

**CENTER FOR DRUG EVALUATION AND  
RESEARCH**

*APPLICATION NUMBER:*

**209964Orig1s000**

**PROPRIETARY NAME REVIEW(S)**

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**PROPRIETARY NAME REVIEW**

Division of Medication Error Prevention and Analysis (DMEPA)  
Office of Medication Error Prevention and Risk Management (OMEPRM)  
Office of Surveillance and Epidemiology (OSE)  
Center for Drug Evaluation and Research (CDER)

**\*\*\* This document contains proprietary information that cannot be released to the public\*\*\***

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<b>Date of This Review:</b>	January 14, 2018
<b>Application Type and Number:</b>	NDA 209964
<b>Product Name and Strength:</b>	Corlanor (Ivabradine) Oral Solution, [REDACTED] (b) (4) [REDACTED] 5 mg/5 mL (1 mg/mL)
<b>Product Type:</b>	Single Ingredient Product
<b>Rx or OTC:</b>	Prescription (Rx)
<b>Applicant/Sponsor Name:</b>	Amgen
<b>Panorama #:</b>	2018-26903198
<b>DMEPA Safety Evaluator:</b>	Sarah Thomas, PharmD
<b>DMEPA Team Leader:</b>	Chi-Ming (Alice) Tu, PharmD, BCPS

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## Contents

1	INTRODUCTION .....	1
1.1	Regulatory History .....	1
1.2	Product Information.....	1
2	RESULTS .....	4
2.1	Misbranding Assessment.....	4
2.2	Safety Assessment .....	4
3	CONCLUSION.....	7
3.1	Comments to the Applicant/Sponsor .....	7
4	REFERENCES .....	8
	APPENDICES.....	9

# 1 INTRODUCTION

This review evaluates the proposed proprietary name, Corlanor, from a safety and misbranding perspective. The sources and methods used to evaluate the proposed proprietary name are outlined in the reference section and Appendix A respectively. In this submission, Amgen included an external name study that was conducted in August 2013 by (b) (4) to support a request for proprietary name review of the proprietary name, Corlanor, under NDA 206143 for the ivabradine tablet dosage form.<sup>a</sup>

## 1.1 REGULATORY HISTORY

The proprietary name Corlanor is currently marketed by Amgen under NDA 206143. Corlanor is currently available as 5 mg and 7.5 mg tablets, indicated to reduce the risk of hospitalization for worsening heart failure in adult patients with stable, symptomatic chronic heart failure with left ventricular ejection fraction  $\leq 35\%$ , who are in sinus rhythm with resting heart rate  $\geq 70$  beats per minute and either are on maximally tolerated doses of beta-blockers or have a contraindication to beta-blocker use.

Amgen is seeking to add to the Corlanor product line under NDA 209964 an oral solution dosage form ( (b) (4) 1 mg/mL), indicated for the treatment of stable symptomatic heart failure due to dilated cardiomyopathy in pediatric patients aged 6 months to less than 18 years who are in sinus rhythm (b) (4) . Amgen previously submitted the proposed proprietary name, Corlanor, on December 21, 2016 under NDA 209964 (Panorama #: 2016-12080752), but NDA 209964 received a refuse to file notification on February 16, 2017. Amgen subsequently submitted the name, Corlanor, for review as a part of their NDA resubmission on October 25, 2018.

## 1.2 PRODUCT INFORMATION

The following product information is provided in the proprietary name submission received on October 25, 2018.

- Intended Pronunciation: core' lan ore
- Active Ingredient: Ivabradine
- Indication of Use: for the treatment of stable symptomatic heart failure due to dilated cardiomyopathy in pediatric patients aged 6 months to less than 18 years who are in sinus rhythm with elevated heart rate (b) (4)
- Route of Administration: Oral
- Dosage Form: Oral Solution
- Strength: (b) (4) 5 mg/5 mL (1 mg/mL)
- Dose and Frequency: APPEARS THIS WAY ON ORIGINAL

<sup>a</sup> Stewart, Janine. Proprietary Name Review for Corlanor (NDA 206143). Silver Spring (MD): FDA, CDER, OSE, DMEPA (US); 2014 SEPT 22. Panorama No. 2014-25714.

