

**CENTER FOR DRUG EVALUATION AND
RESEARCH**

APPLICATION NUMBER:

214520Orig1s000

PROPRIETARY NAME REVIEW(S)

PROPRIETARY NAME REVIEW

Division of Medication Error Prevention and Analysis 1 (DMEPA 1)
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*****

Date of This Review:	October 12, 2023
Application Type and Number:	NDA 214520
Product Name and Strength:	Defencath (taurolidine and heparin catheter lock solution) ^a , 40.5 mg/3 mL and 3,000 USP Units/3 mL (13.5 mg/mL and 1,000 USP Units/mL) 67.5 mg/5 mL and 5,000 USP Units/5 mL (13.5 mg/mL and 1,000 USP Units/mL) ^b
Product Type:	Multiple Ingredient Product
Rx or OTC:	Prescription (Rx)
Applicant/Sponsor Name:	CorMedix, Inc. (CorMedix)
PNR ID #:	2023-1044725268
DMEPA 1 Safety Evaluator:	Deborah Myers, RPh, MBA
DMEPA 1 Team Leader:	Valerie S. Vaughan, PharmD
DMEPA 1 Director:	Mishale Mistry, PharmD, MPH

^a Applicant provided the established name as “taurolidine and heparin catheter lock solution.” The Office of Pharmaceutical Quality (OPQ) will make a final determination of the established name during the NDA review.

^b Applicant provided the strength presentations as “taurolidine 40.5 mg/3 mL (13.5 mg/mL) and heparin 3,000 USP Units/3 mL (1,000 USP Units/mL)” and “taurolidine 67.5 mg/5 mL (13.5 mg/mL) and heparin 5,000 USP Units/5 mL (1,000 USP Units/mL).” OPQ will make a final determination of the strength presentation during the NDA review.

Contents

1	INTRODUCTION	1
1.1	Regulatory History.....	1
1.2	Product Information.....	3
2	RESULTS.....	4
2.1	Misbranding Assessment	4
2.2	Safety Assessment	4
3	CONCLUSION	7
3.1	Comments to CorMedix, Inc.	7
4	REFERENCES	8
	APPENDICES	9

1 INTRODUCTION

This review evaluates the proposed proprietary name, Defencath, 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. CorMedix submitted an external name study, conducted by (b) (4), for this proposed proprietary name. The submitted external name study was previously review under NDA 214520 (see Section 1.1 below).

1.1 REGULATORY HISTORY

On September 3, 2019, CorMedix submitted the proposed proprietary name, (b) (4)***. However, this name was found unacceptable due to misbranding concerns, under IND 113764 on October 23, 2019.^c

On December 30, 2019, CorMedix submitted the proposed proprietary name, Defencath***. We found the name, Defencath***, conditionally acceptable under IND 113764 and NDA 214520, respectively, on April 8, 2020^d and August 24, 2020.^e

On February 26, 2021, the Agency issued a Complete Response Letter (CRL) to CorMedix.^f

On February 25, 2022, CorMedix submitted their Class 2 Resubmission to provide their response to the CRL,^g including their request for review of the proposed proprietary name, Defencath***.^h Additionally, on March 3, 2022, CorMedix submitted an amendment to their Request for

^c Myers, D. Proprietary Name Review for (b) (4) (IND 113764). Silver Spring (MD): FDA, CDER, OSE, DMEPA (US); 2019 OCT 23. Panorama No. 2019-34202752.

^d Myers, D. Proprietary Name Review for Defencath (IND 113764). Silver Spring (MD): FDA, CDER, OSE, DMEPA (US); 2020 APR 08. Panorama No. 2019-36852933.

^e Myers, D. Proprietary Name Review Memorandum for Defencath (NDA 214520). Silver Spring (MD): FDA, CDER, OSE, DMEPA (US); 2020 AUG 24. Panorama No. 2020-41280800.

^f Park, K. Communication: Complete Response Letter for Defencath (taurolidine 67.5 mg/5 mL (13.5 mg/mL) and heparin 5,000 USP Units/5 mL (1,000 Units/mL)) catheter lock solution. Silver Spring (MD): FDA, CDER, OND, OAP, DAI (US); 2021 FEB 26. NDA 213645. Available from: <https://darrrts.fda.gov/darrrts/faces/ViewDocument?documentId=090140af805d5c41>.

^g Resubmission – Response to Complete Response Letter for Defencath (taurolidine and heparin) catheter lock solution (NDA 213645). Berkeley Heights (NJ): CorMedix, Inc.; 2022 FEB 25. Available from: <\\CDSESUB1\evsprod\nda214520\0120\m1\us\11iaincum\4mmia\1114-crl-response-final.pdf>.

^h Resubmission – Request for Proprietary Name Review for Defencath (taurolidine and heparin) catheter lock solution (NDA 213645). Berkeley Heights (NJ): CorMedix, Inc.; 2022 FEB 25. Available from: <\\CDSESUB1\evsprod\nda214520\0120\m1\us\18pn\118-nda-214520-proprietary.pdf>.

Proprietary Name Reviewⁱ to update their FDA Form 356h to be consistent with the Agency's guidance in the email dated March 2, 2022.^j

On June 23, 2022, we found the proposed proprietary name, Defencath***, unacceptable under NDA 214520, due to confusion with another product that is also under review.^k

On August 4, 2022, the Agency issued a CRL to CorMedix.^l

On August 5, 2022, CorMedix submitted the proposed proprietary name, (b) (4)***, for review under NDA 214520.^m Subsequently, on August 22, 2022, CorMedix submitted a Proprietary Name Withdraw Request for the proposed proprietary name, (b) (4)***, under NDA 214520.ⁿ

On August 23, 2022, CorMedix submitted the proposed proprietary name, (b) (4)***, for review under IND 113764.^o

On December 9, 2022, we found the proposed proprietary name, (b) (4)***, unacceptable under IND 113764, because it overstates the efficacy of the drug.^p

Subsequently, on April 12, 2023, CorMedix submitted the name, (b) (4)***, for review under IND 113764.^q However, CorMedix notes in this submission that Defencath*** remains their first choice and preferred proprietary name.

ⁱ Cover Letter: Amendment to Request for Proprietary Name Review for Defencath (taurolidine and heparin) catheter lock solution (NDA 214520). Berkeley Heights (NJ): CorMedix, Inc.; 2022 MAR 03. Available from: [\\CDSESUB1\evspod\nda214520\0121\m1\us\2cover\12-cover-letter-proprietary.pdf](https://cdsesub1.evspod\nda214520\0121\m1\us\2cover\12-cover-letter-proprietary.pdf).

^j Chung, A. Communication: Proprietary Name Information Request Taurolidine and Heparin Catheter Lock Solution. Silver Spring (MD): FDA, CDER, OSE (US); 2022 MAR 02. NDA 214520. Available from: <https://darrrts.fda.gov/darrrts/faces/ViewDocument?documentId=090140af8064b063>.

^k Myers, D. Proprietary Name Review for Defencath (NDA 214520). Silver Spring (MD): FDA, CDER, OSE, DMEPA 1 (US); 2022 JUN 23. PNR ID No. 2022-1044724467.

^l Park, K. Communication: Complete Response Letter for taurolidine 67.5 mg/5 mL (13.5 mg/mL) and heparin 5,000 USP Units/5 mL (1,000 Units/mL) catheter lock solution. Silver Spring (MD): FDA, CDER, OSE, OAP, DAI (US); 2022 AUG 22. NDA 214520. Available from: <https://darrrts.fda.gov/darrrts/faces/ViewDocument?documentId=090140af80679c63>.

