

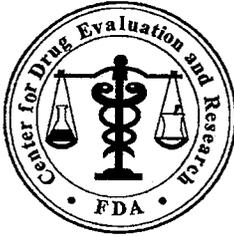
**CENTER FOR DRUG EVALUATION AND
RESEARCH**

APPLICATION NUMBER:

21-795

PROPRIETARY NAME REVIEW(S)

4/22/08



**Department of Health and Human Services
Public Health Service
Food and Drug Administration
Center for Drug Evaluation and Research
Office of Surveillance and Epidemiology**

Date: April 22, 2008

To: Mary Parks, MD, Director
Division of Metabolism and Endocrinology Products

Through: Kellie Taylor, PharmD, MPH, Team Leader
Denise Toyer, PharmD, Deputy Director
Division of Medication Error Prevention

From: Felicia Duffy, RN, BSN, Safety Evaluator
Division of Medication Error Prevention

Subject: Label and Labeling Review for Desmopressin Acetate Tablets

Drug Name(s): Desmopressin Acetate Tablets

Application Type/Number: NDA 21-795

Submission Number: Not Applicable

Applicant/sponsor: Ferring Pharmaceuticals

OSE RCM #: 2008-356

APPEARS THIS WAY ON ORIGINAL

1 INTRODUCTION

This memorandum is in response to an April 15, 2008, request from the Division Metabolism and Endocrinology Products for a review of the revised container labels, and carton and insert labeling for Desmopressin Acetate tablets.

We found the proprietary name "Minirin (desmopressin acetate tablets)" unacceptable from a safety perspective in OSE reviews #01-0126-2 (dated April 26, 2005) and #2008-356 (dated March 21, 2008). The review Division agreed with our objection to the proposed name Minirin (desmopressin acetate tablets) based on the potential for confusion with Minocin, Minitran, Minirin (desmopressin nasal spray), Niravam, and Minerin. Thus, the Applicant changed the container labels and carton labeling to reflect only the established name. To date, an alternate proprietary name has not been submitted.

2 MATERIAL REVIEWED

Revised container labels, and carton and insert labeling submitted on April 14, 2008 (see Appendix A for revised container labels and carton labeling)-and OSE review 2008-356 labels, labeling, and comments.

3 DISCUSSION

The Division of Medication Error Prevention reviewed the revised container labels, and carton and insert labeling and find the revisions acceptable.

4 CONCLUSIONS AND RECOMMENDATIONS

We have no further comments or recommendations on the container labels, and carton and insert labeling.

We would appreciate feedback on the final outcome of this review. We would be willing to meet with the Division for further discussion, if needed. If you have further questions or need clarifications, please contact Cheryl Campbell, Project Manager, at 301-796-0723.

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

/s/

Felicia Duffy
4/22/2008 11:20:13 AM
DRUG SAFETY OFFICE REVIEWER

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DRUG SAFETY OFFICE REVIEWER

3/21/08



**Department of Health and Human Services
Public Health Service
Food and Drug Administration
Center for Drug Evaluation and Research
Office of Surveillance and Epidemiology**

Date: March 21, 2008

To: Mary Parks, MD
Director, Division of Metabolism and Endocrinology Products
HFD-510

Through: Denise Toyer, PharmD, Deputy Director
Carol Holquist, RPh, Director
Division of Medication Error Prevention, HFD-420

From: Felicia Duffy, RN, BSN, MSED, Safety Evaluator
Division of Medication Error Prevention, HFD-420

Subject: Proprietary Name, Label and Labeling Review for Minirin

Drug Name(s): Minirin (Desmopressin Acetate) Tablets

Submission Number: N/A

Application Type/Number: NDA 21-795

Applicant/Applicant: Ferring Pharmaceuticals

OSE RCM #: 2008-356

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APPEARS THIS WAY ON ORIGINAL

EXECUTIVE SUMMARY

Our analysis indicates that Minirin appears vulnerable to name confusion that could lead to medication errors. As noted in our previous review of Minirin (desmopressin tablets), we maintain our objection to Minirin based on the potential for confusion with Minirin (nasal spray), Minocin and Minitran. Furthermore, we have identified two additional names that may lead to confusion with Minirin: Minerin and Niravam. See Section 4 for full discussion. As such, the Division of Medication Error Prevention does not recommend the use of the proposed proprietary name, Minirin, for the active ingredient desmopressin acetate tablets, and recommends the Applicant submit two alternative proprietary names for consideration. We are not requesting a name change for the nasal spray dosage form.

The results of the Label and Labeling Risk Assessment found that the lack of strength differentiation and the similarity of the container labels and carton labeling appear to be vulnerable to confusion that could lead to medication errors. Additionally, we note the Applicant fails to provide a 0.05 mg tablet to accommodate the recommended starting dose for central diabetes insipidus. The Division of Medication Error Prevention believes the risks we have identified can be addressed and mitigated prior to drug approval, and provide recommendations in Section 5 that aim at reducing the risk of medication errors.

1 BACKGROUND

1.1 INTRODUCTION

This consult was written in response to a request from the Division of Metabolism and Endocrinology Products (DMEP) to evaluate the product for its potential to contribute to medication errors. The proposed name, Minirin, is evaluated to determine if the name could potentially be confused with other proprietary or established drug names.

1.2 REGULATORY HISTORY

Desmopressin Acetate Nasal Spray was approved on September 16, 2002, without a proprietary name. The Division of Medication Error Prevention initially reviewed the proprietary name, Minirin, in April 2003, as a prior approval supplement providing for the addition of a proprietary name (OSE review #01-0126-1). We objected to the name Minirin based on the potential for look-alike and/or sound-alike confusion with Minocin, Minitran, Midrin, and Micronor. However, the Division approved the proprietary name Minirin for this application on September 4, 2003.

Subsequently, in March 2005, the Applicant proposed the introduction of a new dosage form (tablets) for Minirin. We reviewed the proposed name, Minirin, taking into consideration the name along with the new product characteristics (OSE review #01-0126-2). We maintained our objection to the name, Minirin, due to anticipated confusion with Minocin and Minitran.

1.3 PRODUCT INFORMATION

Minirin (desmopressin acetate tablets) is a synthetic analog of the natural pituitary hormone, 8-arginine vasopressin (ADH), an antidiuretic hormone affecting renal water conservation. Minirin is indication for the management of primary nocturnal enuresis, as antidiuretic replacement therapy in the management of central cranial diabetes insipidus, and the management of temporary polyuria and polydipsia following head trauma or surgery in the pituitary region. Minirin will be available as 0.1 mg and 0.2 mg tablets in bottles of 100. The dosage should be individualized for all indications.

The usual dosage range in central diabetes insipidus in adults and children is 0.1 mg to 0.8 mg daily, administered in divided doses (two or three times daily); however, it is recommended that patients be started on doses of 0.05 mg twice daily and individually adjusted to their optimum therapeutic dose. In

primary nocturnal enuresis the recommended initial dose for children above age 6 and adults —
— is 0.2 mg up to 0.6 mg at bedtime.

b(4)

2 METHODS AND MATERIALS

This section consists of three sections which describe the methods and materials used by the Division of Medication Error Prevention staff conducting a proprietary name risk assessment (see 2.1 Proprietary Name Risk Assessment), a medication error risk assessment (see 2.2 Medication Error Risk Assessment), and label, labeling, and/or packaging risk assessment (see 2.3 Label and Labeling Risk Assessment). The primary focus for all of the assessments is to identify and remedy potential sources of medication error prior to drug approval. Our Division defines a medication error as any preventable event that may cause or lead to inappropriate medication use or patient harm while the medication is in the control of the health care professional, patient, or consumer.¹

2.1 PROPRIETARY NAME RISK ASSESSMENT

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

For the proprietary name, Minirin, the Medication Error Staff search a standard set of databases and information sources to identify names with orthographic and phonetic similarity (see section 2.1.1 for detail) and held a CDER Expert Panel discussion to gather professional opinions on the safety of the proposed proprietary name (see section 2.1.3). Additionally, we conducted a search of the Adverse Event Reporting System (AERS) database to search for any additional names that may potentially be confused with the proposed proprietary name (see section 2.2). We normally conduct internal CDER prescription analysis studies and, when provided, external prescription analysis studies results are considered and incorporated into the overall risk assessment. However, since this name was previously evaluated, CDER prescription analysis studies were not conducted upon re-review of Minirin.

The Safety Evaluator assigned to the Proprietary Name Risk Assessment is responsible for considering the collective findings, and provides an overall risk assessment of the proposed proprietary name (see detail 2.4). The overall risk assessment is based on the findings of a Failure Modes and Effects Analysis (FMEA) of the proprietary name, and is focused on the avoidance of medication errors. FMEA is a systematic tool for evaluating a process and identifying where and how it might fail.² FMEA is used to analyze whether the drug names identified with look- or sound-alike similarity to the proposed name could cause confusion that subsequently leads to medication errors in the clinical setting. The Division of Medication Error Prevention 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.³ Our Division uses the clinical expertise of the Medication Error Staff to anticipate the conditions of the clinical setting that the product is likely to be used in based on the characteristics of the proposed product.

In addition, the product characteristics provide the context for the verbal and written communication of the drug names and can interact with the orthographic and phonetic attributes of the names to increase the

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

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

³ National Coordinating Council for Medication Error Reporting and Prevention.
<http://www.nccmerp.org/aboutMedErrors.html>. Last accessed 10/11/2007.

risk of confusion when there is overlap, or, in some instances, decrease the risk of confusion by helping to differentiate the products through dissimilarity. As such, the Staff consider the product characteristics associated with the proposed drug throughout the risk assessment, since the product characteristics of the proposed may provide a context for communication of the drug name and ultimately determine the use of the product in the *usual* clinical practice setting.

Typical product characteristics considered when identifying drug names that could potentially be confused with the proposed drug name include, but are not limited to established name of the proposed product, the proposed indication, dosage form, route of administration, strength, unit of measure, dosage units, recommended dose, typical quantity or volume, frequency of administration, product packaging, storage conditions, patient population, and prescriber population. Because drug name confusion can occur at any point in the medication use process, we consider the potential for confusion throughout the entire U.S. medication use process, including drug procurement, prescribing and ordering, dispensing, administration, and monitoring the impact of the medication.⁴

2.1.1 Search Criteria

The Medication Error Staff consider the spelling of the name, pronunciation of the name when spoken, and appearance of the name when scripted as outlined in Appendix A.

For this review, particular consideration was given to drug names beginning with the letter 'M' when searching to identify potentially similar drug names, as 75% of the confused drug names reported by the USP-ISMP Medication Error Reporting Program involve pairs beginning with the same letter.^{5,6}

To identify drug names that may look similar to Minirin, the Staff also consider the other orthographic appearance of the name on lined and unlined orders. Specific attributes taken into consideration include the length of the name (7 letters), upstrokes (one, capital letter 'M'), downstrokes (none), cross-strokes (none), and dotted letters (three, 'i'). Additionally, several letters in Minirin may be vulnerable to ambiguity when scripted, including the letter 'M' may appear as 'N', 'H', or 'Z'; lower case 'n' appears as a lower case 'v' or 'u'; and lower case 'r' may appear as lower case, 'v'. As such, the Staff also considers these alternate appearances when identifying drug names that may look similar to Minirin.

When searching to identify potential names that may look or sound similar to Minirin, the Medication Error Staff search for names with similar number of syllables (three), stresses (MI-ni-rin, mi-NI-rin, or mi-ni-RIN), and placement of vowel and consonant sounds. In addition, several letters in Minirin may be subject to interpretation when spoken, including the letter 'M' may be interpreted as 'N'; the letter 'n' may be interpreted as 'm'; or the letter 'r' may be interpreted as 'v'. The Applicant's intended pronunciation of the proprietary name could not be expressly taken into consideration, as this was not provided with the proposed name submission.

The Staff also consider the product characteristics associated with the proposed drug throughout the identification of similar drug names, since the product characteristics of the proposed drug ultimately determine the use of the product in the clinical practice setting. For this review, the Medication Error Staff were provided with the following information about the proposed product: the proposed proprietary name (Minirin), the established name (desmopressin acetate), proposed indication (central diabetes insipidus and primary nocturnal enuresis), strength (0.1 mg, 0.2 mg), dose (0.05 mg to 0.8 mg), frequency

⁴ Institute of Medicine. Preventing Medication Errors. The National Academies Press: Washington DC. 2006.