Of note, the (b) (4) study was conducted to assess the use of the proprietary name Corlanor for the ivabradine oral tablet dosage form and only considered the tablet dosage form product characteristics. We note that the (b) (4) study does not consider the newly proposed oral solution dosage form product characteristics in the analysis.

Pediatrics (age 6 months to less than 18 years): Corlanor is supplied for use as an oral solution or as tablets to be taken twice daily with meals. Tablets are administered to patients weighing 40 kg and greater and who are able to swallow tablets; otherwise they should receive the oral solution [REDACTED] (b) (4)

**Pediatric patients are titrated to achieve a heart rate reduction of at least 20% from baseline and based on tolerability.** [REDACTED] (b) (4)

(b) (4)

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Corlanor 1 mg/mL oral solution in an ampule

- One carton containing 28 foil pouches, each containing a single ampule
- Each 5 mL ampule contains 5 mg of Corlanor (1 mg/mL): NDC (55513-813-01)
- Storage: Store Corlanor tablets and oral solution at 25°C (77°F); excursions permitted to 15°C - 30°C (59°F - 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, Corlanor.

### 2.1 MISBRANDING ASSESSMENT

The Office of Prescription Drug Promotion (OPDP) determined that Corlanor would not misbrand the proposed product. The Division of Medication Error Prevention and Analysis (DMEPA) and the Division of Cardiovascular and Renal Products (DCRP) concurred with the findings of OPDP's assessment for Corlanor.

### 2.2 SAFETY ASSESSMENT

The following aspects were considered in the safety evaluation of the proposed proprietary name, Corlanor.

#### 2.2.1 *United States Adopted Names (USAN) Search*

There is no USAN stem present in the proposed proprietary name<sup>b</sup>.

#### 2.2.2 *Components of the Proposed Proprietary Name*

Amgen did not provide a derivation or intended meaning for the proposed proprietary name, Corlanor, in their submission. 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 *Comments from Other Review Disciplines at Initial Review*

In response to the OSE, November 16, 2018 e-mail, the Division of Cardiovascular and Renal Products (DCRP) did not forward any comments or concerns relating to Corlanor at the initial phase of the review.

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<sup>b</sup> USAN stem search conducted on November 9, 2018.

#### 2.2.4 FDA Name Simulation Studies

Sixty-five practitioners participated in DMEPA’s prescription studies for Corlanor. The responses did not overlap with any currently marketed products nor did the responses sound or look similar to any currently marketed products or any products in the pipeline. Appendix B contains the results from the verbal and written prescription studies. Of note, one participant commented that Corlanor “looks like/sounds like Cozaar”. Cozaar was previously evaluated in a prior proprietary name review<sup>a</sup> as having sufficient orthographic and phonetic differences when compared to Corlanor, and we are unaware of any postmarketing cases of confusion between Corlanor and Cozaar (See Section 2.2.6).

#### 2.2.5 Phonetic and Orthographic Computer Analysis (POCA) Search Results

Corlanor is already marketed as an oral tablet formulation (NDA 206143), and we are not aware of any postmarketing cases of name confusion involving Corlanor (see Section 2.2.6). Therefore, we did not conduct a POCA search for Corlanor.

The Applicant submitted an external study that included a POCA search which identified names of possible concern based on orthographic, phonetic, or product characteristic similarities. The external study concludes that none of the names identified pose a risk of name confusion which may lead to medication error. We agree with their conclusion.

#### 2.2.6 Medication Error Data Selection of Cases

We searched the FDA Adverse Event Reporting System (FAERS) database using the strategy listed in Table 2 (see Appendix A1 for a description of FAERS database) for name confusion errors involving Corlanor that would be relevant for this review.