^m Cover Letter: Request for Proprietary Name Review for (b) (4) (taurolidine and heparin) catheter lock solution (NDA 214520). Berkeley Heights (NJ): CorMedix, Inc.; 2022 AUG 05. Available from: [\\CDSESUB1\EVSPROD\nda214520\0128\m1\us\2cover\12-cover-letter-proprietary.pdf](https://cdsesub1.evspod\nda214520\0128\m1\us\2cover\12-cover-letter-proprietary.pdf).

ⁿ Cover Letter: Proprietary Name Withdrawal Request for (b) (4) (taurolidine and heparin) catheter lock solution (NDA 214520). Berkeley Heights (NJ): CorMedix, Inc.; 2022 AUG 22. Available from: [\\CDSESUB1\EVSPROD\nda214520\0129\m1\us\2cover\12-cover-letter-proprietary.pdf](https://cdsesub1.evspod\nda214520\0129\m1\us\2cover\12-cover-letter-proprietary.pdf).

^o Cover Letter: Request for Proprietary Name Review for (b) (4) (taurolidine and heparin) catheter lock solution (IND 113764). Berkeley Heights (NJ): CorMedix, Inc.; 2022 AUG 23. Available from: [\\CDSESUB1\EVSPROD\ind113764\0130\m1\us\2cover\12-cover-letter-ind-113764.pdf](https://cdsesub1.evspod\ind113764\0130\m1\us\2cover\12-cover-letter-ind-113764.pdf).

^p Mena-Grillasca, C. Proprietary Name Review for (b) (4) (IND 113764). Silver Spring (MD): FDA, CDER, OSE, DMEPA 1 (US); 2022 DEC 09. PNR ID No. 2022-1044724718.

^q Cover Letter: Request for Proprietary Name Review for (b) (4) (taurolidine and heparin) catheter lock solution (IND 113764). Berkeley Heights (NJ): CorMedix, Inc.; 2023 APR 12. Available from: [\\CDSESUB1\EVSPROD\ind113764\0133\m1\us\2cover\12-cover-letter-proprietary.pdf](https://cdsesub1.evspod\ind113764\0133\m1\us\2cover\12-cover-letter-proprietary.pdf).

On May 15, 2023, CorMedix submitted their Resubmission^r to provide their responses to the deficiencies included in the August 4, 2022, CRL.^s

On July 6, 2023 a teleconference was held between the Agency and CorMedix to provide clarification to the Sponsor's inquiries regarding their proprietary name request submission for IND 113764 and NDA 214520.^t After which, CorMedix expressed understanding of DMEPA concerns and regulatory options. As such, they stated their plan to submit a request for proprietary name review for Defencath to NDA 214520 and withdraw proprietary name submission for (b) (4) *** from IND 113764.

Thus, on July 20, 2023, CorMedix submitted a Proprietary Name Withdraw Request for the proposed proprietary name, (b) (4) ***, under IND 113764.^u

Subsequently, on July 31, 2023, CorMedix submitted their proposed proprietary name, Defencath***, for review under NDA 214520, which is the subject of this review.^v

1.2 PRODUCT INFORMATION

The following product information is provided in the proprietary name submission received on July 31, 2023.

- Intended Pronunciation: de fen' kath
- Active Ingredient: taurolidine and heparin
- Indication of Use: To reduce the incidence of catheter-related bloodstream infections (CRBSIs) in patients with kidney failure receiving chronic hemodialysis (HD) through a central venous catheter (CVC). This drug is indicated for use in a limited and specific population of patients.
- Route of Administration: for central venous catheter installation use (not intended to be systemically administered to the patient)
- Dosage Form: catheter lock solution (CLS)

^r Cover Letter: NDA 214520: Resubmission for taurolidine and heparin catheter lock solution (NDA 214520). Berkeley Heights (NJ): CorMedix, Inc.; 2023 MAY 15. Available from: <\\CDSESUB1\EVSPROD\nda214520\0136\m1\us\2cover\12-cover-letter-resubmissi.pdf>.

^s Park, K. Communication: Complete Response Letter for taurolidine 67.5 mg/5 mL (13.5 mg/mL) and heparin 5,000 USP Units/5 mL (1,000 Units/mL) catheter lock solution. Silver Spring (MD): FDA, CDER, OND, OAP, DAI (US); 2022 AUG 04. NDA 214520. Available from: <https://darrrts.fda.gov/darrrts/faces/ViewDocument?documentId=090140af80679c63>.

^t Chung, A. Advice: Memorandum of Teleconference for taurolidine and heparin catheter lock solution (IND 113764 and NDA 214520). Silver Spring (MD): FDA, CDER, OSE (US); 2023 JUL 06. IND 113764 and NDA 214520. Available from: <https://darrrts.fda.gov/darrrts/faces/ViewDocument?documentId=090140af806dc7a3>.

^u Cover Letter: Proprietary Name Withdrawal Request for (b) (4) *** (taurolidine and heparin catheter lock solution) (IND 113764). Berkeley Heights (NJ): CorMedix, Inc.; 2023 JUL 20. Available from: <\\CDSESUB1\EVSPROD\ind113764\0142\m1\us\2cover\12-cover-letter-proprietary.pdf>.

^v Cover Letter: Request for Proprietary Name Review for Defencath (taurolidine and heparin catheter lock solution) (NDA 214520). Berkeley Heights (NJ): CorMedix, Inc.; 2023 JUL 31. Available from: <\\CDSESUB1\EVSPROD\nda214520\0143\m1\us\2cover\12-cover-letter-proprietary.pdf>.

- Strength:
40.5 mg/3 mL (13.5 mg/mL) and 3,000 USP Units/3 mL (1,000 USP Units/mL)
67.5 mg/5 mL (13.5 mg/mL) and 5,000 USP Units/5 mL (1,000 USP Units/mL)
- Dose and Frequency: After treatment is rendered, the catheter is filled with Defencath and locked – prior to initiation of the next treatment, the product is aspirated out of the catheter and discarded.

To be instilled into the catheter lumen as a lock solution at the conclusion of each dialysis session. Prior to initiation of the next treatment, the product is aspirated from the catheter and discarded. The product is not intended to be systematically administered to patient.
- How Supplied:
3 mL single-dose vial carton containing 10 vials
5 mL single-dose vial carton containing 10 vials
- Storage: Vials must be stored at a controlled room temperature of 20°C to 25°C (68°F to 77°F).

2 RESULTS

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

2.1 MISBRANDING ASSESSMENT

The Office of Prescription Drug Promotion (OPDP) determined that Defencath would not misbrand the proposed product. The Division of Medication Error Prevention and Analysis 1 (DMEPA 1) concurred with the findings of OPDP’s assessment for Defencath. The Division of Anti-Infectives (DAI) concurred with the findings of OPDP’s assessment for Defencath.

2.2 SAFETY ASSESSMENT

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

2.2.1 *United States Adopted Names (USAN) Search*

The proposed proprietary name, Defencath, contains the United States Adopted Name (USAN) stem ‘-ef-’ in the infix position of the name. The USAN stem ‘-ef-’ is used by the USAN Council to indicate Fc fusion protein containing products.^w Proprietary names should not incorporate USAN stems in the position that USAN designates for the stem. The use of a USAN stem within proprietary names, even when used consistently with the USAN meaning, can result in multiple similar proprietary names and proprietary names that are similar to established names, thus increasing the chance of confusion among those drugs, which may compromise patient safety. To reduce the potential for confusion, USAN stems should not be incorporated into proprietary names.

^w USAN stem search conducted on August 1, 2023.

However, we determined that the two-letter stem ‘-ef-’ is often not distinct enough to be recognized as an USAN stem. We also note that USAN has used the stem ‘-ef-’ in established names (e.g., cefaclor, cefdinir, deferasirox, deflazacort, mefloquine, nefazodone, etc.) as well as in other USAN stems (e.g., cef- and -kef-). This has resulted in conflicting stems, and therefore in those instances, the stem does not support the USAN Council naming system or accurately indicate the pharmacological or chemical trait of the drug. Additionally, based on our post marketing experience, we do not have the same safety concerns with the two-letter stems, including ‘-ef-’, that we have identified with three or more letter USAN stems. ,

Therefore, we do not object to the proposed proprietary name based on the presence of a USAN stem in this instance.

