | 0 | 1 | 0 | 1 |
| FORSEGA | 0 | 3 | 0 | 3 |
| FORSEKA | 0 | 1 | 0 | 1 |
| FORSICA | 0 | 1 | 0 | 1 |
| FORXIGA | 11 | 0 | 17 | 28 |
| FORZEGA | 0 | 2 | 0 | 2 |
| FORZIGA | 0 | 1 | 0 | 1 |
| FOXIGA | 1 | 0 | 0 | 1 |
| VORZEGA | 0 | 1 | 0 | 1 |

Appendix D: Proprietary names that lack convincing orthographic and/or phonetic similarities

| Name | Similarity to Forxiga |
|-------------|------------------------------|
| Furoxone | Look |
| Exalgo | Look |
| Eraxis | Look |
| Tarimyl | Look |
| Taripel | Look |
| Torisel | Look |
| Paremyd | Look |
| Periguard | Look |
| Pergonal | Look |
| Femogen | Look |
| Phoslyra | Sound |
| Torsilax | Sound |
| Fortesta | Look and Sound |
| Amitiza | Look |
| Portagen | Look |

Appendix E: Proprietary names not likely to be confused or not used in usual practice settings for the reasons described.

| Proprietary Name | Active Ingredient | Similarity to Forxiga | Failure preventions |
|------------------|---|-----------------------|--|
| (b) (4) | | | |
| Formica Rufa | Formica Rufa | Look | One of the active ingredients in an otc product (Rheumaforce). |
| Farxen | Paracetamol | Look | International (Mexico) Brand name found in Micromedex |
| Femogen | Estrogens, esterified | Look | ANDA 085076 withdrawn 11/15/1988, ANDA 085007 withdrawn 01/17/1989, ANDA 085008 withdrawn 01/10/1990. |
| Perigel | Baking Soda with fluoride and hydrogen peroxide gel | Look | Abandoned Trademark (June 15, 1990) from the European Union trademark database. |
| (b) (4) | | | |
| Fonergin | Amylocaine Hydrochloride | Look | International (Brazil) Brand name found in Micromedex |
| Faringen | N/A | Look | No Information available in common drug references. |
| Fosagen | Alendronate | Look | International (South Africa) Brand name found in Micromedex |
| Faringel | Propolis | Look | International (Italy) Brand name found in Micromedex |
| Foragin | Dipyron | Look | International (Indonesia) Brand name found in Micromedex |
| Forfivo*** | Bupropion | Sound | Identified by SE, however, the proprietary name is Forfivo XL***. The name Forfivo XL*** is evaluated in Appendix F. |
| Forxiga | Dapagliflozin | Look and Sound | Name under evaluation in this review |

Appendix F: Risk of medication errors due to product confusion minimized by dissimilarity of the names and/ or use in clinical practice for the reasons described.

| Proposed name: Forxiga | Strength(s): 5 mg and 10 mg | Usual dose: One tablet by mouth daily |
|--|---|--|
| Failure Mode: Incorrect Product Ordered/ Selected/Dispensed or Administered because of Name confusion | Causes (could be multiple) | Prevention of Failure Mode |
| <p>Parcopa (Carbidopa and Levodopa) Orally disintegrating tablets 25 mg/100 mg, 10 mg/100 mg, and 25 mg/250 mg</p> <p><u>Usual Dose</u> Place on tablet on top of the tongue three to four times a day where it will dissolve then swallow with saliva</p> | <p><u>Orthographic:</u> -Both names have similar shapes with one upstroke and one downstroke in the same position. -‘For’ and ‘Par’ may appear similar when scripted</p> <p><u>Dosage Form:</u> Tablets</p> <p><u>Route of Administration:</u> Oral</p> | <p><u>Orthographic:</u> The downstrokes in the names look different, ‘g’ vs. ‘p’ as the round portion are on opposite sides of the downstrokes. The ‘xi’ letter string looks different when scripted from the ‘co’ letter string in the same position.</p> |
| <p>Tasigna (Nilotinib) Capsules 150 mg</p> <p><u>Usual Dose</u> Take one capsule twice a day</p> | <p><u>Orthographic:</u> -Both names have similar shapes with one upstroke and one downstroke -‘F’ and ‘T’ appear similar when scripted</p> <p><u>Route of Administration:</u> Oral</p> | <p><u>Strength:</u> Multiple strengths that would have to be written on the prescription vs. Single strength that may be omitted with no strength overlap</p> |
| <p>Jenloga (Clonidine) Extended-release Tablets 0.1 mg and 0.2 mg</p> <p><u>Usual Dose</u> One tablet twice daily</p> | <p><u>Orthographic:</u> -Both have similar scripted ending letter strings ‘-iga’ and ‘-oga’ -‘F’ and ‘J’ appear similar when scripted</p> <p><u>Dosage Form:</u> Tablets</p> <p><u>Route of Administration:</u> Oral</p> | <p><u>Orthographic:</u> Forxiga has one upstroke letter ‘F’ vs. Jenloga which has two ‘J’ and ‘I’</p> <p><u>Strengths:</u> Both come in multiple strengths that would need to be written on the prescription. There are no overlapping strengths.</p> |