<b>Table 2. FAERS Search Strategy</b>	
<b>Search Date</b>	November 8, 2018
<b>Drug Name</b>	CORLANOR [product name]
<b>Event (MedDRA Terms)</b>	<b>DMEPA Official PNR Name Confusion Search Terms Event List:</b>  Preferred Terms: CIRCUMSTANCE OR INFORMATION CAPABLE OF LEADING TO MEDICATION ERROR DRUG ADMINISTRATION ERROR DRUG DISPENSING ERROR DRUG PRESCRIBING ERROR INTERCEPTED DRUG DISPENSING ERROR INTERCEPTED DRUG PRESCRIBING ERROR INTERCEPTED MEDICATION ERROR MEDICATION ERROR PRODUCT NAME CONFUSION TRANSCRIPTION MEDICATION ERROR  Lower Level Terms: INTERCEPTED PRODUCT SELECTION ERROR INTERCEPTED WRONG DRUG PRODUCT SELECTED INTERCEPTED WRONG DRUG SELECTED PRODUCT SELECTION ERROR WRONG DEVICE DISPENSED

<b>Table 2. FAERS Search Strategy</b>	
	WRONG DRUG ADMINISTERED WRONG DRUG DISPENSED WRONG DRUG PRESCRIBED WRONG DRUG PRODUCT SELECTED WRONG DRUG SELECTED WRONG PRODUCT SELECTED
<b>Date Limits</b>	N/A

Each report was reviewed for relevancy and duplication. Duplicates were merged into a single case. The NCC MERP Taxonomy of Medication Errors was used to code the case outcome and error root causes when provided by the reporter.

Our search retrieved 2 cases, which after individual review, only 1 case was determined to be relevant to this proprietary name review. FAERS Case #13848537 reported to FDA in 2017 describes a pharmacist pointing out “a potential mix-up between cangrelor and Corlanor, since the names sound similar and both are used in the cardiology realm.” Of note, the reporter states “we haven’t experienced any near misses, etc. with these yet, but both meds are used infrequently.”

Both Corlanor (approved in 2015) and cangrelor (approved in 2015) have been co-marketed since 2015, and we are unaware of any actual (not potential) postmarketing medication error cases due to name confusion. Cangrelor, a P2Y<sub>12</sub> platelet inhibitor, is indicated for the adult population and its safety and effectiveness in pediatric patients have not been established. The proposed Corlanor oral solution for pediatric patients does not introduce an overlapping population when compared to cangrelor. Additionally, we do not anticipate that the newly proposed oral solution dosage form will introduce new risk of name confusion with cangrelor given the non-overlapping product characteristics (multiple non-overlapping strengths vs. 50 mg/vial; oral vs. intravenous; oral solution vs. for injection).

### ***2.2.7 Multiple Dosage Forms under a Single Proprietary Name***

We note that Amgen is proposing to add the dosage form oral solution to the currently marketed Corlanor product line, which currently just consists of Corlanor tablets. We note that both products share the same active ingredient (ivabradine). It is common and accepted practice to have a product line with multiple dosage forms sharing one proprietary name; however, we acknowledge the possibility that the two dosage forms could be confused if marketed under the same proprietary name. After internal email communication with the Division of Cardiovascular and Renal Products (DCRP) on November 13, 2018, we confirmed that the proposed oral solution is substitutable with the currently marketed Corlanor tablets. Additionally, our FAERS search did not identify any name confusion safety signals that would preclude use of the name, Corlanor. Thus, because both products contain the same active ingredient and both dosage forms of ivabradine are substitutable, we find the proposal to use of the same proprietary name acceptable for the oral solution dosage form.

### ***2.2.8 Communication of DMEPA’s Analysis at Midpoint of Review***

DMEPA communicated our findings to the Division of Cardiovascular and Renal Products (DCRP) via e-mail on January 4, 2019. At that time we also requested additional information or concerns that could inform our review. Per e-mail correspondence from the Division of Cardiovascular and Renal Products (DCRP) on January 14, 2019, they stated no additional concerns with the proposed proprietary name, Corlanor.

### **3 CONCLUSION**

The proposed proprietary name, Corlanor, is acceptable.

If you have any questions or need clarifications, please contact Wana Manitsitkul, OSE project manager, at 240-402-4156.