2.2.2 Components of the Proposed Proprietary Name

CorMedix did not provide a derivation or intended meaning for the proposed proprietary name, Defencath, in their submission. This proprietary name is comprised of a single word. We note that the proposed name, Defencath, contains the letter string “-cath,” which is an abbreviation for “catheter.” Additionally, we note that “cath” or “catheter” is consistent with the proposed route of administration (for central venous catheter installation use (not intended to be systemically administered to the patient)) and proposed indication (reduce the incidence of catheter-related bloodstream infections in patients with kidney failure receiving chronic hemodialysis through a central venous catheter). Thus, we find the proposed inclusion of “cath” acceptable from a medication error perspective. Additionally, we then considered that there are multiple types of IV catheters (e.g., PVC, CVC, PICC) based on location of placement. However, any residual risks of confusion between the multiple types of IV catheters can be managed with labeling mitigation strategies that will be conveyed in our Label and Labeling review.

Additionally, we considered if the abbreviation, “cath,” located in the suffix could result in name confusion if it were to be inadvertently interpreted as the route of administration or as part of the prescription directions, separate from the proposed proprietary name, Defencath (e.g., user interprets order as Defen cath). Currently, there is no product marketed under the proprietary name, “Defen,” or beginning with the letter string, “defen.” Additionally, we note that the abbreviation, “cath,” exists in the marketed name, Cathflo Activase, which is available as for injection for use in central venous access devices, and we are not aware of any medication error reports of misinterpretation of the letter string, “cath,” as the route of administration or as part of the prescription directions to date.

Thus, in this case we do not object to the inclusion of the letter string, “cath,” in the suffix of the proposed proprietary name.

Beyond this aforementioned abbreviation, “cath,” we note that Defencath does not contain any components (i.e., a modifier, route of administration, dosage form, etc.) that can contribute to medication error.

2.2.3 Comments from Other Review Disciplines at Initial Review

On August 29, 2023, the Division of Anti-Infectives (DAI) did not forward any comments or concerns relating to Defencath at the initial phase of the review.

2.2.4 FDA Name Simulation Studies

Seventy-two practitioners participated in DMEPA's prescription studies for Defencath. 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 prescription simulation studies.

2.2.5 Phonetic and Orthographic Computer Analysis (POCA) Search Results

Our POCA search^x identified 197 names with the combined score of $\geq 55\%$ or individual orthographic or phonetic score of $\geq 70\%$. We had identified and evaluated some of the names in our previous proprietary name review. We re-evaluated the previously identified names of concern considering any lessons learned from recent post-marketing experience, which may have altered our previous conclusion regarding the acceptability of the name.

Additionally, we note a change in product characteristics since our previous proprietary name review. Specifically, the Applicant proposes to add a "40.5 mg/3 mL (13.5 mg/mL) and 3,000 USP Units/3 mL (1,000 USP Units/mL)" strength. We note the concentration is the same as the 5 mL vial previously proposed. Additionally, for the 5 mL vial, the manner in which the product strength is expressed has changed from "1.35%/1,000 units/mL (1.35%/5,000 units per 5 mL vial)" to "67.5 mg/5 mL (13.5 mg/mL) and 5,000 USP Units/5mL (1,000 USP Units/mL)." Thus, we also re-evaluated the previously identified names taking into account the new proposed 3 mL strength *and* the new manner in which the product strength is expressed. We agree with the findings from our previous review for all but one of the names evaluated previously,

(b) (4) ***.

The proposed proprietary name, (b) (4) was previously found to be vulnerable to medication errors with Defencath due to phonetic similarity and overlapping product characteristics.^{y,z} However, when we re-evaluated the status of the application of the proposed proprietary name, (b) (4) ***, we note the Applicant submitted an alternate proposed proprietary name, (b) (4) ***, which was found conditionally acceptable on March 23, 2023.^{aa} Subsequently, the Applicant indicated that their preferred proposed proprietary name was (b) (4) ***. Thus, we consider that the proposed proprietary name, (b) (4) ***, is no longer a name of concern or in conflict with the proposed proprietary name, Defencath (see Appendix G).

Additionally, we identified four names not previously analyzed. These names are included in Table 1 below.

^x POCA search conducted on August 1, 2023 in version 5.2.

^y (b) (4)

^z Myers, D. Proprietary Name Review for Defencath (NDA 214520). Silver Spring (MD): FDA, CDER, OSE, DMEPA 1 (US); 2022 JUN 23. PNR ID No. 2022-1044724467.

^{aa} (b) (4)

2.2.6 Names Retrieved for Review Organized by Name Pair Similarity

Table 1 lists the number of names retrieved from our POCA search and a previous proposed proprietary name of conflict. These name pairs are organized as highly similar, moderately similar or low similarity for further evaluation.

Table 1. Names Retrieved for Review Organized by Name Pair Similarity	
Similarity Category	Number of Names
Highly similar name pair: combined match percentage score $\geq 70\%$	0
Moderately similar name pair: combined match percentage score $\geq 55\%$ to $\leq 69\%$	5
Low similarity name pair: combined match percentage score $\leq 54\%$	0

2.2.7 Safety Analysis of Names with Potential Orthographic, Spelling, and Phonetic Similarities

Our analysis of the five names contained in Table 1 determined none of the names will pose a risk for confusion with Defencath as described in Appendices C through H.

2.2.8 Communication of DMEPA's Determination

On October 12, 2023, DMEPA 1 communicated our determination to the Division of Anti-Infectives (DAI).

3 CONCLUSION

The proposed proprietary name, Defencath, is conditionally acceptable.

If you have any questions or need clarifications, please contact Amy Chung, OSE project manager, at 240-402-4547.

3.1 COMMENTS TO CORMEDIX, INC.

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

If any of the proposed product characteristics as stated in your submission, received on July 31, 2023, 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).

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.^{bb}

^{bb} National Coordinating Council for Medication Error Reporting and Prevention. <https://www.nccmerp.org/about-medication-errors> Last accessed 10/05/2020.

***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.
Y/N	Is the proposed name obviously similar in spelling and pronunciation to other names?
	Proprietary names should not be similar in spelling or pronunciation to proprietary names, established names, or ingredients of other products.
Y/N	Are there inert or inactive ingredients referenced in the proprietary name?
	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)).
Y/N	Does the proprietary name include combinations of active ingredients?
	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)).
Y/N	Is there a United States Adopted Name (USAN) stem in the proprietary name?
	Proprietary names should not incorporate a USAN stem in the position that USAN designates for the stem.
Y/N	Is this proprietary name used for another product that does not share at least one common active ingredient?
	Drug products that do not contain at least one common active ingredient should not use the same (root) proprietary name.
Y/N	Is this a proprietary name of a discontinued product?
	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, Cerner RxNorm, 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 ≥ 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^{cc}. 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.

^{cc} Shah, M, Merchant, L, Characteristics That May Help in the Identification of Potentially Confusing Proprietary Drug Names. Therapeutic Innovation & Regulatory Science, September 2016

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

Four 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, verbal pronunciation of the drug name or during computerized provider order entry. 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 vulnerability of the proposed name to be misinterpreted by healthcare practitioners during written, verbal, or electronic prescribing.

In order to evaluate the potential for misinterpretation of the proposed proprietary name during written, verbal, or electronic prescribing of the name, written inpatient medication orders, written outpatient prescriptions, verbal orders, and electronic orders are simulated, each consisting of a combination of marketed and unapproved drug products, including the proposed name.