⁵ Institute for Safe Medication Practices. Confused Drug name List (1996-2006). Available at <http://www.ismp.org/Tools/confuseddrugnames.pdf>

⁶ Kondrack, G and Dorr, B. Automatic Identification of Confusable Drug Names. Artificial Intelligence in Medicine (2005)

of administration (2-3 times a day), route (oral) and dosage form of the product (tablet). Appendix A provides a more detailed listing of the product characteristics the Medication Error Staff general take into consideration.

Lastly, the Medication Error Staff also consider the potential for the proposed name to inadvertently function as a source of error for reasons other than name confusion. Postmarketing experience has demonstrated that proprietary names (or components of the proprietary name) can be a source of error in a variety of ways. As such, these broader safety implications of the name are considered and evaluated throughout this assessment and the Medication Error Staff provide additional comments related to the safety of the proposed name or product based on their professional experience with medication errors.

2.1.2 Database and information sources

The proposed proprietary name, Minirin, was provided to the Medication Error Staff of the Division of Medication Error Prevention to conduct a search of the internet, several standard published drug product reference texts, and FDA databases to identify existing and proposed drug names that were not identified in the previous reviews that may sound-alike or look-alike to Minirin using the criteria outlined in 2.1.1. A standard description of the databases used in the searches is provided in Section 7. To complement the process, the Medication Error Staff use a computerized method of identifying phonetic and orthographic similarity between medication names. The program, Phonetic and Orthographic Computer Analysis (POCA), uses complex algorithms to select a list of names from a database that have some similarity (phonetic, orthographic, or both) to the trademark being evaluated. Lastly, the Medication Error Staff review the USAN stem list to determine if any USAN stems are present within the proprietary name. The findings of the individual Safety Evaluators were then pooled and presented to the Expert Panel.

2.1.3 CDER Expert Panel Discussion

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

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

2.1.4 Safety Evaluator Risk Assessment of the Proposed Proprietary Name

Based on the criteria set forth in Section 2.1.1, the Safety Evaluator Risk Assessment applies their individual expertise gained from evaluating medication errors reported to FDA to conduct a Failure Modes and Effects Analysis and provide an overall risk of name confusion. Failure Mode and Effects Analysis (FMEA) is a systematic tool for evaluating a process and identifying where and how it might fail.⁷ When applying FMEA to assess the risk of a proposed proprietary name, the Division of Medication Error Prevention seeks to evaluate the potential for a proposed name to be confused with another drug name as a result of the name confusion and cause errors to occur in the medication use system. FMEA capitalizes on the predictable and preventable nature of medication errors associated with drug name confusion. FMEA allows the Agency to identify the potential for medication errors due to look- or sound-alike drug names prior to approval, where actions to overcome these issues are easier and more effective than remedies available in the post-approval phase.

⁷ Institute for Healthcare Improvement (IHI). Failure Modes and Effects Analysis. Boston. IHI:2004.

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

In the initial stage of the Risk Assessment, the Safety Evaluator compares the proposed proprietary name to all of the names gathered from the above searches, expert panel evaluation, and studies, and identifies potential failure modes by asking: "Is the name Minirin convincingly similar to another drug name, which may cause practitioners to become confused at any point in the usual practice setting?" An affirmative answer indicates a failure mode and represents a potential for Minirin to be confused with another proprietary or established drug name because of look- or sound-alike similarity. If the answer to the question is no, the Safety Evaluator is not convinced that the names possess similarity that would cause confusion at any point in the medication use system and the name is eliminated from further review.

In the second stage of the Risk Assessment, all potential failure modes are evaluated to determine the likely *effect* of the drug name confusion, by asking "Could the confusion of the drug names conceivably result in medication errors in the usual practice setting?" The answer to this question is a central component of the Safety Evaluator's overall risk assessment of the proprietary name. If the Safety Evaluator determines through FMEA that the name similarity would ultimately not be a source of medication errors in the usual practice setting, the name is eliminated from further analysis. However, if the Safety Evaluator determines through FMEA that the name similarity could ultimately cause medication errors in the usual practice setting, the Safety Evaluator will then recommend that an alternate proprietary name be used. In rare instances, the FMEA findings may provide other risk-reduction strategies, such as product reformulation to avoid an overlap in strength or an alternate modifier designation may be recommended as a means of reducing the risk of medication errors resulting from drug name confusion.

The Division of Medication Error Prevention will object to the use of proposed proprietary name when the one or more of the following conditions are identified in the Safety Evaluator's Risk Assessment:

1. DDMAC finds the proposed proprietary name misleading from a promotional perspective, and the review Division concurs with DDMAC's findings. The Federal Food, Drug, and Cosmetic Act provides that labeling or advertising can misbrand a product if misleading representations are made or suggested by statement, word, design, device, or any combination thereof, whether through a trade name or otherwise. [21 U.S.C 321(n); see also 21 U.S.C. 352(a) & (n)].
2. The Division of Medication Error Prevention identifies that the proposed proprietary name is misleading because of similarity in spelling or pronunciation to another proprietary or established name of a different drug or ingredient [CFR 201.10.(C)(5)].
3. FMEA identifies potential for confusion between the proposed proprietary name and other proprietary or established drug names, and demonstrates that medication errors are likely to result from the drug name confusion under the conditions of usual clinical practice.
4. The proposed proprietary name contains an USAN stem, particularly in a manner that is contradictory to the USAN Council's definition.
5. Medication Error Staff identify a potential source of medication error within the proposed proprietary name. The proprietary name may be misleading, or inadvertently introduce ambiguity and confusion that leads to errors. Such errors may not necessarily involve confusion between the proposed drug and another drug product.

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

If none of these conditions are met, then we will not object to the use of the proprietary name. If any of these conditions are met, then we will object to the use of the proprietary name. The threshold set for objection to the proposed proprietary name may seem low to the Applicant; however, the safety concerns set forth in criteria 1 through 5 are supported either by FDA Regulation or by external healthcare authorities, including the IOM, WHO, JCAHO, and ISMP, have examined medication errors resulting from look- or sound-alike drug names and called for Regulatory Authorities to address the issue prior to approval.

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

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

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

2.2 MEDICATION ERROR RISK ASSESSMENT

Minirin (desmopressin nasal spray) has been marketed since 2002. Because the proprietary name is already out on the market, the Division of Medication Error Prevention conducted a search of the Adverse Event Reporting System (AERS) database to determine if there are any medication errors associated with name confusion which may be indicative of potential name confusion with Minirin.

The MedDRA Higher Level Group Term (HLGT) "Medication Errors", and verbatim substance name "Minir%", and were used as search criteria. The Division of Medication Error Prevention searched AERS to retrieve medication errors relating to name confusion with Minirin.

The cases were manually reviewed to determine if a medication error occurred. Those cases that did not describe a medication error were excluded from further analysis. The cases that did describe a medication were categorized by type of error. Our Division reviewed the cases within each category to identify

factors that contributed to the medication errors, and to ascertain if these risks might apply to the proposed Minirin.

2.3 LABEL AND LABELING RISK ASSESSMENT

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

Given the critical role that the label and labeling has in the safe use of drug products, it is not surprising that 33 percent of medication errors reported to the USP-ISMP Medication Error Reporting Program may be attributed to the packaging and labeling of drug products, including 30 percent of fatal errors.⁸

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

For this product the Applicant submitted on February 21, 2008, the following labels and insert labeling for our review (see Appendices G and H for images):

- Container Label: 0.1 mg, 0.2 mg
- Carton Labeling: 0.1 mg, 0.2 mg
- Prescribing Information (no image)

3 RESULTS

3.1 PROPRIETARY NAME RISK ASSESSMENT

3.1.1 Database and information sources

Medication Error Prevention Staff conducted a search of the internet, several standard published databases and information sources (see Section 7 References) for existing drug names which sound-alike or look-alike to Minirin to a degree where potential confusion between drug names could occur and result in medication errors in the usual clinical practice settings. In total, 12 new names (not found in OSE reviews #01-0126-1 and #01-0126-2) were identified as having some similarity to the name Minirin.

Eight of the 12 names were thought to look like Minirin; these names include: Niacin, Nazarin, Micrainin, Niravam, Min-a-rex, Minihist, Minitec, and Mucinex. Three names (Medilan, Myleran, and Menrium) were thought to sound similar to Minirin. One name, Minerin, was thought to look and sound similar to Minirin.

The proposed proprietary name, Minirin, does not contain a USAN stem as of the last date searched, March 3, 2008.

⁸ Institute of Medicine. Preventing Medication Errors. The National Academies Press: Washington DC. 2006. p275.

3.1.2 CDER Expert Panel Discussion

The Expert Panel reviewed the pool of names identified by the Medication Error Prevention Staff (see section 3.1.1 above), and did not provide any additional names orthographically or phonetically similar to Minirin.

DDMAC had no concerns regarding the proposed name from a promotional perspective.

3.1.3 Safety evaluator risk assessment

Independent searches by the primary safety evaluator did not result in any additional names thought to look or sound similar to Minirin and represent a potential source of drug name confusion. As such, a total of 12 names were analyzed to determine if the drug names could be confused with Minirin and if the drug name confusion would likely result in a medication error.

All of the identified names were determined to have some orthographic and/or phonetic similarity to Minirin, and thus determined to present some risk for confusion. Failure modes and effects analysis (FMEA) was then applied to determine if the proposed name, Minirin, could potentially be confused with any of the 12 names and lead to medication error.

This analysis determined that the name similarity between Minirin and the identified names were unlikely to result in medication errors for 10 of the 12 products. For three of the 10 names, FMEA determined that medication errors were unlikely because the product was withdrawn or the product was approved, but it was unable to be found in standard drug references (i.e., Facts & Comparisons, Drugs@FDA) or through an internet search (see Appendix B). For one of the names, FMEA determined that medication errors were unlikely because the product is no longer marketed and generics are not available (see Appendix C). For five of the names, FMEA determined that medication errors were unlikely because the products do not overlap in strength or dose with Minirin and have minimal orthographic and/or visual similarity to Minirin (see Appendix D). One name (Myleran) had some numerical overlap with Minirin in either dosage or strength, but analysis of the failure mode did not determine the effect of this similarity to result in medication errors in the usual practice setting (see Appendix E).

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

3.2 ADVERSE EVENT REPORTING SYSTEM (AERS)

The AERS search identified 3 medication errors with Minirin. Of the 3 cases, none (n=0) were related to name confusion with Minirin. All three cases were foreign cases (one from Switzerland and two from France). The case from Switzerland was related to an adverse event with Minirin nasal spray, and the two cases from France pertained to overdoses with Minirin nasal spray. In one overdose case, the patient increased the dose himself. In the second overdose case, the reporter suspected an overdose, but no additional information was provided.

3.3 LABEL AND LABELING RISK ASSESSMENT

Review of the container labels and carton labeling identified several potential sources of medication error. The container label and carton labeling does not provide any differentiation for the 0.1 mg and 0.2 mg strengths.

On the labels and labeling, the established name appears less than ½ the size of the proprietary name. Additionally, the product strength separates the established name from the dosage form.

The product strengths (0.1 mg and 0.2 mg) are small and difficult to read on the container labels. Additionally, the product strengths are not clearly differentiated from one another on the labeling.

On the carton labeling, the net quantity appears as prominent as the product strength.

The three blue horizontal stripes at the bottom of the carton and container labeling increase the similarity in appearance of the 0.1 mg and 0.2 mg strengths.

The presentation of the Applicant name on the container label appears more prominent than the product strength, and almost as prominent as the proprietary name.

The NDC number is not readily visible as it does not appear on the principle display panel.

The package insert does not contain a conversion chart on how to switch patients from the nasal spray formulation to the tablet formulation of Minirin.

The abbreviation 'µ' appears in the 'Pregnancy' subsection of the 'Precautions' section in package insert.

The 'Dosage and Administration' section of the package insert does not contain the lower age limit for pediatric patients with central diabetes insipidus.

The 'Dosage and Administration' section of the package insert for patients with central diabetes insipidus indicates that patients should be started on doses 0.05 mg twice daily, however, Minirin will only be available in 0.1 mg and 0.2 mg tablets.