| Proposed name: Forxiga | Strength(s): 5 mg and 10 mg | Usual dose: One tablet by mouth daily |
|---|--|--|
| Failure Mode: Incorrect Product Ordered/ Selected/Dispensed or Administered because of Name confusion | Causes (could be multiple) | Prevention of Failure Mode |
| <p>Foradil Aerolizer (Formoterol Fumarate) Inhalation Powder 12 mcg</p> <p><u>Usual Dose</u></p> <p>Inhale the contents of one 12 mcg capsule every 12 hours using the Aerolizer inhaler</p> | <p><u>Orthographic:</u> Forxiga and the root name Foradil have the same beginning letter string (‘For’). Both have dotted letter ‘i’</p> | <p><u>Orthographic:</u> Forxiga has one upstroke letter ‘F’ vs. Foradil Aerolizer which has five, ‘F’, ‘d’, two ‘l’, and ‘A’. Forxiga has seven letters and appears shorter when scripted than Foradil Aerolizer which has sixteen. Forxiga has a downstroke letter ‘g’ vs. the root name Foradil which has no downstrokes.</p> <p><u>Strength:</u> Multiple strengths that would have to be written on the prescription vs. Single strength that may be omitted. There are no overlapping strengths.</p> <p><u>Dosage Form:</u> Tablet vs. Inhalation Powder</p> <p><u>Frequency of Administration:</u> Once daily vs. Twice daily</p> <p><u>Storage:</u> Room Temperature vs. Refrigerator</p> |
| <p>Feridex (Ferumoxides) Solution 56 mg of iron/vial</p> <p><u>Usual Dose</u></p> <p>0.56 mg (0.05 mL Feridex I.V.) per kilogram of body weight diluted in 100 mL of 5% dextrose solution and given over 30 minutes</p> | <p><u>Orthographic:</u> Both have similar beginning letter strings, ‘For’ and ‘Fer’</p> | <p><u>Orthographic:</u> Forxiga has one upstroke letter ‘F’ vs. Feridex which has two, ‘F’ and ‘d’. Forxiga has a downstroke letter ‘g’ vs. Feridex which has no downstrokes.</p> <p><u>Route of Administration:</u> Oral vs. Intravenous</p> <p><u>Strength:</u> Multiple strengths that would have to be written on the prescription vs. Single strength that may be omitted. There are no overlapping strengths.</p> <p><u>Dosage Form:</u> Tablet vs. Solution for Injection</p> |
| <p>Fergon (Ferrous Gluconate) Tablets 27 mg</p> <p><u>Usual Dose</u></p> <p>One tablet daily</p> | <p><u>Orthographic:</u> : Both have similar beginning letter strings, ‘For’ and ‘Fer’</p> <p><u>Dosage Form:</u> Tablets</p> <p><u>Frequency of Administration:</u> Once Daily</p> <p><u>Route of Administration:</u> Oral</p> | <p><u>Orthographic:</u> The ending letter strings ‘iga’ and ‘gon’ appear different when scripted. Forxiga appears longer when scripted than Fergon.</p> <p><u>Strength:</u> Multiple strengths that would have to be written on the prescription vs. Single strength that may be omitted</p> <p><u>Drug Class:</u> Rx vs. OTC</p> |