- 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.

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 $\geq 70\%$).

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.			
<u>Orthographic Checklist</u>		<u>Phonetic Checklist</u>	
Y/N	Do the names begin with different first letters? <i>Note that even when names begin with different first letters, certain letters may be confused with each other when scripted.</i>	Y/N	Do the names have different number of syllables?
Y/N	Are the lengths of the names dissimilar* when scripted? <i>*FDA considers the length of names different if the names differ by two or more letters.</i>	Y/N	Do the names have different syllabic stresses?
Y/N	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?	Y/N	Do the syllables have different phonologic processes, such as vowel reduction, assimilation, or deletion?
Y/N	Is there different number or placement of cross-stroke or dotted letters present in the names?	Y/N	Across a range of dialects, are the names consistently pronounced differently?
Y/N	Do the infixes of the name appear dissimilar when scripted?		
Y/N	Do the suffixes of the names appear dissimilar when scripted?		

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

Step 1	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. For single strength products, also consider circumstances where the strength may not be expressed. 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. To determine whether the strengths or doses are similar to your proposed product, consider the following list of factors that may increase confusion: • 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. • Trailing or deleting zeros: 10 mg is similar in appearance to 100 mg which may potentiate confusion between a name pair with moderate similarity. • Similar sounding doses: 15 mg is similar in sound to 50 mg
Step 2	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 <u>with</u> overlapping or similar strengths or doses.

	Orthographic Checklist (Y/N to each question) - 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. - 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. - 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? - Is there different number or placement of cross-stroke or dotted letters present in the names? - Do the infixes of the name appear dissimilar when scripted? - Do the suffixes of the names appear dissimilar when scripted?	Phonetic Checklist (Y/N to each question) - Do the names have different number of syllables? - Do the names have different syllabic stresses? - Do the syllables have different phonologic processes, such vowel reduction, assimilation, or deletion? - Across a range of dialects, are the names consistently pronounced differently?
--	--	---

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 B: Prescription Simulation Samples and Results

Figure 1. Defencath Study (Conducted on August 8, 2023)

Handwritten Medication Order/Prescription	Verbal Prescription
Medication Order: <i>Defencath Instill 5ml into CVC lumen as a lock</i> <i>solution at the conclusion of dialysis session</i>	Defencath Take to dialysis center. Dispense one 3 mL vial
Outpatient Prescription: <i>Defencath</i> <i>Take to dialysis center</i> <i>#1 3ml vial</i>	
CPOE Study Sample (displayed as sans-serif, 12-point, bold font)	
Defencath	

FDA Prescription Simulation Responses (Aggregate Report)

Study Name: Defencath

People Received Study: 253

People Responded: 72

Total	23	17	17	15	72
INTERPRETATION	INPATIENT	OUTPATIENT	VOICE	CPOE	TOTAL
DEFENCAF	0	0	1	0	1
DEFENCAMP	0	0	1	0	1
DEFENCAN	0	0	1	0	1
DEFENCAP	0	0	1	0	1
DEFENCATH	16	17	3	15	51
DEFFINGHALF	0	0	1	0	1
DEFINCAF	0	0	2	0	2
DEFINCAP	0	0	1	0	1
DEFINCATH	2	0	2	0	4
DEFINICAF	0	0	1	0	1

DEJEMCATH	1	0	0	0	1
DEPHINPATH	0	0	1	0	1
DETHANTHCATH	0	0	1	0	1
DEVENCAT	0	0	1	0	1
ILFINEATH	1	0	0	0	1
TEFENCATH	2	0	0	0	2
TEFIUCATH	1	0	0	0	1

Appendix C: Highly Similar Names (e.g., combined POCA score is $\geq 70\%$)

No.	Proposed name: Defencath Established name: taurolidine and heparin catheter lock solution Dosage form: catheter lock solution (CLS) Strength(s): 40.5 mg/3 mL and 3,000 USP Units/3 mL 67.5 mg/5 mL and 5,000 USP Units/5mL (13.5 mg/mL and 1,000 USP Units/mL) Usual Dose: After treatment is rendered, the catheter is filled with Defencath and locked – prior to initiation of the next treatment, the product is aspirated out of the catheter and discarded.	POCA Score (%)	Orthographic and/or phonetic differences in the names sufficient to prevent confusion Other prevention of failure mode expected to minimize the risk of confusion between these two names.
1.	N/A		

Appendix D: Moderately Similar Names (e.g., combined POCA score is $\geq 55\%$ to $\leq 69\%$) with no overlap or numerical similarity in Strength and/or Dose

No.	Name	POCA Score (%)
1.	N/A	

Appendix E: Moderately Similar Names (e.g., combined POCA score is $\geq 55\%$ to $\leq 69\%$) with overlap or numerical similarity in Strength and/or Dose

No.	Proposed name: Defencath Established name: taurolidine and heparin catheter lock solution Dosage form: catheter lock solution (CLS) Strength(s): 40.5 mg/3 mL and 3,000 USP Units/3 mL 67.5 mg/5 mL and 5,000 USP Units/5mL (13.5 mg/mL and 1,000 USP Units/mL) Usual Dose: After treatment is rendered, the catheter is filled with Defencath and locked – prior to initiation of the next treatment, the product is aspirated out of the catheter and discarded.	POCA Score (%)	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
1.	(b) (4) ***	58	This name pair has sufficient orthographic and phonetic differences.
2.	Tofidence***	56	This name pair has sufficient orthographic and phonetic differences.
3.	Zymfentra***	56	This name pair has sufficient orthographic and phonetic differences.

Appendix F: Low Similarity Names (e.g., combined POCA score is $\leq 54\%$)

No.	Name	POCA Score (%)
1.	N/A	

Appendix G: Names not likely to be confused or not used in usual practice settings for the reasons described.

No.	Name	POCA Score (%)	Failure preventions
1.	(b) (4) ***	75	Proposed proprietary name for IND (b) (4) found unacceptable by DMEPA (b) (4)) due to conflict with the pending name Defencath, the subject of this review. Subsequently, the proposed proprietary name (b) (4) *** was found conditionally acceptable for BLA (b) (4) (b) (4)). The Applicant indicated that their preferred name is (b) (4) ***. BLA (b) (4) was issued a Complete Response on (b) (4) .
2.	Bexacat	60	Veterinary product.

Appendix H: Names not likely to be confused due to absence of attributes that are known to cause name confusion^{dd}.

No.	Name	POCA Score (%)
1.	N/A	

^{dd} Shah, M, Merchant, L, Chan, I, and Taylor, K. Characteristics That May Help in the Identification of Potentially Confusing Proprietary Drug Names. Therapeutic Innovation & Regulatory Science, September 2016

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.

/s/

DEBORAH E MYERS
10/12/2023 04:33:06 PM

VALERIE S VAUGHAN
10/12/2023 04:47:29 PM

MISHALE P MISTRY
10/13/2023 08:58:39 AM

PROPRIETARY NAME REVIEW

Division of Medication Error Prevention and Analysis 1 (DMEPA 1)
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*****

Date of This Review:	June 23, 2022
Application Type and Number:	NDA 214520
Product Name and Strength:	Defencath (taurolidine and heparin) catheter lock solution, ^a 1.35%/1,000 units/mL ^b
Total Product Strength:	1.35%/5,000 units per 5 mL vial
Product Type:	Multiple Ingredient Product
Rx or OTC:	Prescription (Rx)
Applicant/Sponsor Name:	CorMedix, Inc. (CorMedix)
PNR ID #:	2022-1044724467
DMEPA 1 Safety Evaluator:	Deborah Myers, RPh, MBA
DMEPA 1 Team Leader:	Valerie S. Vaughan, PharmD
DMEPA 1 Associate Director for Nomenclature and Labeling:	Mishale Mistry, PharmD, MPH

^a Applicant provided the dosage form as “catheter lock solution.” The Office of Pharmaceutical Quality will make a final determination of the dosage form during the NDA review.