4 DISCUSSION

4.1 PROPRIETARY NAME RISK ASSESSMENT

The Division of Medication Error Prevention reviewed the proprietary name, Minirin, on two occasions. In 2003, we reviewed the name after the NDA was approved as a nasal spray without a proprietary name. We objected to the name, Minirin (desmopressin nasal spray), based on concerns with look-alike and sound-alike confusion of Minirin with Minocin and Minitran. We again reviewed the name in 2005 with the proposed dosage form of tablets and objected to the name based upon potential confusion with the same names identified in the initial review, Minocin and Minitran. Additionally, we had concerns that there could be confusion within the Minirin product line. Appendix F contains our concerns for Minocin and Minitran as outlined in the OSE #01-026-2 review.

Although we initially objected to Minirin (desmopressin nasal spray) based upon potential confusion with Minocin and Minitran, postmarketing surveillance did not result in any medication error between Minirin and Minocin, and Minirin and Minitran. Despite the lack of postmarketing confusion between Minirin (nasal spray) and Minocin and Minitran, we believe that the risk of confusion between Minirin (tablets) and Minocin (tablets) and Minitran (transdermal patch) are heightened due to increased overlapping product characteristics, especially in the case of Minirin and Minocin, where both products share overlapping dosage forms, route of administration, dosage frequencies, and overlapping numerals in their product strengths (see Appendix F for specific details).

During this re-review of the proprietary name we also found that Minirin appears to be vulnerable to two additional names, Niravam and Minerin, as a result of the Proprietary Name Risk Assessment. These concerns are described below.

4.1.1 Niravam

Niravam was identified as having orthographic similarity to Minerin. Niravam (alprazolam) is indicated for the treatment of anxiety disorders and transient symptoms of anxiety, and for the treatment of panic disorders.

Niravam and Minirin both contain 7 letters, and the names share a similar prefix ('Ni-' vs. Mi-'). The third letter of each name ('r' vs. 'n') may appear similar when scripted (see example below). Additionally, the letters ('v' vs. 'r') may also appear similar when scripted. The endings of each name ('-am' vs. '-in') may appear ambiguous when the name trails off at the end. In addition to orthographic similarities, Niravam and Minirin share some overlapping product characteristics such as dosage form (solid oral: orally disintegrating tablets, tablets), route of administration (oral), frequency of administration (three times daily), and achievable dose (up to 0.75 mg). Additionally, Niravam and Minirin share similar numerical strengths (0.25 mg vs. 0.2 mg) and (1 mg, 2 mg vs. 0.1 mg, 0.2 mg).

Therefore, we believe that the orthographic similarity between Niravam and Minirin in addition to the aforementioned product characteristics increases the potential for risk of medication errors between the two drug products.

Minirin
Niravam

4.1.2 *Minerin*

Minerin and Minirin are phonetically and orthographically similar. Minerin is an over-the-counter cream or lotion indicated for the treatment of dry skin. It is a generic version of Eucerin. It is applied to the affected area(s) as needed.

The phonetic similarity between Minerin and Minirin stems from the fact that both names contain 3 syllables. The first and third syllables are identical ('Min-' and '-rin'), and the second syllables of each name may have an identical pronunciation ('e' vs. 'i'). Hence, the names are phonetically identical. Both names are almost identical in spelling except for the fourth letter ('e' vs. 'i'). This minor difference is essentially negligible when scripted. It is noted that Minirin and Minerin differ in product characteristics: strength (0.1 mg, 0.2 mg vs. no strength), dosage form (tablet vs. cream), route of administration (oral vs. topical), and frequency of administration (2-3 times daily vs. as directed).

Minerin can be found in Drug Facts & Comparisons, and through the Google search engine which links to three websites that carry the drug: www.harvardlink.com and <http://www.drugsdepot.com/catalog.php> and www.rxpalace.com. Despite differentiating product characteristics (indication, strength, dosage form, route of administration, and dosing frequency), the overwhelming orthographic and phonetic similarity of Minirin to the over-the-counter product, Minerin, will lead to potential confusion if this name pair is allowed to co-exist in the marketplace. Furthermore, 21 CFR 201.10(c)(5) states "the labeling of a drug may be misleading be reason (among other reasons) of... designation of a drug or ingredient by a proprietary name that, because of similarity in spelling or pronunciation, may be confused with the proprietary name or the established name of a different drug or ingredient." Due to strong orthographic and phonetic similarities, we believe there is a risk of confusion between Minirin and Minerin and do not recommend the name.

Minerin
Minirin



4.2 LABEL AND LABELING RISK ASSESSMENT

The results of the Label and Labeling Risk Assessment found that the presentation of information and design of the proposed carton and container labels appears to be vulnerable to confusion that could lead to medication errors.

4.2.1 Container Label

We noted several areas in our review of the labels that could be revised so that the established name is more prominent, the strength is more prominent and easier to locate, the strengths are more distinguishable, the NDC numbers are included on the principle display panel, and the company name is less prominent.

The established name is small and difficult to read. It appears less than ½ the size of the proprietary name. This is not in accordance with 21 CFR 201.10(g)(2). Identification of the active ingredient is important, especially since there are proprietary names that are similar to Minirin.

It is difficult to locate the product strength because it is placed in between the established name and dosage form. This is not the typical location of this information and in its current location; it will take practitioners longer to locate the strength. The dosage form should appear juxtapose to the established name. The strength would be more noticeable if it appears below the established name.

When comparing the container labels side-by-side, the two strengths appear almost identical. The product strengths are not prominent on the principle display panel, and they are not clearly differentiated from one another. By not clearly differentiating the strengths, the risk of selection errors increases due to the similarity of the labels.

The three blue horizontal stripes at the bottom of the container label for the both the 0.1 mg and 0.2 mg strengths also increase the similar appearance of the labels. This may potentially cause selection errors because the labels are too similar in appearance.

Although the Applicant's name appears towards the bottom of the container label, it appears more prominent than the product strength and almost as prominent as the proprietary name because the font type, color and boxing increase the prominence of the Applicant's name. The most prominent information on the container label should be the proprietary name, established name, and product strength. Therefore, to increase the prominence of the established name and product strength, the Applicant name should be minimized.

We also noted the NDC number does not appear on the principle display panel, which is not in accordance with 21 CFR 207.35(b)(3)(i).

4.2.2 Carton Labeling

The established name is small and difficult to read. It appears less than ½ the size of the proprietary name. This is not in accordance with 21 CFR 201.10(g)(2). As previously mentioned, identification of the active ingredient is important, especially since there are proprietary names that are similar to Minirin.

The dosage form does not appear in conjunction with the established name. This is not an accurate representation of the entire established name, which includes the dosage form. The dosage form should appear juxtapose to the established name; this would also increase the prominence of the product strength.

When comparing the container labels side-by-side, the two strengths appear almost identical. The product strengths are not prominent on the principle display panel, and they are not clearly differentiated from one another. By not clearly differentiating the strengths, the risk of selection errors increases due to the similarity of the labels.

The net quantity (100 tablets) appears as prominent as the product strength. It is also in close proximity to the proprietary name. Postmarketing surveillance has shown that the proximity and prominence of the net quantity in to the proprietary name has lead to confusion with the product strength. Therefore, by relocating the net quantity away from the proprietary name, and by decreasing its prominence, the potential for confusion with the product strength is minimized.

The three blue horizontal stripes at the bottom of the container label for the both the 0.1 mg and 0.2 mg strengths also increase the similar appearance of the labels. This may potentially cause selection errors because the labels are too similar in appearance.

We also noted the NDC number does not appear on the principle display panel, which is not in accordance with 21 CFR 207.35(b)(3)(i).

4.2.3 Package Insert

We note the Applicant has used the abbreviation 'μ' in the Pregnancy subsection of the Precautions section of the package insert. The abbreviation 'μ' appears on the JCHAO list of dangerous abbreviations because it has been misinterpreted to mean 'm' (for 'milli') resulting in 1,000-fold dosing errors. In June 2006, FDA and ISMP launched a nationwide campaign to prevent the use of error-prone abbreviations such as 'μ' in prescribing. As part of this campaign, FDA agreed not to approve such abbreviations in their labeling because these abbreviations are carried over into prescribing practice. To be in accordance with this campaign, and to avoid any confusion, it would be best if FDA eliminated such use of abbreviations like these in their approved labeling.

We also noted that in the Dosage and Administration section of the package insert, specifically in the second paragraph of the central diabetes insipidus section, the last sentence directs the user to the pediatric subsection for considerations when administering Minirin to pediatric patients. It does not include a lower age limit for pediatric patients in the same manner as the dosage and administration section for the primary nocturnal enuresis indication. The lower age limit for pediatric patients should be included in the dosage and administration section rather than directing the user to locate this important information in another section of the package insert.

4.3 OTHER SAFETY ISSUE- DOSING

We note that the directions in the Dosage and Administration section for patients with central diabetes insipidus recommends that patients be started on doses of 0.05 mg (1/2 of the 0.1 mg tablet) two times a day and the optimal dosage range is 0.1 mg to 0.8 mg daily administered in divided doses. However, the Applicant only provides tablets available in 0.1 mg and 0.2 mg strengths. This forces patients to break the 0.1 mg tablet since a 0.05 mg tablet is not provided. For example, a total daily dose of 0.1 mg given twice daily or three times a day would require a patient to split the 0.1 mg tablet into 2 or 3 sections, respectively. It is noted that not all patients are able to break tablets easily. Additionally, there can be problems inherent to the splitting of tablets, including but not limited to, tablet crushing, overdose, underdose, etc. Because the recommended starting dose for patients with central diabetes insipidus is 0.05 mg and the maintenance dose begins at 0.1 mg/day in divided doses, the Applicant should provide a 0.05 mg tablet.

5 CONCLUSIONS AND RECOMMENDATIONS

The Proprietary Name Risk Assessment findings indicate that the proposed name, Minirin, appears to be vulnerable to name confusion that could lead to medication errors with Niravam, Minerin, Minocin, Minitran, and Minirin (nasal spray).

Although we initially objected to Minirin (desmopressin nasal spray) based upon potential confusion with Minocin and Minitran, postmarketing surveillance has not resulted in any medication errors between

Minirin and Minocin, and Minirin and Minitran that we are aware of. Despite the lack of postmarketing confusion between Minirin (nasal spray) and Minocin and Minitran, we believe that the risk of confusion between Minirin (tablets) and Minocin (tablets) and Minitran (transdermal patch) are heightened due to increased overlapping product characteristics, especially in the case of Minirin and Minocin, where both products share overlapping dosage forms (oral: capsules vs. tablets), route of administration (oral), dosage frequencies (twice daily), and overlapping numerals in their product strengths (0.1 mg or **100 mcg** vs. **100 mg**).

As such, we continue to object to the use of the proprietary name, Minirin for desmopressin acetate tablets. The Applicant should submit two alternate proprietary names and identify their primary and secondary choice. We are not requesting a name change for the nasal spray dosage form.

The Label and Labeling Risk Assessment findings indicate that the presentation of information and design of the proposed container labels and carton labeling introduces vulnerability to confusion that could lead to medication errors. We believe the risks we have identified can be addressed and mitigated prior to drug approval, and provide recommendations in section 5.2 that aim at reducing the risk of medication errors.

5.1 COMMENTS TO THE DIVISION

Based upon our risk assessment of the proposed proprietary name, we continue to object to the proprietary name, Minirin for desmopressin acetate tablets, because of potential confusion with Minirin (nasal spray), Minocin, Minitran, Minerin, and Niravam. Although we initially objected to Minirin (desmopressin nasal spray) based upon potential confusion with Minocin and Minitran, postmarketing surveillance has not resulted in any medication errors between Minirin and Minocin, and Minirin and Minitran that we are aware of. Despite the lack of postmarketing confusion between Minirin (nasal spray) and Minocin and Minitran, we believe that the risk of confusion between Minirin (tablets) and Minocin (tablets) and Minitran (transdermal patch) are heightened due to increased overlapping product characteristics, especially in the case of Minirin and Minocin, where both products share overlapping dosage forms (oral: capsules vs. tablets), route of administration (oral), dosage frequencies (twice daily), and overlapping numerals in their product strengths (0.1 mg or **100 mcg** vs. **100 mg**). We are not requesting a name change for the nasal spray dosage form.

We recommend that the comments in section 5.2 be forwarded to the Applicant.