### **4 COMMENTS TO AMGEN**

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

If any of the proposed product characteristics as stated in your submission, received on October 25, 2018, are altered prior to approval of the marketing application, the name must be resubmitted for review.

## 4 REFERENCES

1. *USAN Stems* (<https://www.ama-assn.org/about/united-states-adopted-names-approved-stems>)

USAN Stems List contains all the recognized USAN stems.

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

POCA is a system that FDA designed. As part of the name similarity assessment, POCA is used to evaluate proposed names via a phonetic and orthographic algorithm. The proposed proprietary name is converted into its phonemic representation before it runs through the phonetic algorithm. Likewise, an orthographic algorithm exists that operates in a similar fashion. POCA is publicly accessible.

*Drugs@FDA*

Drugs@FDA is an FDA Web site that contains most of the drug products approved in the United States since 1939. The majority of labels, approval letters, reviews, and other information are available for drug products approved from 1998 to the present. Drugs@FDA contains official information about FDA-approved *brand name* and *generic drugs*; *therapeutic biological products*, *prescription* and *over-the-counter* human drugs; and *discontinued drugs* (see Drugs @ FDA Glossary of Terms, available at [http://www.fda.gov/Drugs/InformationOnDrugs/ucm079436.htm#ther\\_biological](http://www.fda.gov/Drugs/InformationOnDrugs/ucm079436.htm#ther_biological)).

*RxNorm*

RxNorm contains the names of prescription and many OTC drugs available in the United States. RxNorm includes generic and branded:

- Clinical drugs – pharmaceutical products given to (or taken by) a patient with therapeutic or diagnostic intent
- Drug packs – packs that contain multiple drugs, or drugs designed to be administered in a specified sequence

Radiopharmaceuticals, contrast media, food, dietary supplements, and medical devices, such as bandages and crutches, are all out of scope for RxNorm (<http://www.nlm.nih.gov/research/umls/rxnorm/overview.html#>).

*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.

## APPENDICES

### Appendix A

FDA's Proprietary Name Risk Assessment evaluates proposed proprietary names for misbranding and safety concerns.

1. **Misbranding Assessment:** For prescription drug products, OPDP assesses the name for misbranding concerns. For over-the-counter (OTC) drug products, the misbranding assessment of the proposed name is conducted by DNDP. OPDP or DNDP evaluates proposed proprietary names to determine if the name is false or misleading, such as by making misrepresentations with respect to safety or efficacy. For example, a fanciful proprietary name may misbrand a product by suggesting that it has some unique effectiveness or composition when it does not (21 CFR 201.10(c)(3)). OPDP or DNDP provides their opinion to DMEPA for consideration in the overall acceptability of the proposed proprietary name.
2. **Safety Assessment:** The safety assessment is conducted by DMEPA, and includes the following:
  - a. **Preliminary Assessment:** 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.) See prescreening checklist below in Table 2\*. 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. <sup>c</sup>

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

**\*Table 2- Prescreening Checklist for Proposed Proprietary Name**

	Answer the questions in the checklist below. Affirmative answers to any of these questions indicate a potential area of concern that should be carefully evaluated as described in this guidance.
<b>Y/N</b>	<b>Is the proposed name obviously similar in spelling and pronunciation to other names?</b>
	Proprietary names should not be similar in spelling or pronunciation to proprietary names, established names, or ingredients of other products.
<b>Y/N</b>	<b>Are there inert or inactive ingredients referenced in the proprietary name?</b>
	Proprietary names should not incorporate any reference to an inert or inactive ingredient in a way that might create an impression that the ingredient's value is greater than its true functional role in the formulation (21 CFR 201.10(c)(4)).
<b>Y/N</b>	<b>Does the proprietary name include combinations of active ingredients?</b>
	Proprietary names of fixed combination drug products should not include or suggest the name of one or more, but not all, of its active ingredients (see 21 CFR 201.6(b)).
<b>Y/N</b>	<b>Is there a United States Adopted Name (USAN) stem in the proprietary name?</b>
	Proprietary names should not incorporate a USAN stem in the position that USAN designates for the stem.
<b>Y/N</b>	<b>Is this proprietary name used for another product that does not share at least one common active ingredient?</b>
	Drug products that do not contain at least one common active ingredient should not use the same (root) proprietary name.
<b>Y/N</b>	<b>Is this a proprietary name of a discontinued product?</b>
	Proprietary names should not use the proprietary name of a discontinued product if that discontinued drug product does not contain the same active ingredients.