^b Applicant provided the strength presentation as “taurolidine 1.35% and heparin 5,000 units/5 mL (1,000 units/mL).” The Office of Pharmaceutical Quality will make a final determination of the strength presentation during the NDA review.

Contents

1	INTRODUCTION	1
1.1	Regulatory History.....	1
1.2	Product Information.....	2
2	RESULTS.....	2
2.1	Misbranding Assessment	2
2.2	Safety Assessment	3
3	CONCLUSION	7
3.1	Comments to CorMedix, Inc.	7
4	REFERENCES	9
	APPENDICES	10

1 INTRODUCTION

This review evaluates the proposed proprietary name, Defencath, 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. CorMedix submitted an external name study, conducted by (b) (4), for this proposed proprietary name. The submitted external name study was previously reviewed under IND 113764 (see Section 1.1 below).

1.1 REGULATORY HISTORY

CorMedix previously submitted the proposed proprietary name, (b) (4) *** on September 3, 2019. However, this name was found unacceptable due to misbranding concerns, under IND 113764 on October 23, 2019.^c

Subsequently, CorMedix submitted the proposed proprietary name, Defencath, on December 30, 2019. We found the name, Defencath, conditionally acceptable under IND 113764 and NDA 214520, respectively, on April 8, 2020^d and August 24, 2020.^e

On February 26, 2021, the Agency issued a Complete Response Letter (CRL) to CorMedix.^f

Subsequently, on February 25, 2022, CorMedix submitted their Class 2 Resubmission to provide their response to the CRL,^g including their request for review of the proposed proprietary name, Defencath.^h Additionally, on March 3, 2022, CorMedix submitted an amendment to their Request for Proprietary Name Reviewⁱ to update their FDA Form 356h to be consistent with the Agency's guidance in the email dated March 2, 2022.^j

^c Myers, D. Proprietary Name Review for (b) (4) (IND 113764). Silver Spring (MD): FDA, CDER, OSE, DMEPA (US); 2019 OCT 23. Panorama No. 2019-34202752.

^d Myers, D. Proprietary Name Review for Defencath (IND 113764). Silver Spring (MD): FDA, CDER, OSE, DMEPA (US); 2020 APR 08. Panorama No. 2019-36852933.

^e Myers, D. Proprietary Name Review Memorandum for Defencath (NDA 214520). Silver Spring (MD): FDA, CDER, OSE, DMEPA (US); 2020 AUG 24. Panorama No. 2020-41280800.

^f Park, K. Communication: Complete Response Letter for Defencath (taurolidine 67.5 mg/5 mL (13.5 mg/mL) and heparin 5,000 USP Units/5 mL (1,000 Units/mL)) catheter lock solution. Silver Spring (MD): FDA, CDER, OSE, OAP, DAI (US); 2021 FEB 26. NDA 213645. Available from: <https://darrrts.fda.gov/darrrts/faces/ViewDocument?documentId=090140af805d5c41>.

^g Resubmission – Response to Complete Response Letter for Defencath (taurolidine and heparin) catheter lock solution (NDA 213645). Berkeley Heights (NJ): CorMedix, Inc.; 2022 FEB 25. Available from: <\\CDSESUB1\evsprod\nda214520\0120\m1\us\11iaincum\4mmia\1114-crl-response-final.pdf>.

^h Resubmission – Request for Proprietary Name Review for Defencath (taurolidine and heparin) catheter lock solution (NDA 213645). Berkeley Heights (NJ): CorMedix, Inc.; 2022 FEB 25. Available from: <\\CDSESUB1\evsprod\nda214520\0120\m1\us\18pn\118-nda-214520-proprietary.pdf>.

ⁱ Cover Letter: Amendment to Request for Proprietary Name Review for Defencath (taurolidine and heparin) catheter lock solution (NDA 213645). Berkeley Heights (NJ): CorMedix, Inc.; 2022 MAR 03. Available from: <\\CDSESUB1\evsprod\nda214520\0121\m1\us\2cover\12-cover-letter-proprietary.pdf>.

1.2 PRODUCT INFORMATION

The following product information is provided in the proprietary name submission received on February 25, 2022.

- Intended Pronunciation: de fen' kath
- Active Ingredient: taurolidine and heparin
- Indication of Use: Reduce the incidence of catheter-related bloodstream infections (CRBSIs) in patients with kidney failure receiving chronic hemodialysis (HD) through a central venous catheter (CVC).
- Route of Administration: for central venous catheter installation use (not intended to be systemically administered to the patient)
- Dosage Form: catheter lock solution
- Strength: 1.35%/1,000 units/mL (1.35%/5,000 units per 5 mL vial)
- Dose and Frequency: After treatment is rendered, the catheter is filled with 3-5 mL (depending on the volume of the CVC lumen) and locked – prior to initiation of the next treatment, the product is aspirated out of the catheter and discarded.

To be instilled into the catheter lumen as a lock solution at the conclusion of each dialysis session. Prior to initiation of the next treatment, the product is aspirated from the catheter and discarded. The product is not intended to be systematically administered to patient.

- How Supplied: 5 mL fill in a 6 mL vial. Number of vials per pack to be determined.
- Storage: Vials must be stored at a controlled room temperature of (b)(4)-25 degrees Celsius (68-77 degrees Fahrenheit).

2 RESULTS

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

2.1 MISBRANDING ASSESSMENT

The Office of Prescription Drug Promotion (OPDP) determined that Defencath would not misbrand the proposed product. The Division of Medication Error Prevention and Analysis 1 (DMEPA 1) and the Division of Anti-Infectives (DAI) concurred with the findings of OPDP's assessment for Defencath.

2.2 SAFETY ASSESSMENT

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

^j Chung, A. Communication: Proprietary Name Information Request Taurolidine and Heparin Catheter Lock Solution. Silver Spring (MD): FDA, CDER, OSE (US); 2022 MAR 02. NDA 213645. Available from: <https://darrrts.fda.gov/darrrts/faces/ViewDocument?documentId=090140af8064b063>.

2.2.1 United States Adopted Names (USAN) Search

The proposed proprietary name, Defencath, contains the United States Adopted Name (USAN) stem ‘-ef-’ in the infix position of the name. The USAN stem ‘-ef-’ is used by the USAN Council to indicate Fc fusion protein containing products.^k Proprietary names should not incorporate USAN stems in the position that USAN designates for the stem.^l The use of a USAN stem within proprietary names, even when used consistently with the USAN meaning, can result in multiple similar proprietary names and proprietary names that are similar to established names, thus increasing the chance of confusion among those drugs, which may compromise patient safety. To reduce the potential for confusion, USAN stems should not be incorporated into proprietary names.

However, we determined that the two-letter stem ‘-ef-’ is often not distinct enough to be recognized as an USAN stem. We also note that USAN has used the stem ‘-ef-’ in established names (e.g., cefaclor, cefdinir, deferasirox, deflazacort, mefloquine, nefazodone, etc.) as well as in other USAN stems (e.g., cef- and -kef-). This has resulted in conflicting stems, and therefore in those instances, the stem does not support the USAN Council naming system or accurately indicate the pharmacological or chemical trait of the drug. Additionally, based on our post marketing experience, we do not have the same safety concerns with the two-letter stems, including ‘-ef-’, that we have identified with three or more letter USAN stems.^{m,n}

Therefore, we do not object to the proposed proprietary name based on the presence of a USAN stem in this instance.