We would appreciate feedback of the final outcome of this review. We would be willing to meet with the Division for further discussion, if needed. Please copy the Division of Medication Error Prevention any communication to the Applicant with regard to this review. If you have any questions or need clarification, contact Cheryl Campbell, Project Manager, at 301-796-0723.

5.2 COMMENTS TO THE APPLICANT

The findings of our Proprietary Name Risk Assessment indicate that the proposed name, Minirin, has similarity to other proprietary and established drug names and appears to be vulnerable to name confusion that could lead to medication errors with Niravam, Minerin, Minocin, Minitran, and product line confusion with Minirin (desmopressin nasal spray). Our rationale is described in detail below (section 5.2.1)

As such, the Division of Medication Error Prevention objects to the use of the proprietary name, Minirin for desmopressin tablets. We recommend you submit two alternate proprietary names and identify your primary and secondary choice. We are not requesting a name change for the nasal spray dosage form.

We also recommend you market a 0.05 mg strength to accommodate the recommended starting dose and minimal total daily dose for central diabetes insipidus (see section 5.2.2).

Finally, we recommend the label and labeling recommendations outlined in section 5.2.3 below be implemented to improve differentiation between the two strengths and to increase differentiation of the labels and labeling.

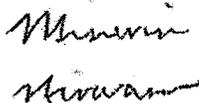
5.2.1 Proprietary name

1. Niravam

Niravam was identified as having orthographic similarity to Minerin. Niravam (alprazolam) is indicated for the treatment of anxiety disorders and transient symptoms of anxiety, and for the treatment of panic disorders.

Niravam and Minerin both contain 7 letters, and the names share a similar prefix ('Ni-' vs. Mi-'). The third letter of each name ('r' vs. 'n') may appear similar when scripted (see example below). Additionally, the letters ('v' vs. 'r') may also appear similar when scripted. The endings of each name ('-am' vs. '-in') may appear ambiguous when the name trails off at the end. In addition to orthographic similarities, Niravam and Minerin share some overlapping product characteristics such as dosage form (solid oral: orally disintegrating tablets, tablets), route of administration (oral), frequency of administration (three times daily), and achievable dose (up to 0.75 mg). Additionally, Niravam and Minerin share similar numerical strengths (0.25 mg vs. 0.2 mg) and (1 mg, 2 mg vs. 0.1 mg, 0.2 mg).

Therefore, we believe that the orthographic similarity between Niravam and Minerin in addition to the aforementioned product characteristics increases the potential for risk of medication errors between the two drug products.



2. Minerin

MinerIn and Minirin are phonetically and orthographically similar. Minerin is an over-the-counter cream or lotion indicated for the treatment of dry skin. It is a generic version of Eucerin. It is applied to the affected area(s) as needed.

The phonetic similarity between Minerin and Minirin stems from the fact that both names contain 3 syllables. The first and third syllables are identical ('Min-' and '-rin'), and the second syllables of each name may have an identical pronunciation ('e' vs. 'i'). Hence, the names are phonetically identical. Both names are almost identical in spelling except for the fourth letter ('e' vs. 'i'). This minor difference is essentially negligible when scripted. It is noted that Minirin and Minerin differ in product characteristics: strength (0.1 mg, 0.2 mg vs. no strength), dosage form (tablet vs. cream), route of administration (oral vs. topical), and frequency of administration (2-3 times daily vs. as directed).

MinerIn can be found in Drug Facts & Comparisons, and through the Google search engine which links to three websites that carry the drug: www.harvardlink.com and <http://www.drugsdepot.com/catalog.php> and www.rxpalace.com. Despite differentiating product characteristics (indication, strength, dosage form, route of administration, and dosing frequency), the overwhelming orthographic and phonetic similarity of Minirin to the over-the-counter product, Minerin, will lead to potential confusion if this name pair is allowed to co-exist in the marketplace. Furthermore, 21 CFR 201.10(c)(5) states "the labeling of a drug may be misleading by reason (among other reasons) of... designation of a drug or ingredient by a proprietary name that, because of similarity in spelling or pronunciation, may be confused with the proprietary name or the established name of a different drug or ingredient." Due to strong orthographic and phonetic similarities, we believe there is a risk of confusion between Minerin and Minirin and do not recommend the name.

Minocin
Minirin



3. Minocin

Minocin was previously identified as having look-alike and sound-alike potential with Minirin. Minocin (minocycline) is a tetracycline antibiotic indicated for the treatment of various infections susceptible to tetracycline antibiotics. Minocin is currently available as 50 mg and 100 mg tablets. Minocin was also available as 75 mg capsules, 50 mg/mL oral suspension, and 100 mg powder for injection; however, these dosage forms have been discontinued by the manufacturer. Generic minocycline is available in the 75 mg capsules; however the oral suspension and injection is not available as a generic. The usual dose of Minocin is 50 mg to 100 mg every 12 hours.

The Division indicated that the introduction of the oral dosage form of Minirin amplifies the potential for name confusion and error. Minocin and Minirin share the same number of letters (seven) and syllables (three). The two names differ in only two letters, the 'oc' in Minocin and 'ir' in Minirin. These letters can look very similar when scripted in the middle of a word (see writing sample below). Moreover, to compound the potential for confusion between the two drug names, they share the same dosage form (oral: capsules vs. tablets), route of administration (oral), dosage frequencies (twice daily), and overlapping numerals in their product strengths (0.1 mg or 100 mcg vs. 100 mg).

Furthermore, three respondents from the prescription studies (two from the inpatient written study and one from the verbal study) in OSE review 01-0126-2 section IIC2, commented that the proposed name looks and sounds similar to the currently marketed U.S. product, Minocin. The comments were as follows: "Watch out for Minocin as a similar name. Would not allow it.", "sounds like Minocin", and "looks very similar to minocin". A prescriber may write a prescription for "Minirin 100 mcg PO BID, #60" vs. "Minocin 100 mg PO BID, #60". If the wrong medication is dispensed, serious adverse events may occur, such as untreated infection, hyponatremia, fluid and electrolyte abnormalities, and anaphylaxis in patients contraindicated to take either medication. The strong look-alike and sound-alike similarities combined with the overlapping product characteristics and introduction of a new oral dosage form increase the potential for confusion and error between Minocin and Minirin.

Minirin 100mg PO BID #60
Minocin 100mg PO BID #60

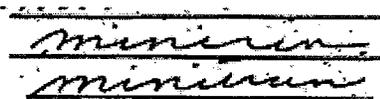
4. Minitran

Minitran and Minirin may have look-alike and sound-alike similarities. Minitran (nitroglycerin) is available as 0.1 mg/hr, 0.2 mg/hr, 0.4 mg/hr, and 0.6 mg/hr extended-release transdermal patches. Minitran is usually applied once daily and removed at night.

We did not recommend the use of the name Minirin due to look-alike and sound-alike concerns with Minitran. The introduction of the oral dosage form of Minirin increases the potential for name confusion and error. Both drug names contain the same number of syllables (three) and contain six overlapping letters in similar positions ("MINITRAN" vs. "MINIRIN"), which contribute to the look-alike and sound-alike characteristics. Additionally the second to last letters 'a' and 'i' may look-alike when scripted (see

writing sample below) and sound-alike when spoken. Moreover, if the 't' in the middle of Minitran is spoken quickly or given minimal emphasis the two names can sound very similar.

These products also have overlapping product characteristics, such as available strengths (0.1 mg and 0.2 mg) and dosing intervals (once daily). We noted that the two products have different characteristics such as dosage form (transdermal patch vs. tablet and nasal spray) and route of administration (topical vs. oral and nasal). Minitran is only available in one dosage form, and thus, the route of administration may be omitted from a prescription (i.e. Minitran 0.1 mg QD, #30). Although Minirin will be available in two dosage forms (nasal spray, tablet); if the route of administration is omitted on a prescription for Minirin tablets and the strength and quantity to dispense is present (i.e. "Minirin 0.1 mg QD, #30), a pharmacist or pharmacy technician may not need to clarify the prescription; additionally, since the strength of the tablets is different than that of the nasal spray the aforementioned order would not be unusual. A patient newly started on either medication may not recognize the difference and use the medication dispensed per directions on the pharmacy label. A similar event may occur in an inpatient setting. If a medication order reads "Minirin 0.1 mg QD" vs. "Minitran 0.1 mg QD", a nurse or unit secretary may transcribe the medication incorrectly, the pharmacy may dispense the wrong medication, and ultimately the wrong medication may be administered. The look-alike and sound-alike similarities combined with the overlapping dosing intervals and available strengths increase the potential for name confusion between Minitran and Minirin.



The image shows two lines of handwritten text on lined paper. The first line is "minirin" and the second line is "minitran". Both words are written in a cursive, lowercase font. The letters are somewhat slanted and connected, making them look very similar. The words are underlined with a single horizontal line.

5. Minirin (desmopressin nasal spray)

Minirin tablets are a product line extension of Minirin, which is currently marketed in a nasal spray formulation. Minirin nasal spray is available in 5 mL bottles which deliver 10 mcg/0.1 mL. The usual dose of Minirin nasal spray is expressed in milliliters (mL), and is 0.1 mL to 0.4 mL daily, in single or divided doses. When converted into milligrams (mg), the usual dose of the nasal formulation of Minirin is 0.01 mg to 0.04 mg daily, in single or divided doses. This dose is not equivalent to the oral tablet dose, which is 0.1 mg to 0.8 mg daily, in 2 to 3 divided doses.

The names were identified as having orthographic and phonetic similarities because both medications share an identical name (Minirin) and active ingredient (desmopressin). Additionally, they also share the same indication for use (central cranial diabetes insipidus and primary nocturnal enuresis), dosing frequency (daily, in divided doses), and overlapping numerals in the usual dose (**0.1 mL** or 0.01 mg vs. **0.1 mg**). The dosage form differs between the two products (nasal spray vs. tablet), thus a pharmacist would need to clarify the dosage form if omitted from a prescription. We are concerned with the overlap in dosage numerals coupled with the ten-fold difference in dose, as there is potential for error and adverse events involving the over- and under- dosing of Minirin. Furthermore, due to the dosage difference between the tablet and nasal spray formulations, we are concerned with the potential for errors when converting patients from one dosage form to the other. Therefore, we recommend the implementation of an educational campaign at the launch of the tablet formulation.

5.2.2 Other Safety Issue- Dosing

The recommended starting dose for patients with central diabetes insipidus is 0.05 mg and the maintenance dose begins at 0.1 mg/day in divided doses. The available strengths do not provide for this dose without patients and healthcare providers splitting tablets. Therefore, if 0.05 mg is the recommended starting dose, a 0.05 mg tablet should be developed to provide this dose.

5.2.3 Labels and Labeling

As a general recommendation, on all of the labels and labeling, increase the prominence of the established name to at least ½ the size of the proprietary name in accordance with 21 CFR 201.10(g)(2).

5.2.3.1 Carton and Container Labels

1. Revise the established name so the dosage form (tablets) is juxtaposed with the established name (e.g., desmopressin acetate tablets).
2. On the container label, relocate the product strength so it appears beneath the established name instead of in between the established name and dosage form. The manufacturer information may need to be relocated to the side panel to accommodate this.
3. Increase the prominence of the product strengths, and clearly differentiate the strengths by using contrasting color, boxing, or some other means.
4. Delete the three horizontal stripes from the bottom of the container labels or differentiate the color of the stripes for each different strength. For example, if the Applicant uses green for a product strength, then the horizontal stripes on that container label should be green as well.
5. On the carton labeling, decrease the prominence and relocate the net quantity away from the proprietary name.
6. Decrease the prominence of the Applicant name on the principle display panel of the container label.
7. Relocate the NDC number to the top third of the principle display panel in accordance with 21 CFR 207.35(b)(3)(i).

5.2.3.2 Package Insert

1. Replace the 'μ' abbreviation in the 'Pregnancy' subsection of the 'Precautions' section by spelling out the word 'microgram' or utilizing 'mcg'.
2. In the Dosage and Administration section of the package insert, specifically in the second paragraph of the central diabetes insipidus section, include the lower age limit for pediatric patients in the same manner as the dosage and administration section for the primary nocturnal enuresis indication.