- b. Phonetic and Orthographic Computer Analysis (POCA): Following the preliminary screening of the proposed proprietary name, DMEPA staff evaluates the proposed name against potentially similar names. In order to identify names with potential similarity to the proposed proprietary name, DMEPA enters the proposed proprietary name in POCA and queries the name against the following drug reference databases, Drugs@fda, CernerRxNorm, and names in the review pipeline using a 55% threshold in POCA. DMEPA reviews the combined orthographic and phonetic matches and group the names into one of the following three categories:
- Highly similar pair: combined match percentage score  $\geq 70\%$ .
  - Moderately similar pair: combined match percentage score  $\geq 55\%$  to  $\leq 69\%$ .
  - Low similarity: combined match percentage score  $\leq 54\%$ .

Using the criteria outlined in the check list (Table 3-5) that corresponds to each of the three categories (highly similar pair, moderately similar pair, and low similarity), DMEPA evaluates the name pairs to determine the acceptability or non-acceptability of a proposed proprietary name. The intent of these checklists is to increase the transparency

and predictability of the safety determination of whether a proposed name is vulnerable to confusion from a look-alike or sound-alike perspective. Each bullet below corresponds to the name similarity category cross-references the respective table that addresses criteria that DMEPA uses to determine whether a name presents a safety concern from a look-alike or sound-alike perspective.

- For highly similar names, differences in product characteristics often cannot mitigate the risk of a medication error, including product differences such as strength and dose. Thus, proposed proprietary names that have a combined score of  $\geq 70$  percent are at risk for a look-alike sound-alike confusion which is an area of concern (See Table 3).
- Moderately similar names are further evaluated to identify the presence of attributes that are known to cause name confusion.
  - Name attributes: We note that the beginning of the drug name plays a significant role in contributing to confusion. Additionally, drug name pairs that start with the same first letter and contain a shared letter string of at least 3 letters in both names are major contributing factor in the confusion of drug names<sup>d</sup>. We evaluate all moderately similar names retrieved from POCA to identify the above attributes. These names are further evaluated to identify overlapping or similar strengths or doses.
  - Product attributes: Moderately similar names of products that have overlapping or similar strengths or doses represent an area for concern for FDA. The dose and strength information is often located in close proximity to the drug name itself on prescriptions and medication orders, and the information can be an important factor that either increases or decreases the potential for confusion between similarly named drug pairs. The ability of other product characteristics to mitigate confusion (e.g., route, frequency, dosage form) may be limited when the strength or dose overlaps. DMEPA reviews such names further, to determine whether sufficient differences exist to prevent confusion. (See Table 4).
- Names with low similarity that have no overlap or similarity in strength and dose are generally acceptable (See Table 5) unless there are data to suggest that the name might be vulnerable to confusion (e.g., prescription simulation study suggests that the name is likely to be misinterpreted as a marketed product). In these instances, we would reassign a low similarity name to the moderate similarity category and review according to the moderately similar name pair checklist.

- c. FDA Prescription Simulation Studies: DMEPA staff also conducts a prescription simulation studies using FDA health care professionals.

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

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<sup>d</sup> Shah, M, Merchant, L, Characteristics That May Help in the Identification of Potentially Confusing Proprietary Drug Names. Therapeutic Innovation & Regulatory Science, September 2016

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.

- d. 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.

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.