2.2.2 Components of the Proposed Proprietary Name

CorMedix did not provide a derivation or intended meaning for the proposed proprietary name, Defencath, in their submission. This proprietary name is comprised of a single word. We note that the proposed name, Defencath, contains the letter string ‘-cath,’ which is an abbreviation for “catheter.” Additionally, we note that “cath” or “catheter” is consistent with the proposed route of administration (for central venous catheter installation use (not intended to be systemically administered to the patient)) and proposed indication (reduce the incidence of catheter-related bloodstream infections in patients with kidney failure receiving chronic hemodialysis through a central venous catheter). Thus, we find the proposed inclusion of “cath” acceptable from a medication error perspective. Additionally, we then considered that there are multiple types of IV catheters (e.g., PVC, CVC, PICC) based on location of placement. However, any residual risks of confusion between the multiple types of IV catheters can be managed with labeling mitigation strategies that will be conveyed in our Label and Labeling review.

^k USAN stem search conducted on March 15, 2022.

^l Guidance for Industry: Developing Proprietary Names for Human Prescription Drug Products. Guidance December 2020. <https://www.fda.gov/regulatory-information/search-fda-guidance-documents/best-practices-developing-proprietary-names-human-prescription-drug-products-guidance-industry>.

^m Institute for Safe Medication Practices. Safety briefs: Aripiprazole or rabeprazole? ISMP Med Saf Alert Acute Care. 2003;8(8):1-3.

ⁿ Institute for Safe Medication Practices. Safety Briefs. ISMP Med Saf Alert Acute Care. 2002;7(17):1-2.

Furthermore, we note that Defencath includes the letter strings ‘-ef-,’ a medical abbreviation for “ejection fraction” and ‘-ca-,’ a medical abbreviation for “coronary artery,” as well as “cancer.” In some circumstances, the incorporation of medical abbreviations in proprietary names can inadvertently be a source of error. For more information see, “*Best Practices in Developing Proprietary Names for Human Prescription Drug Products.*”^o Although we typically discourage the inclusion of medical abbreviations in proprietary names, we determined that the locations of the abbreviations, ‘ef’ and ‘ca,’ in the infix of the proposed proprietary name, are unlikely to be separated from the surrounding letters or misinterpreted in a manner that would lead to confusion in this case. Thus, in this case, we do not object to the inclusion of the letter strings ‘cath,’ ‘ef,’ and ‘ca’ in the proposed proprietary name

2.2.3 Comments from Other Review Disciplines at Initial Review

On March 21, 2022, the Division of Anti-Infectives (DAI) did not forward any comments or concerns relating to Defencath at the initial phase of the review.

2.2.4 FDA Name Simulation Studies

One hundred eight practitioners participated in DMEPA’s prescription studies for Defencath.

In the computerized provider order entry (CPOE) simulation study, one participant entered the correct sequence of letters, “defen”, when searching for the study name but selected the incorrect proprietary name, “(b) (4).” The name pair, (b) (4) and Defencath, was analyzed in our previous proprietary name review (PNR)^p in Appendix G where we noted, “*Name identified in RxNorm database. Unable to find product characteristics in commonly used drug databases.*” Furthermore, if “(b) (4)” was included in CPOE or pharmacy information systems and inadvertently selected, the order would not be filled as the product is unavailable and the ordering practitioner would be contacted to clarify the order. Considering the aforementioned, we determined there is a low likelihood for name confusion between the name pair, Defencath and (b) (4), to lead to error. The remaining 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 prescription simulation studies.

2.2.5 Phonetic and Orthographic Computer Analysis (POCA) Search Results

Our POCA search^q identified 194 names with the combined score of $\geq 55\%$ or individual orthographic or phonetic score of $\geq 70\%$. We had identified and evaluated some of the names in our previous proprietary name review. We re-evaluated the previously identified names of concern considering any lessons learned from recent post-marketing experience, which may have altered our previous conclusion regarding the acceptability of the name. We note that none of the

^o Guidance for Industry: Best Practices in Developing Proprietary Names for Human Prescription Drug Products. 2020. Available from: <https://www.fda.gov/regulatory-information/search-fda-guidance-documents>.

^p Myers, D. Proprietary Name Review for Defencath (IND 113764). Silver Spring (MD): FDA, CDER, OSE, DMEPA (US); 2020 APR 08. Panorama No. 2019-36852933.

^q POCA search conducted on March 15, 2022 in version 4.4.

product characteristics have changed and we agree with the findings from our previous review for the names evaluated previously. Therefore, we identified 13 names not previously analyzed. These names are included in Table 1 below.

2.2.6 Names Retrieved for Review Organized by Name Pair Similarity

Table 1 lists the number of names retrieved from our POCA search. These name pairs are organized as highly similar, moderately similar or low similarity for further evaluation.

Table 1. Names Retrieved for Review Organized by Name Pair Similarity	
Similarity Category	Number of Names
Highly similar name pair: combined match percentage score $\geq 70\%$	1
Moderately similar name pair: combined match percentage score $\geq 55\%$ to $\leq 69\%$	12
Low similarity name pair: combined match percentage score $\leq 54\%$	0

2.2.7 Safety Analysis of Names with Potential Orthographic, Spelling, and Phonetic Similarities

We determined 12 of the 13 names will not pose a risk for confusion with Defencath as described in Appendices C through H. However, the proposed proprietary name could be confused with (b) (4) ***. The rationale for the risk of confusion is described below.

Defencath vs. (b) (4) ***

The proposed proprietary name, Defencath, may be confused with another pending proposed proprietary name that is also under review, (b) (4) *** (b) (4), due to phonetic similarity and overlapping product characteristics.

Phonetically, Defencath and (b) (4)

(b) (4)

Furthermore, one participant in the verbal prescription FDA Prescription Simulation Study for (b) (4) *** misinterpreted the proposed name as “Defencath”, which demonstrates the phonetic similarity and risk of name confusion in the name pair.

The similarity of this name pair is further supported by FDA’s Phonetic and Orthographic Computer Analysis (POCA) program^r, which calculates a combined orthographic and phonetic score of 75% (individual phonetic score of 82%), suggesting that there is high similarity between these names.

In addition to phonetic similarities, Defencath and (b) (4)*** are both proposed as a single strength (1.35%/1,000 units/mL vs. (b) (4)), single dosage form (catheter lock solution vs. (b) (4)), and single route of administration (for central venous catheter installation use [not intended to be systemically administered to the patient] vs. (b) (4)). Therefore, the strength, dosage form, and route of administration may not be included on a prescription to help differentiate the products. Additionally, we note potential numerical similarity in dose when spoken (e.g., 5 [five] mL of Defencath vs. (b) (4)), which could lead to misinterpretation.

We acknowledge that Defencath and (b) (4)*** are administered at different doses (the catheter is filled with 3-5 mL vs. (b) (4)) and frequencies (After treatment is rendered, the catheter is filled with 3-5 mL (depending on the volume of the CVC lumen) and locked – prior to initiation of the next treatment, the product is aspirated out of the catheter and the catheter is then flushed with saline vs. (b) (4)). However, we are concerned that these differences may not prevent confusion between this name pair given the phonetic similarity of the names. We are aware of postmarketing reports of errors involving confusion between similarly named drug products, even when there are differences in dose and frequency of administration. For example, we are aware of postmarketing reports of errors involving confusion between Volumen (barium sulfate suspension) and Voluven (tetrastarch, hydroxyethyl starch in sodium chloride injection), both single strength products, despite their differences in dosage form, route of administration, dose, and frequency of administration.^s

Furthermore, we acknowledge that the products have different indications (reduce the incidence of catheter-related bloodstream infections (CRBSIs) in patients with kidney failure receiving chronic hemodialysis (HD) through a central venous catheter (CVC) vs. (b) (4)). However, we are concerned that this difference in indication may not prevent confusion between this name pair, given the phonetic similarities and overlapping product characteristics of the names. Despite widespread recommendations, only a small percentage of medications ordered include the indication.^t

DMEPA had previously reviewed the proposed proprietary name, Defencath, which we found conditionally acceptable under IND 113764 and NDA 214520, respectively, on April 8, 2020 and August 24, 2020. We note that this decision differs from our previous decisions regarding the acceptability of the proposed proprietary name, Defencath. However, when Defencath was

^r POCA search conducted on March 15, 2022 in version 4.4.