APPEARS THIS WAY ON ORIGINAL

6 REFERENCES

6.1 REVIEWS

1. *OSE Review #01-0216-1, Proprietary Name Review for Minirin (Desmopressin Acetate Nasal Spray), Toyer, D; February 28, 2003.*
2. *OSE Review #01-0126-2, Proprietary Name Review for Minirin (Desmopressin Acetate Tablets), Tezky, T; April 26, 2005.*

6.2 DATABASES

1. *Adverse Events Reporting System (AERS)*

AERS is a database application in CDER FDA that contains adverse event reports for approved drugs and therapeutic biologics. These reports are submitted to the FDA mostly from the manufacturers that have approved products in the U.S. The main utility of a spontaneous reporting system that captures reports from health care professionals and consumers, such as AERS, is to identify potential postmarketing safety issues. There are inherent limitations to the voluntary or spontaneous reporting system, such as underreporting and duplicate reporting; for any given report, there is no certainty that the reported suspect product(s) caused the reported adverse event(s); and raw counts from AERS cannot be used to calculate incidence rates or estimates of drug risk for a particular product or used for comparing risk between products.

2. *Micromedex Integrated Index (<http://weblern/>)*

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

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

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

4. *Drug Facts and Comparisons, online version, St. Louis, MO (<http://weblern/>)*

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

5. *AMF Decision Support System [DSS]*

DSS is a government database used to track individual submissions and assignments in review divisions.

6. *Division of Medication Error Prevention proprietary name consultation requests*

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

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

Drugs@FDA contains most of the drug products approved since 1939. The majority of labels, approval letters, reviews, and other information are available for drug products approved from 1998 to the present.

Drugs@FDA contains official information about FDA approved brand name and generic drugs and therapeutic biological products; prescription and over-the-counter human drugs and therapeutic biologicals, discontinued drugs and “Chemical Type 6” approvals.

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

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

9. *USPTO* (<http://www.uspto.gov>)

Provides information regarding patent and trademarks.

10. *Clinical Pharmacology Online* (<http://weblern/>)

Contains full monographs for the most common drugs in clinical use, plus mini monographs covering investigational, less common, combination, nutraceutical and nutritional products. Provides a keyword search engine.

11. *Data provided by Thomson & Thomson's SAEGIS™ Online Service, available at*
www.thomson-thomson.com

The Pharma In-Use Search database contains over 400,000 unique pharmaceutical trademarks and tradenames that are used in about 50 countries worldwide. The data is provided under license by IMS HEALTH.

12. *Natural Medicines Comprehensive Databases* (<http://weblern/>)

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

13. *Stat!Ref* (<http://weblern/>)

Contains full-text information from approximately 30 texts. Includes tables and references. Among the database titles are: Handbook of Adverse Drug Interactions, Rudolphs Pediatrics, Basic Clinical Pharmacology and Dictionary of Medical Acronyms Abbreviations.

14. *USAN Stems* (<http://www.ama-assn.org/ama/pub/category/4782.html>)

List contains all the recognized USAN stems.

15. *Red Book Pharmacy's Fundamental Reference*

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

16. *Lexi-Comp* (www.pharmacist.com)

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

17. *Medical Abbreviations Book*

Contains commonly used medical abbreviations and their definitions.

APPENDICES

Appendix A:

The Medication Error Staff consider the spelling of the name, pronunciation of the name when spoken, and appearance of the name when scripted. The Division of Medication Error Prevention also compares the spelling of the proposed proprietary name with the proprietary and established name of existing and proposed drug products because similarly spelled names may have greater likelihood to sound similar to one another when spoken or look similar to one another when scripted. The Medication Error Staff also examine the orthographic appearance of the proposed name using a number of different handwriting samples. Handwritten communication of drug names has a long-standing association with drug name confusion. Handwriting can cause similarly *and* dissimilarly spelled drug name pairs to appear very similar to one another and the similar appearance of drug names when scripted has lead to medication errors. The Medication Error Staff apply their expertise gained from root-cause analysis of such medication errors to identify sources of ambiguity within the name that could be introduced when scripting (i.e. ‘T’ may look like ‘F,’ lower case ‘a’ looks like a lower case ‘u,’ etc), along with other orthographic attributes that determine the overall appearance of the drug name when scripted (see detail in Table 1 below). Additionally, since verbal communication of medication names is common in clinical settings, the Medication Error Staff compare the pronunciation of the proposed proprietary name with the pronunciation of other drug names. If provided, we will consider the Applicant’s intended pronunciation of the proprietary name. However, because the Applicant has little control over how the name will be spoken in practice, we also consider a variety of pronunciations that could occur in the English language.

Table 1. Criteria used to identify drug names that look- or sound-similar to a proposed proprietary name

Type of similarity	Considerations when searching the databases		
	Potential causes of drug name similarity	Attributes examined to identify similar drug names	Potential Effects
Look-alike	Similar spelling	Identical prefix Identical infix Identical suffix Length of the name Overlapping product characteristics	<ul style="list-style-type: none"> Names may appear similar in print or electronic media and lead to drug name confusion in printed or electronic communication Names may look similar when scripted and lead to drug name confusion in written communication
	Orthographic similarity	Similar spelling Length of the name Upstrokes Downstrokes Cross-strokes	<ul style="list-style-type: none"> Names may look similar when scripted, and lead to drug name confusion in written communication

		Dotted letters Ambiguity introduced by scripting letters Overlapping product characteristics	
Sound-alike	Phonetic similarity	Identical prefix Identical infix Identical suffix Number of syllables Stresses Placement of vowel sounds Placement of consonant sounds Overlapping product characteristics	<ul style="list-style-type: none"> Names may sound similar when pronounced and lead to drug name confusion in verbal communication

Appendix B: Proprietary names in DSS withdrawn by Commissioner or approved but unable to be found in standard drug resources or through a general internet search.

Proprietary Name	Similarity to Minirin	Status in DSS
Minihist	Look	Withdrawn by Commissioner
Min-a-rex	Look	Withdrawn by Commissioner
Minitec	Look	Approved; unable to find in standard drug resources or through a general internet search

Appendix C: Proprietary names no longer marketed, and generics are not available

Proprietary Name	Similarity to Minirin	Status	Source
Menrium (Chlordiazepoxide and Esterified Estrogens)	Sound	Discontinued, no generics available	Drugs@FDA

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

Product name with potential for confusion	Similarity to Minirin	Strength	Usual Dose (if applicable)	Source
Minirin (Desmopressin acetate tablets)		0.1 mg, 0.2 mg	Usual dose: Diabetes insipidus: 0.05 mg to 0.8 mg daily, administered in divided doses (two or three times daily) Primary nocturnal enuresis: 0.2 mg up to 0.6 mg at bedtime.	Package Insert
Medilan (Modified Lanolin USP and Wool Fat PhEur)	Sound	N/A- medical grade lanolin	Used in a variety of topical formulations. Apply to affected area as directed.	www.crodausa.com
Nazarin Liquid (Phenylephrine and Guaifenesin)	Look	7.5 mg/200 mg liquid	<u>Children ≥ 12 yrs and adults:</u> 10 mL q 4-6 hrs, max 40 mL/day <u>Children 6-12 yrs:</u> 5 mL q4-6 hrs, max 20 mL/day <u>Children 2-6 yrs:</u> 2.5 mL q 4-6 hrs, max 10 mL/day	Facts & Comparisons
Micrainin (Aspirin/Meprobamate) Discontinued, but a brand is available	Look	325 mg/200 mg tablets	1-2 tablets q 2-6 hrs as needed for pain	Drugs@FDA and Facts and Comparisons
Mucinex (Guaifenesin extended-release tablets)	Look	1200 mg tablets	1-2 tablets q 12 hrs	Drugs@FDA
Niacin (Niacin)	Look	50 mg, 100 mg, 125 mg, 250 mg, 400 mg, 500 mg, 750 mg, 1000 mg (variety of dosage forms: tablets, time-release tablets, capsules, time-release capsules)	1 tablet/day	Drugs@FDA and Lexi-comp

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

Failure Mode: Name confusion	Causes (could be multiple)	Effects
<p align="center">Minirin (Desmopressin acetate Tablets)</p>	<p>0.1 mg, 0.2 mg</p>	<p><u>Usual dose: Diabetes insipidus:</u> 0.05 mg to 0.8 mg daily, administered in divided doses (two or three times daily)</p> <p><u>Primary nocturnal enuresis:</u> 0.2 mg up to 0.6 mg at bedtime</p>
<p>Myleran (Busulfan)</p>	<p>Phonetic similarity (both contain 3 syllables, '-rin' and '-ran' may sound similar when spoken)</p> <p>Similar numerical strength (0.2 mg and 2 mg if the leading zero is omitted)</p> <p>Overlapping dosage form (tablet), and route of administration (oral)</p> <p>Similar numerical achievable dose (0.4 mg to 0.8 mg if the leading zero is omitted)</p>	<p>Phonetic differences in the names minimize the likelihood of medication error in the usual practice setting:</p> <p><i>Rationale:</i></p> <p>The risk for medication error is minimized by the phonetic differences in the names. The beginning of each name sounds different when spoken ('My-' vs. 'Min-'). Although the second syllable of each name rhymes, they are different ('-le-' vs '-ni-').</p> <p>Myleran is an anti-cancer drug for the treatment of CML whereas Minirin is indicated for the treatment of diabetes insipidus and primary nocturnal enuresis. Cancer drugs are not typically given verbally, which may help to minimize confusion between these drugs. Additionally, Myleran is dosed once daily while Minirin is administered in divided doses (2-3 times daily).</p> <p>Although Myleran and Minirin share a similar numerical strength (0.2 mg and 2 mg if the leading zero is omitted), usual practice would not typically involve the omission of leading zeros, though medication errors have been linked to this dangerous habit. Numerous campaigns (JCAHO, ISMP, FDA) to encourage the use of leading zeros when communicating drug information should help to further reduce risk of medication error.</p> <p>Despite some overlapping product characteristics, the phonetic differences and the unlikelihood of the omission of a leading zero minimizes the potential for confusion between Myleran and Minirin.</p>

Appendix F: Names previously identified as having confusion with Minirin

1. Minirin (desmopressin nasal spray)

Minirin tablets are a product line extension of Minirin, which is currently marketed in a nasal spray formulation. Minirin nasal spray is available in 5 mL bottles which deliver 10 mcg/0.1 mL. The usual dose of Minirin nasal spray is expressed in milliliters (mL), and is 0.1 mL to 0.4 mL daily, in single or divided doses. When converted into milligrams (mg), the usual dose of the nasal formulation of Minirin is 0.01 mg to 0.04 mg daily, in single or divided doses. This dose is not equivalent to the oral tablet dose, which is 0.1 mg to 0.8 mg daily, in 2 to 3 divided doses.

The names were identified as having orthographic and phonetic similarities because both medications share an identical name (Minirin) and active ingredient (desmopressin). Additionally, they also share the same indication for use (central cranial diabetes insipidus and primary nocturnal enuresis), dosing frequency (daily, in divided doses), and overlapping numerals in the usual dose (**0.1 mL** or **0.01 mg** vs. **0.1 mg**). The dosage form differs between the two products (nasal spray vs. tablet), thus a pharmacist would need to clarify the dosage form if omitted from a prescription. We are concerned with the overlap in dosage numerals coupled with the ten-fold difference in dose, as there is potential for error and adverse events involving the over- and under- dosing of Minirin. Furthermore, due to the dosage difference between the tablet and nasal spray formulations, we are concerned with the potential for errors when converting patients from one dosage form to the other. Therefore, we recommend the implementation of an educational campaign at the launch of the tablet formulation.

2. Minocin

Minocin was previously identified as having look-alike and sound-alike potential with Minirin. Minocin (minocycline) is a tetracycline antibiotic indicated for the treatment of various infections susceptible to tetracycline antibiotics. Minocin is currently available as 50 mg and 100 mg tablets. Minocin was also available as 75 mg capsules, 50 mg/mL oral suspension, and 100 mg powder for injection; however, these dosage forms have been discontinued by the manufacturer. Generic minocycline is available in the 75 mg capsules; however the oral suspension and injection is not available as a generic. The usual dose of Minocin is 50 mg to 100 mg every 12 hours.

