PHARM NOTES

Neil Medical Group: The Leading Pharmacy Provider in the Southeast

Volume 13, Issue 3

May/June 2010

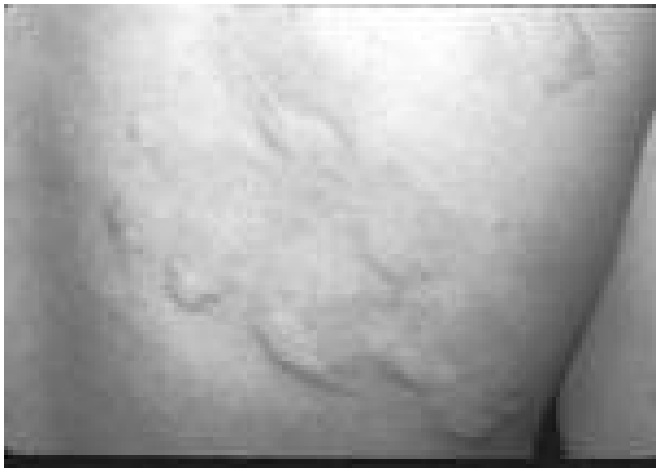
H2-Receptor Antagonist Use for Dermatological Conditions

Histamine and Histamine Receptors

Histamine is a major mediator in allergic reactions and is secreted from mast cells as a result of antigens binding to IgE receptors on the surface of mast cells. There are four identified histamine receptors. H_1 and H_2 receptors are found in the cutaneous blood vessels, H_3 receptors are located in the brain, and the function of H_4 receptors is unknown. H_1 or H_2 receptor activation leads to vasodilatation of the vascular endothelium and negative inotropic effects on myocytes through the release of nitric oxide. Histamine activation of these receptors also plays a role in the regulation of gastric secretions by inducing actin and peptin secretions, formation of edema, and stimulation of sensory nerve endings.

H_1 Receptor Antagonism

Traditionally, H_1-receptor antagonists have been used for various allergy associated dermatological conditions such as pruritis, eczema, wheals, and urticaria. H_1-receptor antagonists block the effect of histamine at H_1-receptor sites but also block muscarinic, alpha-adrenergic, and serotonin receptors resulting in vascular smooth muscle contraction. The overall effect of the histamine receptor blockade results in reduced redness and edema during a histamine-mediated inflammatory reaction and decreased sensitization to histamine. However, older generation H_1-receptor antagonists, such as diphenhydramine and chlorpheniramine, are lipophilic and cross the blood brain barrier, making them more likely to cause adverse central nervous effects. Caution is warranted with the use of these medications in the elderly because the non-selective receptor binding can also have genitourinary effects, such as urinary retention. Contrastingly, second generation H_1-receptor antagonists, such as loratidine and cetirizine, are more selective for the histamine receptor, have a longer duration of action, and have less central nervous system penetration resulting in decreased adverse effects.



Combination H_1 and H_2 Receptor Antagonism in Dermatological Conditions

There is some controversy over whether H_2-receptor antagonists are an alternative for H_1-receptor antagonists for the management of histamine associated dermatological conditions. H_2 blockers are mainly used to alleviate the symptoms of peptic ulcer disease, gastroesophageal reflux disease, and hypersecretory conditions by decreasing the histamine mediated gastric secretion of actin and peptin. H_1-receptor mediated actions of histamine are primarily responsible for the vasodilatation, vasopermeability, and itching, but it has been observed that blockade of both receptors with a combination of H_1-receptor and H_2-receptor antagonism may provide better relief.

A 2008 study conducted with 15 healthy volunteers aged 18-50 years compared the efficacy of levocetirizine 5 mg on day 1 and a single dose of levocetirizine 5 mg with ranitidine 150 mg twice a day on day 7 on a histamine-induced wheal using a skin prick test with a 0.1% w/v histamine solution. Wheal size was measured on day 1 at 1 hour, 2, 3, 6 and 24 hours after administration and on day 7. At 1 hour there was no statistically significant difference in the wheal size between levocetirizine alone and the combination of levocetirizine and ranitidine. However, at 2, 3, 6, and 24 hours when compared with

Continued on page 4

Cleaning & Disinfecting Glucometers in the LTC Setting

Long-term care facilities recently have been cited for inadequately cleaning or disinfecting glucometers used by multiple residents. In addition to outlining how/where glucometers are mentioned in the new infection control guidelines at FTag 441 of the CMS State Operations Manual, ASCP has also researched individual glucometer manufacturers' cleaning recommendations, along with the Centers for Disease Control and Prevention (CDC), Environmental Protection Agency (EPA) and American Diabetes Association (ADA) guidelines on this matter. The information provided below should be helpful when developing or assuring the adequacy of your facility's policy and procedure.