| Proposed name: Forxiga | Strength(s): 5 mg and 10 mg | Usual dose: One tablet by mouth daily |
|--|--|---|
| Failure Mode: Incorrect Product Ordered/ Selected/Dispensed or Administered because of Name confusion | Causes (could be multiple) | Prevention of Failure Mode |
| Forane (Isoflurane, USP) Liquid for Inhalation 1 mL in 1 mL <u>Usual Dose</u> 1% to 3% for anesthesia | <u>Orthographic:</u> Both have the same beginning letter string 'For'. | <u>Orthographic:</u> Forxiga contains a downstroke letter 'g' vs. Forane which has no downstrokes. Forxiga appears longer when scripted. <u>Strength:</u> Multiple strengths that would have to be written on the prescription vs. Single strength that may be omitted. There are no overlapping strengths. <u>Dosage Form:</u> Tablets vs. Liquid for Inhalation <u>Setting of Use:</u> Inpatient or outpatient vs. Surgery Room |
| Fortaz (Ceftazidime) Injection 500 mg, 1 g, 2 g, 6 g <u>Usual Dose</u> 1 gm administered intravenously or intramuscularly every 8 to 12 hours | <u>Orthographic:</u> Both have the same beginning letter string 'For'. | <u>Orthographic:</u> Forxiga appears longer when scripted. Fortaz has an upstroke 't' vs. Forxiga which does not. There is an ending 'a' in Forxiga after the downstroke. <u>Strength:</u> Both come in multiple strengths that would need to be written on the prescription. There are no overlapping strengths. <u>Dosage Form:</u> Tablet vs. Injection <u>Route of Administration:</u> Oral vs. Intravenous or Intramuscular <u>Frequency of Administration:</u> Once daily vs. Multiple times a day <u>Dose:</u> 1 tab vs. xx mg or g |
| Zytiga (Abiraterone acetate) Tablets 250 mg <u>Usual Dose</u> 250 mg to 1000 mg once daily | <u>Orthographic:</u> Both have the same ending letter string, '-iga' <u>Dosage Form:</u> Tablets <u>Frequency of Administration:</u> Once Daily <u>Route of Administration:</u> Oral | <u>Orthographic:</u> Forxiga contains one downstroke letter 'g' vs. Zytiga which has two 'y' and 'g', which also make the shapes different. Forxiga appears longer when scripted. Zytiga also contains an upstroke letter 't' vs. Forxiga which does not. <u>Strength:</u> Multiple strengths that would have to be written on the prescription vs. Single strength that may be omitted. There are no overlapping strengths. |

| Proposed name: Forxiga | Strength(s): 5 mg and 10 mg | Usual dose: One tablet by mouth daily |
|--|---|---|
| Failure Mode: Incorrect Product Ordered/ Selected/Dispensed or Administered because of Name confusion | Causes (could be multiple) | Prevention of Failure Mode |
| Fortamet (Metformin hydrochloride) Extended-Release Tablets 500 mg and 1000 mg <u>Usual Dose</u> One tablet once daily | <u>Orthographic:</u> Both have the same beginning letter string 'For'. <u>Dosage Form:</u> Tablets <u>Frequency of Administration:</u> Once Daily <u>Route of Administration:</u> Oral | <u>Orthographic:</u> Forxiga contains a downstroke letter 'g' vs. Fortamet which has no downstrokes. Forxiga has one upstroke vs. Fortamet which has three upstroke letters. Forxiga appears shorter when scripted. <u>Strength:</u> Both come in multiple strengths that would need to be written on the prescription. There are no overlapping strengths. |
| Forteo (Teriparatide) Injection 20 mcg <u>Usual Dose</u> 20 mcg subcutaneously once daily | <u>Orthographic:</u> Both have the same beginning letter string 'For'. <u>Frequency of Administration:</u> Once Daily | <u>Orthographic:</u> Forxiga contains a downstroke letter 'g' vs. Forteo which has no downstrokes. Forxiga appears longer when scripted. <u>Strength:</u> Multiple strengths that would have to be written on the prescription vs. Single strength that may be omitted. There are no overlapping strengths. <u>Dosage Form:</u> Tablet vs. Injection <u>Route of Administration:</u> Oral vs. Subcutaneously <u>Storage:</u> Room Temperature vs. Refrigerator |
| Fortical (Calcitonin Salmon) Spray 200 International Units per activation <u>Usual Dose</u> One spray per day intranasally alternating nostrils daily | <u>Orthographic:</u> Both have the same beginning letter string 'For'. <u>Frequency of Administration:</u> Once Daily | <u>Orthographic:</u> Forxiga has one upstroke letter 'F' and one downstroke letter 'g' vs. Fortical which has two upstroke letters, 'F' and 'l' and no downstrokes. The ending letter strings '-iga' and '-cal' appear different when scripted. <u>Strength:</u> Multiple strengths that would have to be written on the prescription vs. Single strength that may be omitted. There are no overlapping strengths. <u>Route of Administration:</u> Oral vs. Nasal <u>Dosage Form:</u> Tablet vs. Solution <u>Storage:</u> Room Temperature vs. Refrigerator |