The Division indicated that the introduction of the oral dosage form of Minirin amplifies the potential for name confusion and error. Minocin and Minirin share the same number of letters (seven) and syllables (three). The two names differ in only two letters, the 'oc' in Minocin and 'ir' in Minirin. These letters can look very similar when scripted in the middle of a word (see writing sample below). Moreover, to compound the potential for confusion between the two drug names, they share the same dosage form (oral: capsules vs. tablets), route of administration (oral), dosage frequencies (twice daily), and overlapping numerals in their product strengths (0.1 mg or **100 mcg** vs. **100 mg**).

Furthermore, three respondents from the prescription studies (two from the inpatient written study and one from the verbal study) in OSE review 01-0126-2 section IIIC2, commented that the proposed name looks and sounds similar to the currently marketed U.S. product, Minocin. The comments were as follows: "Watch out for Minocin as a similar name. Would not allow it.", "sounds like Minocin", and "looks very similar to minocin". A prescriber may write a prescription for "Minirin 100 mcg PO BID, #60" vs. "Minocin 100 mg PO BID, #60". If the wrong medication is dispensed, serious adverse events may occur, such as untreated infection, hyponatremia, fluid and electrolyte abnormalities, and anaphylaxis in patients contraindicated to take either medication. The strong look-alike and sound-alike similarities combined with the overlapping product characteristics and introduction of a new oral dosage form increase the potential for confusion and error between Minocin and Minirin.

Minirin 100mg PO BID #60
Minitran 100mg PO BID #60

3. Minitran

Minitran and Minirin may have look-alike and sound-alike similarities. Minitran (nitroglycerin) is available as 0.1 mg/hr, 0.2 mg/hr, 0.4 mg/hr, and 0.6 mg/hr extended-release transdermal patches. Minitran is usually applied once daily and removed at night.

We did not recommend the use of the name Minirin due to look-alike and sound-alike concerns with Minitran. The introduction of the oral dosage form of Minirin increases the potential for name confusion and error. Both drug names contain the same number of syllables (three) and contain six overlapping letters in similar positions ("MINITRAN" vs. "MINIRIN"), which contribute to the look-alike and sound-alike characteristics. Additionally the second to last letters 'a' and 'i' may look-alike when scripted (see writing sample below) and sound-alike when spoken. Moreover, if the 't' in the middle of Minitran is spoken quickly or given minimal emphasis the two names can sound very similar.

These products also have overlapping product characteristics, such as available strengths (0.1 mg and 0.2 mg) and dosing intervals (once daily). We noted that the two products have different characteristics such as dosage form (transdermal patch vs. tablet and nasal spray) and route of administration (topical vs. oral and nasal). Minitran is only available in one dosage form, and thus, the route of administration may be omitted from a prescription (i.e. Minitran 0.1 mg QD, #30). Although Minirin will be available in two dosage forms (nasal spray, tablet); if the route of administration is omitted on a prescription for Minirin tablets and the strength and quantity to dispense is present (i.e. "Minirin 0.1 mg QD, #30), a pharmacist or pharmacy technician may not need to clarify the prescription; additionally, since the strength of the tablets is different than that of the nasal spray the aforementioned order would not be unusual. A patient newly started on either medication may not recognize the difference and use the medication dispensed per directions on the pharmacy label. A similar event may occur in an inpatient setting. If a medication order reads "Minirin 0.1 mg QD" vs. "Minitran 0.1 mg QD", a nurse or unit secretary may transcribe the medication incorrectly, the pharmacy may dispense the wrong medication, and ultimately the wrong medication may be administered. The look-alike and sound-alike similarities combined with the overlapping dosing intervals and available strengths increase the potential for name confusion between Minitran and Minirin.

Minirin
Minitran

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Felicia Duffy
3/21/2008 12:33:48 PM
DRUG SAFETY OFFICE REVIEWER

Denise Toyer
3/21/2008 03:59:13 PM
DRUG SAFETY OFFICE REVIEWER

CONSULTATION RESPONSE

**DIVISION OF MEDICATION ERRORS AND TECHNICAL SUPPORT
OFFICE OF DRUG SAFETY
(DMETS; WO22 M/S 4447)**

DATE RECEIVED: March 15, 2005	DESIRED COMPLETION DATE: November 4, 2005	ODS CONSULT #: 01-0126-2
DOCUMENT DATE: March 2, 2005	PDUFA DATE: January 4, 2006	

TO: David Orloff, M.D.
Director, Division of Metabolism and Endocrinology Products
HFD-510

THROUGH: Lina AlJuburi
Project Manager, Division of Metabolism and Endocrinology Products
HFD-510

FROM: Tina M. Tezky, Pharm.D., Safety Evaluator
Alina Mahmud, R.Ph., M.S., Team Leader

PRODUCT NAME: Minirin™ (Desmopressin Acetate) Tablets 0.1 mg and 0.2 mg	NDA SPONSOR: Ferring Pharmaceuticals, Inc.
NDA#: 21-795	

RECOMMENDATIONS:

1. Although the proprietary name Minirin™ is approved, DMETS continues to object to the use of the name. With the introduction of the oral dosage form, we anticipate confusion between Minirin and Minocin and Minitran based on the product overlaps described in section IV of this review. Additionally, we recommend implementation of the container label, carton, and insert labeling revisions outlined in section IV of this review in order to minimize potential errors with the use of this product.
2. DDMAC finds the proprietary name, Minirin™, acceptable from a promotional perspective.

DMETS would appreciate feedback of the final outcome of this consult. We would be willing to meet with the Division for further discussion, if needed. If you have further questions or need clarifications, please contact Diane Smith, project manager, at 301-827-3242.

Denise P. Toyer, Pharm.D.
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**Division of Medication Errors and Technical Support (DMETS)
Office of Drug Safety
HFD-420; WO22, M/S 4447
Center for Drug Evaluation and Research**

PROPRIETARY NAME REVIEW

DATE OF REVIEW: April 26, 2005

NDA#: 21-795

NAME OF DRUG: Minirin™ (Desmopressin Acetate) Tablets
0.1 mg and 0.2 mg

NDA HOLDER: Ferring Pharmaceuticals, Inc.

I. INTRODUCTION:

This consult was written in response to a request from the Division of Metabolism and Endocrinology Products (HFD-510) for a review of the proprietary name, "Minirin™", regarding potential name confusion with other proprietary and/or established drug names. The container labels, carton labeling, and package insert labeling for Minirin tablets were retrieved from EDR dated March 2, 2005.

Minirin tablets are an extension of the Minirin product line. Minirin nasal spray (NDA 21-333) was approved by the FDA on September 16, 2002. The proprietary name, Minirin, was previously reviewed by DMETS on April 2, 2003 (ODS consult #01-0126-1) and found unacceptable, due to look-alike and/or sound-alike similarities with Minocin, Minitran, Midrin, and Micronor. The reviewing division disagreed with DMETS' opinion on the acceptability of Minirin and approved the name in a supplement on 9/4/03.

PRODUCT INFORMATION

Minirin (desmopressin acetate tablets) is a synthetic analog of the natural pituitary hormone, 8-arginine vasopressin (ADH), an antidiuretic hormone affecting renal water conservation. Minirin is indication for the management of primary nocturnal enuresis, as antidiuretic replacement therapy in the management of central cranial diabetes insipidus, and the management of temporary polyuria and polydipsia following head trauma or surgery in the pituitary region. The dosage should be individualized for all indications. The usual dosage range in central diabetes insipidus in adults and children 12 years of age and older is 0.1 mg to 0.8 mg daily in single or divided doses (two or three times daily). In primary nocturnal enuresis the recommended initial dose is 0.2 mg at bedtime.

II. ADVERSE EVENT REPORTING SYSTEM (AERS)

Since the nasal spray formulation is currently marketed, DMETS searched the FDA Adverse Event Reporting System for cases of medication errors associated with Minirin using the preferred terms, "medication errors due to accidental exposures, medication error, accidental exposure, accidental overdose, overdose, underdose, treatment noncompliance and pharmaceutical product complaint. No errors were retrieved using this search strategy.

III. RISK ASSESSMENT

The medication error staff of DMETS conducted a search of several standard published drug product reference texts^{1,2} as well as several FDA databases³ for existing drug names which sound-alike or look-alike to Minirin to a degree where potential confusion between drug names could occur under the usual clinical practice settings. A search of the electronic online version of the U.S. Patent and Trademark Office's Text and Image Database was also conducted⁴. The SAEGIS™ Online service⁵ Pharma-In-Use database was searched for drug names with potential for confusion. An expert panel discussion was conducted to review all findings from the searches. In addition, DMETS conducted three prescription analysis studies consisting of two written prescription studies (inpatient and outpatient) and one verbal prescription study, involving health care practitioners within FDA. This exercise was conducted to simulate the prescription ordering process in order to evaluate potential errors in handwriting and verbal communication of the name.

A. EXPERT PANEL DISCUSSION (EPD)

An Expert Panel discussion was held by DMETS to gather professional opinions on the safety of the proprietary name Minirin. Potential concerns regarding drug marketing and promotion related to the proposed name were also discussed. This group is composed of DMETS Medication Errors Prevention Staff and representation from the Division of Drug Marketing, Advertising, and Communications (DDMAC). The group relies on their clinical and other professional experiences and a number of standard references when making a decision on the acceptability of a proprietary name.

1. DDMAC did not have concerns with the name, Minirin, in regard to promotional claims.

¹ MICROMEDEX Integrated Index, 2005, MICROMEDEX, Inc., 6200 South Syracuse Way, Suite 300, Englewood, Colorado 80111-4740, which includes all products/databases within ChemKnowledge, DrugKnowledge, and RegsKnowledge Systems.

² Facts and Comparisons, online version, Facts and Comparisons, St. Louis, Missouri.

³ AMF Decision Support System [DSS], the Division of Medication Errors and Technical Support [DMETS] database of Proprietary name consultation requests, New Drug Approvals 98-05, and the electronic online version of the FDA Orange Book.

⁴ www location <http://www.uspto.gov/tmdb/index.html>.

⁵ Data provided by Thomson & Thomson's SAEGIS™ Online service, available at www.thomson-thomson.com

2. Six proprietary names were identified in the April 2, 2003 review. In this review, the six names previously identified were re-evaluated due to the introduction of a new dosage form. Additionally, since the name review conducted on April 2, 2003, the Expert Panel identified four additional proprietary names that were thought to have the potential for confusion with Minirin. One additional name, Ritalin, was identified through the prescription studies. A total of eleven products were reviewed and are listed in Table 1 (see below), along with the available dosage forms and usual dosage.

Table 1: Potential Sound-Alike/Look-Alike Names Identified for Minirin

Product Name	Dosage form(s), Established name	Usual adult dose*	Other**
Minirin	Desmopressin Acetate Tablets 0.1 mg, 0.2 mg	0.1 mg to 0.8 mg daily (in single or 2 – 3 divided doses).	
Minirin Rx	Desmopressin Acetate Nasal Spray 10 mcg/0.1 mL	0.1 mL to 0.4 mL daily (in single or 2 – 3 divided doses).	LA/SA
Minocin Rx	Minocycline Hydrochloride Capsules 50 mg, 75 mg (Disc.); and 100 mg Minocycline Oral Suspension (Disc.) 50 mg/5 mL Minocycline Powder for Injection (Disc.) 100 mg	50 – 100 mg every 12 hours.	LA/SA
Minitran Rx	Nitroglycerin Extended-Release Transdermal Patch 0.1 mg/hr, 0.2 mg/hr, 0.4 mg/hr, and 0.6 mg/hr	Apply one patch daily and remove at night	LA/SA
Milrinone Rx	Milrinone Lactate Solution 1 mg/mL (10 mL and 20 mL Vials) Milrinone Premixed Solution 20 mg/100 mL	Loading dose: 50 mcg/kg IV over 10 minutes Continuous infusion: 0.375 – 0.75 mcg/kg/minute	LA/SA
Mithracin Rx	Plicamycin Powder for Injection 2.5 mg vial	15 - 30 mcg/kg intravenously over 4 to 6 hours (given daily for up to 10 days)	SA
Midrin Rx (DESI)	Isometheptene Mucate/ Dichloralphenazone/Acetaminophen Capsules: 65 mg/100 mg/325 mg	Migraine Headaches: 2 capsules initially, then 1 capsule every hour until headache relieved, up to a maximum of 5 capsules per day Tension Headaches: 1 to 2 capsules every four hours up to a maximum of eight capsules.	SA
Micronor Rx	Norethindrone Tablets: 0.35 mg	One tablet daily.	LA
Zemuron Rx	Rocuronium Injection (P/F) 50 mg/5 mL, 100 mg/10 mL	Intubation: 600 – 1200 mcg/kg Maintenance: 75 – 225 mcg/kg	LA
Minipress Rx	Prazosin Capsules 1 mg, 2 mg, 5 mg	3 – 20 mg once daily.	LA
Mirena Rx	Levonorgestrel Intrauterine Device 52 mg (delivers 20 mcg/day)	Insert into uterus. Provides efficacy for up to 5 years, then remove and replace.	LA
Ritalin Rx	Methylphenadate Tablets 5 mg, 10 mg, 20 mg	5 mg – 15 mg two – three times daily.	SA
*Frequently used, not all-inclusive.			
**LA (look-alike), SA (sound-alike)			
***Name pending approval. Not FOI releasable.			