**Table 3. Highly Similar Name Pair Checklist (i.e., combined Orthographic and Phonetic score is  $\geq 70\%$ ).**

<p>Answer the questions in the checklist below. Affirmative answers to some of these questions suggest that the pattern of orthographic or phonetic differences in the names may render the names less likely to confusion, provided that the pair does not share a common strength or dose.</p>			
<u>Orthographic Checklist</u>		<u>Phonetic Checklist</u>	
<b>Y/N</b>	<p>Do the names begin with different first letters?</p> <p><i>Note that even when names begin with different first letters, certain letters may be confused with each other when scripted.</i></p>	<b>Y/N</b>	<p>Do the names have different number of syllables?</p>
<b>Y/N</b>	<p>Are the lengths of the names dissimilar* when scripted?</p> <p><i>*FDA considers the length of names different if the names differ by two or more letters.</i></p>	<b>Y/N</b>	<p>Do the names have different syllabic stresses?</p>
<b>Y/N</b>	<p>Considering variations in scripting of some letters (such as z and f), is there a different number or placement of upstroke/downstroke letters present in the names?</p>	<b>Y/N</b>	<p>Do the syllables have different phonologic processes, such as vowel reduction, assimilation, or deletion?</p>
<b>Y/N</b>	<p>Is there different number or placement of cross-stroke or dotted letters present in the names?</p>	<b>Y/N</b>	<p>Across a range of dialects, are the names consistently pronounced differently?</p>
<b>Y/N</b>	<p>Do the infixes of the name appear dissimilar when scripted?</p>		
<b>Y/N</b>	<p>Do the suffixes of the names appear dissimilar when scripted?</p>		

**Table 4: Moderately Similar Name Pair Checklist (i.e., combined score is  $\geq 55\%$  to  $\leq 69\%$ ).**

<p>Step 1</p>	<p>Review the DOSAGE AND ADMINISTRATION and HOW SUPPLIED/STORAGE AND HANDLING sections of the prescribing information (or for OTC drugs refer to the Drug Facts label) to determine if strengths and doses of the name pair overlap or are very similar. Different strengths and doses for products whose names are moderately similar may decrease the risk of confusion between the moderately similar name pairs. Name pairs that have overlapping or similar strengths or doses have a higher potential for confusion and should be evaluated further (see Step 2). Because the strength or dose could be used to express an order or prescription for a particular drug product, overlap in one or both of these components would be reason for further evaluation.</p> <p>For single strength products, also consider circumstances where the strength may not be expressed.</p> <p>For any i.e. drug products comprised of more than one active ingredient, consider whether the strength or dose may be expressed using only one of the components.</p> <p>To determine whether the strengths or doses are similar to your proposed product, consider the following list of factors that may increase confusion:</p> <ul style="list-style-type: none"> <li>• Alternative expressions of dose: 5 mL may be listed in the prescribing information, but the dose may be expressed in metric weight (e.g., 500 mg) or in non-metric units (e.g., 1 tsp, 1 tablet/capsule). Similarly, a strength or dose of 1000 mg may be expressed, in practice, as 1 g, or vice versa.</li> <li>• Trailing or deleting zeros: 10 mg is similar in appearance to 100 mg which may potentiate confusion between a name pair with moderate similarity.</li> <li>• Similar sounding doses: 15 mg is similar in sound to 50 mg</li> </ul>
<p>Step 2</p>	<p>Answer the questions in the checklist below. Affirmative answers to some of these questions suggest that the pattern of orthographic or phonetic differences in the names may reduce the likelihood of confusion for moderately similar names <b>with</b> overlapping or similar strengths or doses.</p>

	Orthographic Checklist (Y/N to each question)	Phonetic Checklist (Y/N to each question)
	<ul style="list-style-type: none"> <li>• Do the names begin with different first letters? Note that even when names begin with different first letters, certain letters may be confused with each other when scripted.</li> <li>• Are the lengths of the names dissimilar* when scripted? *FDA considers the length of names different if the names differ by two or more letters.</li> <li>• Considering variations in scripting of some letters (such as <i>z</i> and <i>f</i>), is there a different number or placement of upstroke/downstroke letters present in the names?</li> <li>• Is there different number or placement of cross-stroke or dotted letters present in the names?</li> <li>• Do the infixes of the name appear dissimilar when scripted?</li> <li>• Do the suffixes of the names appear dissimilar when scripted?</li> </ul>	<ul style="list-style-type: none"> <li>• Do the names have different number of syllables?</li> <li>• Do the names have different syllabic stresses?</li> <li>• Do the syllables have different phonologic processes, such as vowel reduction, assimilation, or deletion?</li> <li>• Across a range of dialects, are the names consistently pronounced differently?</li> </ul>