Be sure you are familiar with which glucometer manufacturer your facility uses and the cleaning procedures recommended by that manufacturer (see chart on next page). If the manufacturer does not provide specific cleaning recommendations or as a conservative approach to infection control for glucometers with minimal cleaning requirements, facilities might want to consider cleaning glucometers with high-level disinfectants. Be familiar with the amount of time the disinfectant solution is supposed to remain in contact with the equipment or how long active cleaning should be performed to ensure complete disinfection. For example, simply wiping equipment with a disinfectant-soaked swab may not be adequate. Wiping for a specific length of time or ensuring the equipment is "wet" or saturated for a specific length of time may be required. Cleaning timeframes may be dictated by CDC guidelines or by the disinfectant manufacturer in their "instructions for use."

In the section of the F-441 Interpretive Guidelines dealing with preventing the spread of illness, a variety of illnesses can be spread via indirect transmission, such as transmission through shared glucometers:

"Resident-care devices (e.g., electronic thermometers or glucose monitoring devices) may transmit pathogens if devices contaminated with blood or body fluids are shared without cleaning and disinfecting between uses for different residents."

In the F-441 survey protocol, surveyors are directed to observe cleaning and disinfecting of equipment, such as:

- *"(Whether) small non-disposable equipment such as glucose meters, scissors, and thermometers are cleaned and appropriately disinfected after each use for individual resident care;*
- *"(Whether) single-use items (e.g., blood glucose lancet, other sharps) are properly disposed of after one use."*

In addition, glucometer cleaning is mentioned in an example of the highest level citation, a Severity Level 4 or "Immediate Jeopardy" citation:

"Examples of negative outcomes that occurred or have the potential to occur at Severity Level 4 as a result of the facility's deficient practices may include:

- *The facility failed to follow standard precautions during the performance of routine testing of blood sugars.*
- *The facility did not clean and disinfect the glucometers before or after use and did not use new glucometer lancets on residents who required blood sugar monitoring.*

This practice of not cleaning and disinfecting glucometers between every use and re-using glucometer lancets created an Immediate Jeopardy to resident health by potentially exposing residents to the spread of blood borne infections for multiple residents in the facility who required blood sugar testing."

COMPANY	METERS AVAILABLE	CLEANING PROCEDURE	CONTACT INFORMATION
Abbott	FreeStyle Freedom Lite FreeStyle Lite Precision Xtra	Wipe down meter with damp cloth, no disinfectant recommended.	www.abbottdiabetescare.com 1-800-527-3339
AgaMatrix	WaveSense Jazz WaveSense Keynote & Keynote Pro WaveSense KeyNote Pro Wave Sense Presto and Presto Pro	Use mild soap and water, 70% isopropyl alcohol (IPA), or 1:10 diluted bleach solution; wipe front & back with soft damp cloth.	www.wavesense.info 1-866-906-4197
Arkray	Glucocard 01 Glucocard 01 Mini Glucoard X-Meter	Clean outside of meter using a lint-free cloth dampened with soapy water or IPA. Disinfect using a 1:10 diluted bleach solution or bleach wipe or use Super SaniCloth & SaniCloth HB Germicidal disposable wipes	www.glucocardusa.com 1-800-566-8558
Bayer	Breeze 2 Contour Contour TS	Follow infection control procedure of facility. Clean exterior with lint free tissue moistened with 1:10 bleach solution.	www.simplewins.com 1-800-348-8100
Bionime	Rightest GM100 Rightest GM 300	Use water, alcohol wipe or Clorox wipe	www.bioimeusa.com 1-888-481-8485
Diabetic Supply of Suncoast	Advocate Advocate Duo Advocate Redi-Code	Disinfection with bleach solution as per update of guidance for F 441 in Nov 2009	www.pharmasupply.com 1-866-373-2824
Diagnostic Devices	Prodigy Autocode Prodigy Pocket Prodigy Voice	May use a dry tissue or sanitary wipe to clean. Avoid port.	www.prodigymeter.com 1-800-243-2636
Entra Health	MyGlucoHealth Wireless	Use warm water & soap. Avoid sensor	www.myglucohealth.net 1-877-458-2646 ext 3
Fifty50 Medical	Fifty50 Control	No recommendations	www.fifty50.com 1-800-746-7505
Fora Care	Fora D10 & D15 Fora G20 & G90 Fora V10 ,V12, V20 & V22	Use damp cloth or paper towel with water & mild soap to clean the outside; do not use organic solvents	www.foracare.com/usa 1-888-307-8188 1-866-469-2632
Gluco Com	Codefree	Use cleaning wipe or damp cloth with warm/hot water on the outside	www.glucocom.com 1-800-678-1446
Home Diagnostics	Sidekick, True2Go Trueresult,Truetrack	Wipe with a cloth; do not use alcohol	www.homediagnostics.com 1-800-342-7226 ext 3300
Infopia	Eclipse, Element, Envision Evolution,GlucoLab	Wipe with dry cloth; only the strip will touch the patient. Use discharge button to eject strip. Nursing providers must wear gloves	www.infopiausa.com 1-888-446-3246
Lifescan	One Touch Ultra 2 One Touch UltraMini One Touch	Newer meters listed here do not require cleaning. Older meters requiring cleaning with soap & water have been discontinued.	www.lifescan.com 1-800-227-8862
Nova Biomedical	NovaMax NovaMax Link	Use a damp cloth with alcohol; avoid the face of the meter	www.novacares.com 1-800-681-7390
Roche	Accu-Chek Aviva Accu-Chek Compact Plus Accu-Chek Advantage	Refer to manual for each meter. Clean with warm soapy water or 70% IPA. Disinfect with 1:10 bleach solution made fresh daily or bleach wipe	www.accu-chek.com/us 1-800-440-3638 1-800-858-8072
U.S. Diagnostics	Acura, EasyGluco, Infinity, Maxima	Use any disinfectant on the outside of the meter, Clorox wipe or alcohol pad.	www.usdiagnostics.net 1-866-216-5308