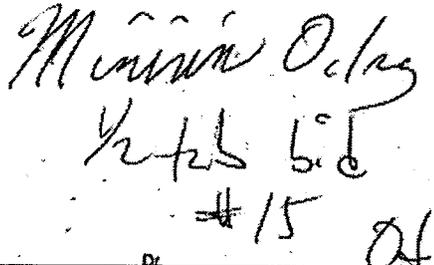
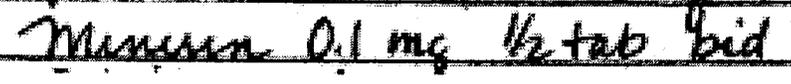
B. PHONETIC and ORTHOGRAPHIC COMPUTER ANALYSIS (POCA)

As part of the name similarity assessment, proposed names are evaluated via a phonetic/orthographic algorithm. The proposed proprietary name is converted into its phonemic representation before it runs through the phonetic algorithm. The phonetic search module returns a numeric score to the search engine based on the phonetic similarity to the input text. Likewise, an orthographic algorithm exists which operates in a similar fashion. All names considered to have significant phonetic or orthographic similarities to Minirin were discussed by the Expert Panel (EPD).

C. PRESCRIPTION ANALYSIS STUDIES

1. Methodology:

Three separate studies were conducted within the Centers of the FDA for the proposed proprietary name to determine the degree of confusion of Minirin with marketed U.S. drug names (proprietary and established) due to similarity in visual appearance with handwritten prescriptions or verbal pronunciation of the drug name. These studies employed a total of 122 health care professionals (pharmacists, physicians, and nurses). This exercise was conducted in an attempt to simulate the prescription ordering process. An inpatient order and outpatient prescriptions were written, each consisting of a combination of marketed and unapproved drug products and a prescription for Minirin (see below). These prescriptions were optically scanned and one prescription was delivered to a random sample of the participating health professionals via e-mail. In addition, the outpatient orders were recorded on voice mail. The voice mail messages were 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 sent their interpretations of the orders via e-mail to the medication error staff.

HANDWRITTEN PRESCRIPTION	VERBAL PRESCRIPTION
<p>Outpatient RX:</p> 	<p>Minirin 0.1 mg Half tablet by mouth twice a day Dispense #15</p>
<p>Inpatient RX:</p> 	

2. Results:

One respondent from the verbal study interpreted the proposed name as Mitalin, which sounds like the currently marketed U.S. product, Ritalin. Three respondents (two from the inpatient written study and one from the verbal study) commented that the proposed name looks and/or sounds similar to the currently marketed U.S. product, Minocin. The comments were as follows: "Watch out for Minocin as a similar name. Would not allow it.", "sounds like Minocin", and "looks very similar to minocin". The remaining incorrect name interpretations were misspelled/phonetic variations of "Minirin". See Appendix A for the complete listing of interpretations from the verbal and written studies.

D. SAFETY EVALUATOR RISK ASSESSMENT

Although the proprietary name Minirin is approved, the names Minocin, Minitran, Milrinone, Mithracin, Midrin, and Micronor were previously reviewed and will be re-evaluated in this review due to the introduction of a new dosage form that overlaps with several of these products. Additional names considered to have potential for name confusion with Minirin include Minirin nasal spray, Zemuron, Minipress, Mirena, and Ritalin.

Additionally, DMETS conducted prescription studies to simulate the prescription ordering process. In this case, there was no confirmation that the proposed name could be confused with any of the aforementioned names. However, one respondent from the verbal study interpreted the proposed name as Mitalin, which sounds like the currently marketed U.S. product, Ritalin. Three respondents (two from the inpatient written study and one from the verbal study) commented that the proposed name looks and/or sounds similar to the currently marketed U.S. product, Minocin. The comments were as follows: "Watch out for Minocin as a similar name. Would not allow it.", "sounds like Minocin", and "looks very similar to minocin". The majority of misinterpretations were misspelled/phonetic variations of the proposed name, Minirin.

1. Minirin tablets are a product line extension of Minirin, which is currently marketed in a nasal spray formulation. Minirin nasal spray is available in 5 mL bottles which deliver 10 mcg/0.1 mL. The usual dose of Minirin nasal spray is expressed in milliliters (mL), and is 0.1 mL to 0.4 mL daily, in single or divided doses. When converted into milligrams (mg), the usual dose of the nasal formulation of Minirin is 0.01 mg to 0.04 mg daily, in single or divided doses. This dose is not equivalent to the oral tablet dose, which is 0.1 mg to 0.8 mg daily, in single or 2 – 3 divided doses. The two medications share an identical name (MINIRIN), active ingredient (desmopressin), indication for use (primary nocturnal enuresis, central cranial diabetes insipidus, temporary polyuria and polydipsia), dosing frequency (daily in single or divided doses), and overlapping numerals in the usual dose (0.1 mL or 0.01 mg vs. 0.1 mg). The dosage form differs between the two products (nasal spray vs. tablet), thus a pharmacist would need to clarify the dosage form if omitted from a prescription. DMETS is concerned with the overlap in dosage numerals coupled with the ten-fold difference in dose, as there is potential for error and adverse events involving the over- and under- dosing of Minirin. Furthermore, due to the dosage difference between the tablet and nasal spray formulations, DMETS is

concerned with the potential for errors when converting patients from one dosage form to the other. Therefore, DMETS recommends the implementation of an educational campaign at the launch of the tablet formulation.

2. Minocin was identified as having look-alike and sound-alike potential with Minirin. Minocin (minocycline) is a tetracycline antibiotic indicated for the treatment of various infections susceptible to tetracycline antibiotics. Minocin is currently available as 50 mg and 100 mg tablets. Minocin was also available as 75 mg capsules, 50 mg/mL oral suspension, and 100 mg powder for injection; however, these dosage forms have been discontinued by the manufacturer. Generic minocycline is available in the 75 mg capsules; however the oral suspension and injection is not available as a generic. The usual dose of Minocin is 50 mg – 100 mg every 12 hours. Potential confusion between Minocin and Minirin was previously evaluated in the April 2, 2003 review. At that time, DMETS did not recommend the use of the name Minirin due to look-alike and sound-alike concerns with Minocin. The introduction of the oral dosage form of Minirin amplifies the potential for name confusion and error. Minocin and Minirin share the same number of letters (seven) and syllables (three). The two names differ in only two letters, the “OC” in Minocin and “IR” in Minirin. These letters (“OC” vs. “IR”) can look very similar when scripted in the middle of a word (see writing sample below). Moreover, to compound the potential for confusion between the two drug names, they share the same dosage form (oral: capsules vs. tablets), route of administration (oral), dosage frequencies (twice daily), and overlapping numerals in their product strengths (0.1 mg or 100 mcg vs. 100 mg). Furthermore, three respondents from the prescription studies (two from the inpatient written study and one from the verbal study) commented that the proposed name looks and sounds similar to the currently marketed U.S. product, Minocin. The comments were as follows: “Watch out for Minocin as a similar name. Would not allow it.”, “sounds like Minocin”, and “looks very similar to minocin”. A prescriber may write a prescription for “Minirin 100 mcg PO BID, #60” vs. “Minocin 100 mg PO BID, #60”. If the wrong medication is dispensed, serious adverse events may occur, such as untreated infection, hyponatremia, fluid and electrolyte abnormalities, and anaphylaxis in patients contraindicated to take either medication. The strong look-alike and sound-alike similarities combined with the overlapping product characteristics and introduction of a new oral dosage form increase the potential for confusion and error between Minocin and Minirin.

The image shows two lines of handwritten text. The first line reads "Minirin 100mg PO BID #60" and the second line reads "Minocin 100mg PO BID #60". The handwriting is cursive and the two lines are very similar, illustrating the potential for confusion between the two drug names.

3. Minitran and Minirin may have look-alike and sound-alike similarities. Minitran (nitroglycerin) is available as 0.1 mg/hr, 0.2 mg/hr, 0.4 mg/hr, and 0.6 mg/hr extended-release transdermal patches. Minitran is usually applied once daily and removed at night. Minitran was previously evaluated in the April 2, 2003 review. DMETS did not recommend the use of the name Minirin due to look-alike and sound-alike concerns with Minitran. The introduction of the oral dosage form of Minirin increases the potential for name confusion and error. Both drug names contain the same number of syllables (three) and contain six overlapping letters in similar positions (“**MINITRAN**” vs. “**MINIRIN**”), which contribute to the look-alike and

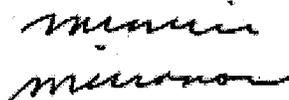
sound-alike characteristics. Additionally the second to last letters "A" and "I" may look-alike when scripted (see writing sample below) and sound-alike when spoken. Moreover, if the "T" in the middle of Minitran is spoken quickly or given minimal emphasis the two names can sound very similar. These products also have overlapping product characteristics, such as available strengths (0.1 mg and 0.2 mg) and dosing intervals (once daily). DMETS notes the two products have different characteristics such as dosage form (transdermal patch vs. tablet and nasal spray) and route of administration (topical vs. oral and nasal). Minitran is only available in one dosage form, and thus, the route of administration may be omitted from a prescription (i.e. Minitran 0.1 mg QD, #30). Although Minirin will be available in two dosage forms (nasal spray, tablet); if the route of administration is omitted on a prescription for Minirin tablets and the strength and quantity to dispense is present (i.e. "Minirin 0.1 mg QD, #30), a pharmacist or pharmacy technician may not need to clarify the prescription; additionally, since the strength of the tablets is different than that of the nasal spray the aforementioned order would not be unusual. A patient newly started on either medication may not recognize the difference and use the medication dispensed per directions on the pharmacy label. A similar event may occur in an inpatient setting. If a medication order reads "Minirin 0.1 mg QD" vs. "Minitran 0.1 mg QD", a nurse or unit secretary may transcribe the medication incorrectly, the pharmacy may dispense the wrong medication, and ultimately the wrong medication may be administered. DMETS believes the look-alike and sound-alike similarities combined with the overlapping dosing intervals and available strengths increase the potential for name confusion between Minitran and Minirin. a quantity is indicated on an outpatient prescription and the dosage form and

minirin
minitrn

4. Midrin and Minirin may sound-alike depending upon how they are pronounced. Midrin (isometheptene mucate/dichloralphenazone/acetaminophen) is a combination product containing a vascular constrictor, analgesic, and a mild sedative agent. It is indicated for the treatment of tension and vascular headaches. Midrin was approved solely on the basis of safety prior to 1962 and is subject to the Drug Efficacy Study Implementation (DESI) to evaluate the effectiveness. Midrin is available as 65 mg/100 mg/325 mg capsules and the typical dose is 1 – 2 capsules every one to four hours as needed, up to a maximum of eight capsules in 24 hours. Midrin was previously evaluated in the April 2, 2003 review. At that time, DMETS did not recommend the use of the name Minirin due to sound-alike concerns with Midrin. The introduction of the oral dosage form of Minirin, with two different strengths, may decrease the potential for name confusion and error. Midrin and Minirin have the same two initial letters (MI-) and the same two ending letters (-IN), which contribute to the sound-alike characteristics of the two names. Midrin contains two syllables, whereas Minirin contains three syllables. If the second syllable in Minirin is spoken quickly and/or not clearly enunciated, the names have a phonetic similarity. Additionally, both products can be taken orally. Although Midrin and Minirin share phonetic similarities, the "D" in Midrin may provide a distinct sound that helps differentiate the two names. Furthermore, the two products have differing product characteristics, such as dosage strength (65 mg/100 mg/325 mg vs. 0.1 mg and 0.2 mg), frequency of administration (1 – 2 capsules every 1 – 4 hours as needed

vs. daily, in single or 2 – 3 divided doses), and indication for use (migraine headache, tension headache vs. primary nocturnal enuresis, central cranial diabetes insipidus, temporary polyuria and polydipsia). Furthermore, since Minirin is available in two different strengths, the strength will likely be indicated on a prescription before dispensing, which will help differentiate the two products. DMETS believes the overall product differences decrease the potential for name confusion between Midrin and Minirin.