^s Institute for Safe Medication Practices. 2017 Dec 14. Look-alike name pair—VoLumen and Voluven. ISMP Med Saf Alert Acute Care. Volume 22(25): 2-3.

^t Schiff GD Mirica MM, Dhavle AA, Galanter WL, Lambert B, Wright A. A Prescription for Enhancing Electronic Prescribing Safety. Health Affairs 2018; 37(11): 1877-1883.

previously evaluated, the proposed proprietary name, (b) (4) ***, was not yet submitted for review by the Agency.

Additionally, we acknowledge that our conclusion differs from that of the (b) (4) external study submitted in support of the proposed proprietary name. However, the pending proprietary name is also under review and thus was not identified by the (b) (4) external study.

Therefore, based on the totality of the information above, we find the proposed proprietary name, Defencath, vulnerable to medication errors due to name confusion with (b) (4) ***.

2.2.8 Communication of DMEPA's Determination

On June 23, 2022, DMEPA 1 communicated our determination to the Division of Anti-Infectives (DAI).

3 CONCLUSION

The proposed proprietary name, Defencath, is not acceptable from a safety perspective. The proposed proprietary name, Defencath, is vulnerable to name confusion with (b) (4) ***. Therefore, the decision to deny the name will be communicated to CorMedix via letter (See Section 3.1).

If you have further questions or need clarifications, please contact Amy Chung, OSE project manager, at 240-402-4547.

3.1 COMMENTS TO CORMEDIX, INC.

We have completed our review of the proposed proprietary name, Defencath, and have concluded that this name is unacceptable for the following reason:

Defencath vs. Pending Proprietary Name

The proposed proprietary name, Defencath, could result in medication errors due to confusion with another product that is also under review. Therefore, the ultimate acceptability of your proposed proprietary name, Defencath, is dependent upon which underlying application is approved first. If another product is approved prior to your product, with a name that would be confused with your proposed name, Defencath, you will be requested to submit another name.

We acknowledge that our conclusion differs from that of the (b) (4) external study submitted in support of the proposed proprietary name. However, the pending proprietary name is also under review and thus was not identified by the (b) (4) external study.

We also note that our conclusion differs from our previous decisions regarding the conditional acceptability of the proposed proprietary name, Defencath. However, when Defencath was previously evaluated, the conflicting pending proposed proprietary name was not yet submitted for review by the Agency.

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).

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.^u

^u National Coordinating Council for Medication Error Reporting and Prevention. <https://www.nccmerp.org/about-medication-errors> Last accessed 10/05/2020.

***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.
Y/N	Is the proposed name obviously similar in spelling and pronunciation to other names?
	Proprietary names should not be similar in spelling or pronunciation to proprietary names, established names, or ingredients of other products.
Y/N	Are there inert or inactive ingredients referenced in the proprietary name?
	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)).
Y/N	Does the proprietary name include combinations of active ingredients?
	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)).
Y/N	Is there a United States Adopted Name (USAN) stem in the proprietary name?
	Proprietary names should not incorporate a USAN stem in the position that USAN designates for the stem.
Y/N	Is this proprietary name used for another product that does not share at least one common active ingredient?
	Drug products that do not contain at least one common active ingredient should not use the same (root) proprietary name.
Y/N	Is this a proprietary name of a discontinued product?
	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 ≥ 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^v. 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

^v Shah, M, Merchant, L, Characteristics That May Help in the Identification of Potentially Confusing Proprietary Drug Names. Therapeutic Innovation & Regulatory Science, September 2016

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.

Four 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, verbal pronunciation of the drug name or during computerized provider order entry. 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 vulnerability of the proposed name to be misinterpreted by healthcare practitioners during written, verbal, or electronic prescribing.

In order to evaluate the potential for misinterpretation of the proposed proprietary name during written, verbal, or electronic prescribing of the name, written inpatient medication orders, written outpatient prescriptions, verbal orders, and electronic orders are simulated, each consisting of a combination of marketed and unapproved drug products, including the proposed name.

- 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.

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 $\geq 70\%$).

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.			
<u>Orthographic Checklist</u>		<u>Phonetic Checklist</u>	
Y/N	Do the names begin with different first letters? <i>Note that even when names begin with different first letters, certain letters may be confused with each other when scripted.</i>	Y/N	Do the names have different number of syllables?
Y/N	Are the lengths of the names dissimilar* when scripted? <i>*FDA considers the length of names different if the names differ by two or more letters.</i>	Y/N	Do the names have different syllabic stresses?
Y/N	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?	Y/N	Do the syllables have different phonologic processes, such as vowel reduction, assimilation, or deletion?
Y/N	Is there different number or placement of cross-stroke or dotted letters present in the names?	Y/N	Across a range of dialects, are the names consistently pronounced differently?
Y/N	Do the infixes of the name appear dissimilar when scripted?		
Y/N	Do the suffixes of the names appear dissimilar when scripted?		

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

Step 1	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. For single strength products, also consider circumstances where the strength may not be expressed. 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. To determine whether the strengths or doses are similar to your proposed product, consider the following list of factors that may increase confusion: • 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. • Trailing or deleting zeros: 10 mg is similar in appearance to 100 mg which may potentiate confusion between a name pair with moderate similarity. • Similar sounding doses: 15 mg is similar in sound to 50 mg
Step 2	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 <u>with</u> overlapping or similar strengths or doses.

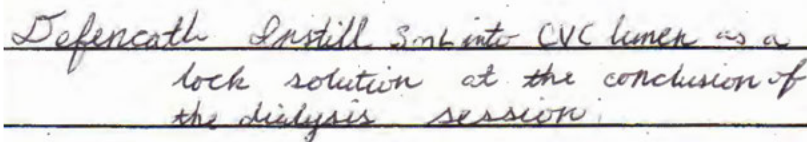
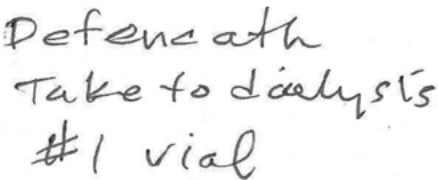
	Orthographic Checklist (Y/N to each question) - Do the names begin with different first letters? Note that even when names begin with different first letters, certain letters may be confused with each other when scripted. - Are the lengths of the names dissimilar* when scripted? *FDA considers the length of names different if the names differ by two or more letters. - 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? - Is there different number or placement of cross-stroke or dotted letters present in the names? - Do the infixes of the name appear dissimilar when scripted? - Do the suffixes of the names appear dissimilar when scripted?	Phonetic Checklist (Y/N to each question) - Do the names have different number of syllables? - Do the names have different syllabic stresses? - Do the syllables have different phonologic processes, such vowel reduction, assimilation, or deletion? - Across a range of dialects, are the names consistently pronounced differently?
--	--	---

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 B: Prescription Simulation Samples and Results

Figure 1. Defencath Study (Conducted on March 11, 2022)

Handwritten Medication Order/Prescription	Verbal Prescription
<u>Medication Order:</u> 	Defencath Take to dialysis center Dispense 1 vial
<u>Outpatient Prescription:</u> 	
CPOE Study Sample (displayed as sans-serif, 12-point, bold font) Defencath	

FDA Prescription Simulation Responses (Aggregate Report)