**Table 5: Low Similarity Name Pair Checklist (i.e., combined score is  $\leq 54\%$ ).**

Names with low similarity are generally acceptable unless there are data to suggest that the name might be vulnerable to confusion (e.g., prescription simulation study suggests that the name is likely to be misinterpreted as a marketed product). In these instances, we would reassign a low similarity name to the moderate similarity category and review according to the moderately similar name pair checklist.

### Appendix A1: Description of FAERS

The FDA Adverse Event Reporting System (FAERS) is a database that contains information on adverse event and medication error reports submitted to FDA. The database is designed to support the FDA's postmarket safety surveillance program for drug and therapeutic biologic products. The informatic structure of the FAERS database adheres to the international safety reporting guidance issued by the International Conference on Harmonisation. FDA's Office of Surveillance and Epidemiology codes adverse events and medication errors to terms in the Medical Dictionary for Regulatory Activities (MedDRA) terminology. Product names are coded using the FAERS Product Dictionary. More information about FAERS can be found at:

<http://www.fda.gov/Drugs/GuidanceComplianceRegulatoryInformation/Surveillance/AdverseDrugEffects/default.htm>.

**Appendix B: Prescription Simulation Samples and Results**

**Figure 1. Corlanor Study (Conducted on November 16, 2018)**

Handwritten Medication Order/Prescription	Verbal Prescription				
<p>Medication Order:</p> <table border="1" data-bbox="172 443 1117 526"> <tr> <td data-bbox="172 443 279 526">11/14 DATE</td> <td data-bbox="279 443 375 526">TIME</td> <td data-bbox="375 443 829 526">Corlanor</td> <td data-bbox="829 443 1117 526">(b) (4) PO BID with meals</td> </tr> </table> <p>Outpatient Prescription:</p> <div data-bbox="178 609 1104 1169" style="border: 1px solid black; padding: 10px;"> <p>Patient _____ Date _____            Address _____</p> <p><b>Rx</b> Corlanor 1mg/mL            take 3ml po bid with meals            # 60</p> <p> MEDWATCH            1-800-FDA-1088</p> <p>Refill(s): _____ Dr. <u>DSE</u>            DEA No. _____ Address _____            Telephone _____</p> </div>	11/14 DATE	TIME	Corlanor	(b) (4) PO BID with meals	<p>Corlanor 1 mg/mL            Take 3 mL by mouth twice daily with meals            Dispense number sixty</p>
11/14 DATE	TIME	Corlanor	(b) (4) PO BID with meals		

**FDA Prescription Simulation Responses (Aggregate Report)**

**Study Name: Corlanor**

As of Date 12/18/2018

252 People Received Study  
65 People Responded

Study Name: Corlanor

<b>Total</b>	<b>22</b>	<b>25</b>	<b>18</b>	
<b>INTERPRETATION</b>	<b>OUTPATIENT</b>	<b>VOICE</b>	<b>INPATIENT</b>	<b>TOTAL</b>
CORLANOR	14	5	16	35
CORLANOUR	0	1	0	1
CORLANOV	0	0	2	2
CORLENOR	0	7	0	7
CORLINOR	0	5	0	5
CORLINOR 1 MG/ML	0	1	0	1
CORLINORE	0	1	0	1
CORLYNOR	0	2	0	2
COULANOR	6	0	0	6
COWLANOR	1	0	0	1
COZLANOR	1	0	0	1
KORLANOR	0	2	0	2
KORLONOR	0	1	0	1

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**This is a representation of an electronic record that was signed electronically. Following this are manifestations of any and all electronic signatures for this electronic record.**  
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/s/  
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SARAH E THOMAS  
01/15/2019 10:38:02 AM

CHI-MING TU  
01/15/2019 11:07:29 AM