5. Micronor and Minirin may look-alike depending on how they are scripted. Micronor (norethindrone) is a progestin only oral contraceptive and is dosed once daily. Micronor is available as 0.35 mg tablet in 28 day dose packs. Micronor was previously evaluated in the April 2, 2003 review. At that time, DMETS did not recommend the use of the name Minirin due to look-alike concerns with Micronor. The introduction of the oral dosage form of Minirin, with two different strengths, may reduce the potential for name confusion and error. The two names begin with the same two letters (MI-), which contributes to the look-alike similarities between the two product names. Additionally, when scripted, neither name requires any up- nor downstrokes, which contributes to their orthographic similarities (see sample below). Moreover, the two products share the same dosage form (tablet), route of administration (oral), and frequency of administration (once daily). However, different product characteristics such as the available strength (0.35 mg vs. 0.1 mg and 0.2 mg), and indication for use (contraception vs. primary nocturnal enuresis, central cranial diabetes insipidus, temporary polyuria and polydipsia) may help distinguish between the two products. Furthermore, since Minirin is available in two different oral strengths, this information would be needed prior to dispensing the medication. Despite some orthographic similarities and some overlapping product characteristics, the differences in strength will help to avert name confusions between Micronor and Minirin.



6. Milrinone and Minirin were found to have look-alike and sound-alike similarities. Milrinone is a phosphodiesterase inhibitor with positive inotropic and vasodilator activity indicated for short-term intravenous therapy for heart failure. Milrinone is available as a 1 mg/mL injection in 10 mL and 20 mL vials and as a 20 mg/100 mL premixed solution. The usual loading dose is 50 mcg/kg infused over 10 minutes. The dose for a continuous infusion is usually 0.375 – 0.75 mcg/kg/minute. Milrinone was previously evaluated in the April 2, 2003 review due to look-alike and sound-alike potential with Minirin. At that time, DMETS felt the potential for name confusion was minimal due to some visual, orthographic and product differences. The introduction of the oral dosage form of Minirin does not appear to increase potential for name confusion and error. Milrinone and Minirin both contain three syllables and begin with the same two letters (MI-). They also contain three additional overlapping letters (MLRINONE vs. MINIRIN); although in different positions within the names, this may contribute to the look-alike and sound-alike characteristics of the two names (see writing sample, page 10). However, the “L” in Milrinone provides an upstroke which helps differentiate the two names. Moreover, the two names differ in

the number of letters (nine vs. seven) which also provides a distinction between the two names. Furthermore, the two drugs have differing product characteristics such as route of administration (intravenous vs. oral, nasal), frequency of administration (continuous infusion vs. daily, in single or 2 – 3 divided doses), and indication for use (heart failure vs. primary nocturnal enuresis, central cranial diabetes insipidus, temporary polyuria and polydipsia). Furthermore, Milrinone is likely given in an inpatient setting via intravenous infusion and would require a rate of infusion and monitoring parameters which will also help differentiate the two names. DMETS believes the potential for confusion between Milrinone and Minirin is minimal due to the aforementioned reasons.

minirin
milrinone

7. Mithracin and Minirin may sound-alike depending upon how they are spoken. Mithracin (plicamycin) is an antibiotic antineoplastic agent indicated for the treatment of testicular cancer. Mithracin is available as a 2.5 mg powder for injection and the usual dose is 15 – 30 mcg/kg IV over 4 – 6 hours, given daily for up to 10 days. Mithracin was previously evaluated in the April 2, 2003 review due to sound-alike potential with Minirin. At that time, DMETS felt the potential for name confusion was minimal due to some phonetic and product differences. The introduction of the oral dosage form of Minirin does not appear to increase potential for name confusion and error. Mithracin and Minirin both have the same number of syllables (two) and begin and end with the same two letters (MI- and -IN, respectively), which contribute to the sound-alike characteristics of the two names. However, their second syllables (“THRA” vs. “NI”) provide a distinct sound between the two names. Although the two medications share the same dosing interval (daily); they have multiple differing product characteristics, such as route of administration (injection vs. oral, nasal), dosage forms (injection vs. tablet, nasal spray), and indication for use (testicular cancer vs. primary nocturnal enuresis, central cranial diabetes insipidus, temporary polyuria and polydipsia). Furthermore, since Mithracin is an injectable chemotherapeutic agent, the patient specific dose and duration of infusion will likely be included on a prescription order for Mithracin, which will provide additional means of differentiation between the two products. DMETS believes the potential for name confusion between Mithracin and Minirin is minimal.
8. Zemuron was identified as having look-alike similarities with Minirin. Zemuron (rocuronium) is a neuromuscular blocking agent indicated for anesthesia, rapid sequence intubation, and skeletal muscle relaxation. Zemuron is available as 50 mg/5 mL and 100 mg/5 mL vials. The usual dose is 600 – 1200 mcg/kg for intubation and repeat IV doses of 75 – 225 mcg/kg have been used for maintenance of relaxation during surgery. Look-alike similarities between the two names are attributed to the fact that both names contain seven letters and neither name requires an up- or downstroke when written (see sample, page 11). The initial letters (“Z” vs. “M”) may have an orthographic resemblance, depending on how they are scripted. Additionally, the endings “RON” vs. “RIN” look similar when written. However, multiple product differences including dosage form (injection vs. tablet, nasal spray), route of administration (injection vs. oral and nasal spray), frequency of

administration (one time or repeat dosing as need vs. daily, in single or 2 – 3 divided doses) and indication for use (neuromuscular blockade vs. primary nocturnal enuresis, central cranial diabetes insipidus, temporary polyuria and polydipsia) will help to minimize the potential for confusion between Zemuron and Minirin. Furthermore, since the dose of Zemuron is highly variable and patient specific, a prescription order will likely be written with a weight based dose and monitoring parameters, which will further differentiate the two products. Due to the aforementioned reasons, DMETS believes the likelihood for confusion between the names Zemuron and Minirin is minimal.

*Zemuron
Minirin*

9. Minipress and Minirin may look-alike depending upon how they are scripted. Minipress (prazosin) is an alpha-1 antagonist indicated for the treatment of hypertension. Minipress is available as 1 mg, 2 mg, and 5 mg capsules and the usual dose is 3 – 20 mg twice daily. The two drug names begin with the same four letters (MINI-) and contain an additional overlapping letter ("R") in a similar position (MINIPRESS vs. MINIRIN) which contributes to the look-alike similarity of the two names (see sample below). However, the downstroke of the "P" in Minipress and the different endings "-ESS" vs. "-IN" provide orthographic variations between Minipress and Minirin. Additionally, these products also share overlapping product characteristics, such as route of administration (oral), dosing intervals (twice daily), and overlapping numerals in the available strengths (1 mg, 2 mg vs. 0.1 mg, 0.2 mg). Although Minipress and Minirin are manufactured in different dosage forms (capsules vs. tablets, nasal spray), they are both available in only one oral form (tablet vs. capsule), and thus, it is not necessary to include this information on a prescription. For example, a prescriber may write a prescription for "Minipress 2 mg PO BID, #60" vs. "Minirin 0.2 mg PO BID, #60". If the wrong medication is dispensed in this type of scenario, serious adverse events may occur such as uncontrolled hypertension, hypotension, hyponatremia, and fluid and electrolyte abnormalities. Despite some similarities with Minipress and Minirin and the potential overlapping prescription directions, the aforementioned orthographic characteristics will help to avert name confusions between the two products.

*Minirin
Minipress*

10. Mirena was found to have look-alike potential with Minirin. Mirena (levonorgestrel) is a progestin only intrauterine device indicated for contraception. Mirena is available as a 52 mg intrauterine device that delivers 20 mcg/day for up to 5 years. Mirena and Minirin contain the same two initial letters (MI-) and two additional overlapping letters in the similar positions (MIRENA vs. MINIRIN). In addition, look-alike similarities between the two names may be attributed to the fact that neither name requires an up- or downstroke (see sample, page 12) when written. Although the two names have some orthographic similarities, many product differences help differentiate Mirena and Minirin, such as dosage forms (intrauterine device vs.

tablets, nasal spray), route of administration (intrauterine vs. oral, nasal), frequency of administration (once every 5 years vs. daily, in single or 2 – 3 divided doses), dosage strength (52 mg vs. 0.1 mg, 0.2 mg), and indication for use (contraception vs. primary nocturnal enuresis, central cranial diabetes insipidus, temporary polyuria and polydipsia). Due to the aforementioned product differences, DMETS believes the potential for confusion between Mirena and Minirin is minimal.

Mirena
Minirin

11. Ritalin may have sound-alike similarities Minirin when spoken. Ritalin (methylphenidate) is a piperidine-derivative stimulant indicated for the treatment of attention deficit hyperactive disorder (ADHD). Ritalin is a schedule II controlled substance (CII) and is available as 5 mg, 10 mg, and 20 mg tablets. The usual dose of Ritalin is 5 mg – 15 mg two to three times daily. One participant in the verbal prescription study misinterpreted the proposed name, Minirin, as Mitalin, which sounds similar to the currently marketed U.S. product Ritalin. The two names share the same number of syllables (three) and the suffixes “-LIN” and “-RIN” sound similar when spoken. In addition to the phonetic similarities, they share some product characteristics such as dosage form (tablet), route of administration (oral), and dosage frequency (twice daily). Although some phonetic similarities exist, the prefixes “RIT-” and “MIN-” provide distinctive sounds, which helps distinguish the two names. Additionally, since Ritalin is a CII, it is likely to be stored in a safe and an additional check must be made by a pharmacist prior to dispensing, thus minimizing the likelihood for confusion between Ritalin and Minirin.

IV. COMMENTS TO THE SPONSOR

Although Minirin is approved, DMETS continues to object to the use of the name, especially in light of the new dosage form that now overlaps with Minirin, Minocin, and Minitran.

Additionally, DMETS reviewed the container labels, carton and insert labeling of Minirin from a safety perspective and has identified the following areas of possible improvement, which might minimize potential user error.

A. GENERAL COMMENTS

DMETS notes the container labels and carton labeling were submitted in a draft quality, black and white version. Thus, container labels and carton labeling recommendations may not be accurate and/or complete, as font, coloring, contrast and sharpness can play an important role, and may reveal safety issues undetectable at this time. DMETS suggests the full quality color version of the container labels and carton labeling be submitted for review and comment when available.

B. CONTAINER LABEL

1. See general comments.

2 Page(s) Withheld

 Trade Secret / Confidential (b4)

✓ Draft Labeling (b4)

 Draft Labeling (b5)

 Deliberative Process (b5)

Appendix A – DMETS Prescription Study Results for Minirin

<u>Inpatient</u>	<u>Outpatient</u>	<u>Voice</u>
Minirin	Minium	Minorin
Minirin	Minirin	Minalin
Minirin	Minirin	Minalin
		(Comment: Watch out for Minocin as a similar name. Would not allow it)
Minum	Minirin	Menorin
Minerin	Minivin	Menoren
Minurn	Minirim	Minarin
Minirron	Minirin	Miterin
Miniuin	Minirin	Menoren
Minerin	Minium	Minaren
Minirin	Miniun	Minerin
(sounds like Minocin)		
Minirin	Minium	Mitalin
(looks very similar to minocin)		
Minirin	Minirim	Minerin
Menerin	Minirin	Minerin
Minirin	Miniun	Menorin

APPEARS THIS WAY ON ORIGINAL

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this page is the manifestation of the electronic signature.**

/s/

Tina Tezky
12/6/2005 05:01:48 PM
DRUG SAFETY OFFICE REVIEWER

Alina Mahmud
12/7/2005 11:00:37 AM
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