262 People Received Study
108 People Responded

Study Name: Defencath

Total	32	26	21	29	
INTERPRETATION	OUTPATIENT	CPOE	VOICE	INPATIENT	TOTAL
BEFENCAF	0	0	1	0	1
BEFENCAMP	0	0	1	0	1
DEFECATH	0	0	0	1	1
DEFENCAF	0	0	2	0	2
DEFENCATH	31	25	2	26	84
(b) (4)					
DEFENCOTH	0	0	0	1	1
DEFENKATH	0	0	1	0	1
DEFIMCATH	0	0	1	0	1
DEFIMKAF	0	0	1	0	1
DEFINCAC	0	0	1	0	1
DEFINCAF	0	0	3	0	3
DEFINCAP	0	0	2	0	2
DEFINCATH	0	0	4	0	4
DETHENCATH	0	0	1	0	1
DOFENCATH	0	0	0	1	1
PEFENCATH	1	0	0	0	1
ZEFENCAT	0	0	1	0	1

Appendix C: Highly Similar Names (e.g., combined POCA score is $\geq 70\%$)

No.	Proposed name: Defencath Established name: taurolidine and heparin Dosage form: catheter lock solution Strength(s): 1.35%/1,000 units/mL Usual Dose: After treatment is rendered, the catheter is filled with 3-5 mL and locked	POCA Score (%)	Orthographic and/or phonetic differences in the names sufficient to prevent confusion Other prevention of failure mode expected to minimize the risk of confusion between these two names.
1.	N/A		

Appendix D: Moderately Similar Names (e.g., combined POCA score is $\geq 55\%$ to $\leq 69\%$) with no overlap or numerical similarity in Strength and/or Dose

No.	Name	POCA Score (%)
1.	N/A	

Appendix E: Moderately Similar Names (e.g., combined POCA score is $\geq 55\%$ to $\leq 69\%$) with overlap or numerical similarity in Strength and/or Dose

No.	Proposed name: Defencath Established name: taurolidine and heparin Dosage form: catheter lock solution Strength(s): 1.35%/1,000 units/mL Usual Dose: After treatment is rendered, the catheter is filled with 3-5 mL and locked	POCA Score (%)	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
1.	Detectnet	66	This name pair has sufficient orthographic and phonetic differences.
2.	Cyfundus***	62	This name pair has sufficient orthographic and phonetic differences.
3.	Definity RT	62	This name pair has sufficient orthographic and phonetic differences.
4.	(b) (4)***	62	This name pair has sufficient orthographic and phonetic differences.

Appendix F: Low Similarity Names (e.g., combined POCA score is $\leq 54\%$)

No.	Name	POCA Score (%)
1.	N/A	

Appendix G: Names not likely to be confused or not used in usual practice settings for the reasons described.

No.	Name	POCA Score (%)	Failure preventions
1.	Bifenthrin	58	Product is not a drug. It is an insecticide in the pyrethroid family. It is widely used against ant infestations, including the invasive red fire ant, by influencing its nervous system.
2.	(b) (4) ***	58	Proposed proprietary name for ANDA 208342 (b) (4) found unacceptable by DMEPA (OSE# (b) (4) dated (b) (4)). ANDA 208342 was approved on 04/17/2018 and no new names have been submitted.
3.	Regen-Cov2***	56	Proposed proprietary name for IND 148069 that was submitted on 11/25/2020. Following a teleconference, Regeneron submitted an amendment on January 18, 2021, to request the review of the proposed proprietary name, Regen-cov***, for IND 148069.

Appendix H: Names not likely to be confused due to absence of attributes that are known to cause name confusion.^w

No.	Name	POCA Score (%)
1.	Technegas***	62
2.	10-Undecenal	59
3.	Tascenso ODT	58
4.	(b) (4) ***	56
5.	Regen-Cov***	56

^w Shah, M, Merchant, L, Chan, I, and Taylor, K. Characteristics That May Help in the Identification of Potentially Confusing Proprietary Drug Names. Therapeutic Innovation & Regulatory Science, September 2016

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.

/s/

DEBORAH E MYERS
06/23/2022 10:28:38 AM

VALERIE S VAUGHAN
06/23/2022 10:43:38 AM

MISHALE P MISTRY
06/23/2022 11:45:18 AM

PROPRIETARY NAME MEMORANDUM

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*****

Date of This Review:	August 24, 2020
Application Type and Number:	NDA 214520
Product Name and Strength:	Defencath (taurolidine and heparin) catheter lock solution, ^a 1.35%/1,000 units/mL ^b
Total Product Strength:	1.35%/5,000 units per 5 mL vial
Product Type:	Multiple Ingredient Product
Rx or OTC:	Prescription (Rx)
Applicant/Sponsor Name:	CorMedix Inc. (CorMedix)
Panorama #:	2020-41280800
DMEPA Safety Evaluator:	Deborah Myers, RPh, MBA
DMEPA Team Leader:	Otto L. Townsend, PharmD

^a Applicant provided the dosage form as “catheter lock solution.” The Office of Pharmaceutical Quality will make a final determination of the dosage form during the NDA review.

^b Applicant provided the strength presentation as “taurolidine 1.35% and heparin 5,000 units/5 mL (1,000 units/mL).” The Office of Pharmaceutical Quality will make a final determination of the strength presentation during the NDA review.

1 INTRODUCTION

This memorandum is to reassess the proposed proprietary name, Defencath, which was found conditionally acceptable under IND 113764 on April 8, 2020.^c Thus, CorMedix submitted the name, Defencath, under NDA 214520 for review on June 30, 2020. We note that all product characteristics remain the same.

2 METHODS AND DISCUSSION

2.1 MISBRANDING ASSESSMENT

The Office of Prescription Drug Promotion (OPDP) determined that Defencath would not misbrand the proposed product. The Division of Medication Error Prevention and Analysis (DMEPA) and the Division of Anti-Infectives (DAI) concurred with the findings of OPDP's assessment for Defencath.

2.2 SAFETY ASSESSMENT

For re-assessment of the proposed proprietary name, we evaluated the previously identified names of concern considering any lessons learned from recent post-marketing experience, which may have altered our previous conclusion regarding the acceptability of the proposed proprietary name. Our reassessment did not change our conclusion regarding the previously identified names of concern. Additionally, we searched the United States Adopted Name (USAN) stem list to determine if the proposed proprietary name contains any USAN stems as of the last USAN updates. Our July 14, 2020, search of the most recent USAN stem list update did not identify any new USAN stems of concern.

2.3 COMMUNICATION OF DMEPA'S ANALYSIS AT MIDPOINT OF REVIEW

We communicated our findings to the Division of Anti-Infectives (DAI) via e-mail on August 14, 2020. At that time we also requested additional information or concerns that could inform our review. Per e-mail correspondence from the Division of Anti-Infectives (DAI) on August 21, 2020, they stated no additional concerns with the proposed proprietary name, Defencath.

3 CONCLUSION

Our re-assessment did not identify any names that represent a potential source of drug name confusion. Therefore, we maintain that the proposed proprietary name, Defencath, is acceptable.

If you have any questions or need clarifications, please contact Nicholas Miles, OSE project manager, at 301-796-7025.

^c Myers, D. Proprietary Name Review for Defencath (IND 113764). Silver Spring (MD): FDA, CDER, OSE, DMEPA (US); 2020 APR 08. Panorama No.: 2019-36852933.

3.1 COMMENTS TO CORMEDIX INC.

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

If any of the proposed product characteristics as stated in your submission, received on June 30, 2020, are altered prior to approval of the marketing application, the name must be resubmitted for review.

4 REFERENCE

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

USAN Stems List contains all the recognized USAN stems.

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.

/s/

DEBORAH E MYERS
08/24/2020 10:00:33 AM

OTTO L TOWNSEND
08/24/2020 11:16:43 AM