levocetirizine alone, the addition of ranitidine resulted in a statistically significant reduction in wheal size.
An additional study conducted on patients with acute allergic syndromes compared diphenhydramine 50 mg or diphenhydramine 50 mg and ranitidine 50 mg in the resolution of urticaria, angioedema, or erythema at 2 hours. The study results demonstrated significantly more patients without symptoms of urticaria at 2 hours received the combination diphenhydramine and ranitidine, suggesting that combined H_1 and H_2 antihistamine use is favorable in acute allergic syndromes.

The combination of cimetidine and chlorpheniramine was also studied in 120 patients with chronic idiopathic urticaria refractory to cimetidine alone. Patients were treated for six weeks with therapeutic doses of chlorpheniramine and non-responders were entered into a double-blind study to receive chlorpheniramine plus cimetidine 400 mg or chlorpheniramine plus placebo for an additional 8 weeks. At the conclusion of this study, there was a statistically significant difference between the change from baseline of the total symptom score, the assessment of the number and duration of new wheals, and the degree of itching in the chlorpheniramine plus cimetidine treatment group after 4 and 8 weeks of treatment.

H_2 Antagonism Alone in Dermatological Conditions
The effect of H_2 blockade alone in the management of dermatological conditions is controversial due to a lack of studies using only H_2-receptor antagonism as a treatment arm. Cimetidine and ranitidine are the agents that are usually prescribed by dermatologists for the treatment of cutaneous infections and chronic urticaria. Cimetidine and ranitidine have been reported to have a treatment effect on psoriasis but double-blind, placebo-controlled trials have not confirmed the efficacy of H_2 blockers for psoriasis.

Cimetidine therapy is complicated because of a variety of drug interactions and the potential for adverse effects including dizziness, mild somnolence, gastrointestinal upset, and elevations in plasma creatinine at higher doses. Ranitidine is better tolerated with fewer central nervous system side effects.

The influence of ranitidine 150 mg daily on wheal, flare, and itching sensation in skin prick tests has been studied against loratidine 10 mg daily or placebo in 21 atopic patients. The results demonstrated a statistically significant suppression of wheal and flare by ranitidine and a statistically significant suppression of itching. Five additional trials have also shown a reduction in wheals and flares with ranitidine after skin prick tests with histamine. However, in contrast, four studies reported no influence using ranitidine on skin prick tests.

Conclusion
In conclusion, the addition of H_2 antagonists to H_1 antagonists may be beneficial in controlling various dermatological conditions refractory to H_1 blockade alone. The likely explanation for the findings of these studies is that H_1 and H_2 receptors are both present on the surface of blood vessels but additional studies are needed to explain the results of these studies.

In the geriatric population, considerations must be made as the adverse effect profile of each agent used and the potential for drug interactions. The results of the studies conducted thus far may report very individualized findings and are particularly limited by small study sizes. Larger studies are needed to confirm the use of H_2 antagonists alone in the management of dermatological conditions, but evidence to date suggests that ranitidine may be a safe agent for trial use in the geriatric population.