| Proposed name: Forxiga | Strength(s): 5 mg and 10 mg | Usual dose: One tablet by mouth daily |
|--|---|---|
| Failure Mode: Incorrect Product Ordered/ Selected/Dispensed or Administered because of Name confusion | Causes (could be multiple) | Prevention of Failure Mode |
| <p>Folotyn (Pralatrexate) Injection 20 mg/ml and 40 mg/2 mL</p> <p><u>Usual Dose</u></p> <p>30 mg/m² as an intravenous push over 3 to 5 minutes once weekly for 6 weeks in 7-week cycles</p> | <p><u>Orthographic:</u> Both have the same beginning letter string 'Fo'.</p> | <p><u>Orthographic:</u> Forxiga contains one upstroke letter 'F' vs. Folotyn which has three upstroke letters, 'F', 't' and 'l'.</p> <p><u>Strength:</u> Both come in multiple strengths that would need to be written on the prescription. There are no overlapping strengths.</p> <p><u>Route of Administration:</u> Oral vs. Intravenous</p> <p><u>Dose:</u> 1 tab vs. xx mg/m²</p> <p><u>Frequency of Administration:</u> Daily vs. Once weekly</p> <p><u>Storage:</u> Room Temperature vs. Refrigerator</p> |
| <p>Xofigo*** (Radium-223 Chloride) Injection 1,000 kBq/mL (0.03 mCi/mL)</p> <p><u>Usual Dose</u></p> <p>50 kilobecquerels per kilogram (kBq/kg) as an intravenous bolus injection every 4 weeks for 6 injections</p> | <p><u>Orthographic:</u> Both have similar ending letter strings, '-iga' and '-igo'.</p> | <p><u>Orthographic:</u> Forxiga contains one downstroke letter 'g' vs. Xofigo*** which has two, 'f' (which may be scripted as a downstroke) and 'g'. Forxiga contains one upstroke letter 'F' vs. Xofigo that has two upstroke letters 'X' and 'f'. Forxiga appears longer when scripted.</p> <p><u>Strength:</u> Multiple strengths that would have to be written on the prescription vs. Single strength that may be omitted. There are overlapping strengths.</p> <p><u>Route of Administration:</u> Oral vs. Intravenous</p> <p><u>Frequency of Administration:</u> Daily vs. Every 4 weeks</p> <p><u>Dose:</u> 1 tablet or mg vs. xx kBq/kg</p> <p><u>Setting of Use</u></p> <p>Inpatient or Outpatient vs. Nuclear Pharmacy</p> |

| Proposed name: Forxiga | Strength(s): 5 mg and 10 mg | Usual dose: One tablet by mouth daily |
|---|--|---|
| Failure Mode: Incorrect Product Ordered/ Selected/Dispensed or Administered because of Name confusion | Causes (could be multiple) | Prevention of Failure Mode |
| <p>Potiga (Exogabine) Tablets 50 mg, 200 mg, 300 mg, and 400 mg</p> <p><u>Usual Dose</u> 100 mg three times a day</p> | <p><u>Orthographic:</u> Both have the same ending letter strings '-iga'</p> <p><u>Phonetic</u> Both have three syllables and both have the same ending letter strings '-iga' therefore have the same ending syllable sound. They also have have similar sounding sounding middle syllables, '-xi-' and '-ti-'</p> <p><u>Dosage Form:</u> Tablets</p> <p><u>Route of Administration:</u> Oral</p> | <p><u>Orthographic:</u> Forxiga appears longer when scripted. Forxiga letter string 'rx' looks different when scripted than Potiga's upstroke letter 't' in the same position.</p> <p><u>Phonetic:</u> The beginning 'P' sound is bilabial plosive vs. the 'F' sound which is labio-dental fricative, hence they are not likely to be confused. The first syllable in 'Forxiga has an additional 'r' sound that is not present in the first syllable in 'Potiga'.</p> <p><u>Frequency of Administration:</u> Once daily vs. Three times a day</p> |

| Proposed name: Forxiga | Strength(s): 5 mg and 10 mg | Usual dose: One tablet by mouth daily |
|---|--|---|
| Failure Mode: Incorrect Product Ordered/ Selected/Dispensed or Administered because of Name confusion | Causes (could be multiple) | Prevention of Failure Mode |
| <p>Tarceva (Erlotinib hydrochloride) Tablets 25 mg, 100 mg, and 150 mg</p> <p><u>Usual Dose</u> 100 mg to 150 mg daily</p> | <p><u>Orthographic:</u> -‘F’ and ‘T’ appear similar when scripted. -Both have similar beginning letter strings, ‘For’ and ‘Tar’</p> <p><u>Phonetic:</u> Both have three syllables with similar sounding middle, ‘-xi-’ and ‘-ce-’ and ending ‘-ga’ and ‘-va’ syllables.</p> <p><u>Dosage Form:</u> Tablets</p> <p><u>Route of Administration:</u> Oral</p> <p><u>Frequency of Administration:</u> Once daily</p> | <p><u>Orthographic:</u> Forxiga contains a downstroke letter ‘g’ vs. Tarceva which has no downstrokes.</p> <p><u>Phonetic:</u> The beginning ‘T’ sound is alveolar plosive vs. the ‘F’ sound which is labio-dental fricative, hence they are not likely to be confused. In addition the ‘o’ in the first syllable in Forxiga sounds different than the corresponding ‘a’ in Tarceva.</p> <p><u>Strength:</u> Both come in multiple strengths that would need to be written on the prescription. There are no overlapping strengths.</p> |
| <p>Forfivo XL*** (Bupropion HCL) Extended-release Tablets 450 mg</p> <p><u>Usual Dose</u> One tablet by mouth daily</p> | <p><u>Orthographic:</u> Both have the same beginning letter string ‘For’</p> <p><u>Phonetic:</u> Both have three syllables with the same 1st syllable ‘For’ and similar sounding middle syllables, ‘-xi-’ and ‘-fi-’</p> <p><u>Dosage Form:</u> Tablets</p> <p><u>Route of Administration:</u> Oral</p> | <p><u>Orthographic:</u> Forxiga has a downstroke letter ‘g’ in the sixth position vs. Forfivo XL*** which has an ‘f’ in the fourth position which may be scripted as a downstroke.</p> <p><u>Phonetic:</u> The ending sound of the root names sound different, ‘-ga’ and ‘-vo’ due to the ‘a’ vs. ‘o’ sound. The modifier also adds two additional syllables.</p> <p><u>Strength:</u> Multiple strengths that would have to be written on the prescription vs. Single strength that may be omitted. There are no overlapping strengths.</p> |

**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: April 18, 2011

Application: NDA 202293

Type/Number:

Through: Carlos Mena-Grillasca RPh, Team Leader
Carol Holquist, RPh, Director
Division of Medication Error Prevention and Analysis

From: Lissa C. Owens, PharmD, Safety Evaluator
Division of Medication Error Prevention and Analysis

Subject: Proprietary Name Review

Drug Name(s) & Strength(s): (b) (4) (Dapagliflozin) Tablets, 5 mg and 10 mg

Applicant: Bristol-Myers Squibb

OSE RCM #: 2011-240

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

26 Page(s) has been Withheld in Full as B4 (CCI/TS)
immediately following this page

This is a representation of an electronic record that was signed electronically and this page is the manifestation of the electronic signature.

/s/

LISSA C OWENS
04/19/2011

CARLOS M MENA-GRILLASCA
04/20/2011

CAROL A HOLQUIST
04/26/2011