Article by Ashley Fleming, Pharm D Candidate

LATE BREAKING NEWS

March 4, 2010: FDA Approves Name Change for Heartburn Drug Kapidex

The U.S. Food and Drug Administration has approved a name change for the heartburn drug Kapidex (dexlansoprazole) to avoid confusion with two other medications – Casodex and Kadian. Effective in late April 2010, Takeda Pharmaceuticals North America Inc. will market Kapidex under the new name ***Dexilant***. Since Kapidex was approved in January 2009, there have been reports of dispensing errors because of confusion with the drugs Casodex (bicalutamide) and Kadian (morphine sulfate), which have very different uses from Kapidex and from each other.

Kapidex is a proton pump inhibitor used to treat heartburn and other conditions by reducing the amount of acid produced in the stomach. Casodex, marketed by AstraZeneca, is used to treat men with advanced prostate cancer. Kadian, distributed by Actavis Kadian LLC, is an opioid analgesic used to treat pain.

"The FDA is pleased to have worked with Takeda to take swift and responsible steps to change the name of this product in the interest of patient safety," said Janet Woodcock, M.D., director of the FDA's Center for Drug Evaluation and Research.

The FDA evaluates new drug names before a product is approved to minimize confusion with existing drugs. Sometimes unexpected name confusions can occur once the product goes to market. To improve this safety process, the FDA has issued a new guidance for industry titled Contents of a Complete Submission for the Evaluation of Proprietary Names. The guidance explains what information should be submitted to help in the evaluation of a proposed proprietary drug or biologic name, and to ensure compliance with other requirements for labeling and promotion,. These efforts are part of the agency's Safe Use Initiative which was launched in November 2009. The goal of this initiative is to reduce preventable medical errors through collaboration with public and private institutions.

Using Abbreviations Wisely

Multiple abbreviations are not allowed to be used in JACHO accredited facilities. Recently in a facility a pharmacy recommendation requested a diagnosis for the use of Protonix. The physician responded by writing "Hx GERD per GMC D/C 10/5/09". He meant that the diagnosis was provided in the discharge summary on 10/5/09 (which had not been filed in the chart at the time of the request). The nursing staff and pharmacist took this as the medication was discontinued on 10/5/09. When the discharge summary was placed on the chart, it became apparent that the D/C was not to discontinue the medication but referenced the discharge summary. For the following few months, the Protonix order was taken on and off the MAR due to confusion about whether the resident should be on the medication. This is one of many examples of why certain abbreviations should be avoided. Noted below is a list of abbreviations that JACHO recommends avoiding.

UNACCEPTABLE ABBREVIATIONS

ABBREVIATION	INTENDED MEANING	MISINTERPRETATION	*CORRECTION*
U or u	Unit	Read as a zero (0) or a four (4), causing a ten-fold overdose or greater (4U seen as 40 or 4u seen as 44)	Write "unit". There is no acceptable abbreviation for "unit"
*u*g	Microgram	Mistaken for "mg" when handwritten	Use "mcg"
Zero after decimal point (1.0)	1 mg	Misread as ten (10) if the decimal point is not seen. Potential ten-fold error.	Do not use terminal zeros for doses expressed in whole numbers (no trailing zeros)
No zero before decimal point (.1)	0.1mg	Misread as one (1) if the decimal point is not seen. Potential ten-fold error.	Always use zero before a decimal when the dose is less than a whole unit.
IU	International unit	Misread as "U"(unit).	Write "units"
ss	Sliding scale (insulin) or 1/2 (apothecary)	Mistaken for "55".	Spell out "sliding scale." Use "one-half" or use "1/2".
x3d, etc	For 3 days or for 3 doses, etc	Mistaken for number of doses instead of number of days or vice versa	Write out days or doses.
Q.D. Q.O.D.	Daily Every other day	Mistaken for each other. The period after the Q can be mistaken for an "I" and the "O" can be mistaken for "1"	Write "daily" and "every other day"
MS MSO4 MgSO4	Morphine Sulfate Morphine Sulfate Magnesium Sulfate	Confused for one another. Can mean morphine sulfate or magnesium sulfate	Write "morphine sulfate" or "magnesium sulfate"

HOT TOPICS

Survey Trends

Surveyors seem to have a renewed focus on medication crushing. Several recent surveys have led to citations for crushing ODT's (Oral Disintegrating Tablets), specifically Prevacid Solutabs. The manufacturer recommends that the products be dissolved, but not chewed. In each survey, the MAR appropriately warned the nursing staff ***Do not crush***, but the nurse chose to crush the tablet anyway. In addition, citations have resulted from nurses crushing extended release products such as Oxycodone ER, Metoprolol XL, etc.

Please make sure and read auxiliary labeling and refer to the "Do Not Crush List" when in doubt.

Best Practices

Exelon (rivastigmine) Patch is a medication that is used in the treatment of Alzheimer's Dementia. The patch formulation provides a continuous delivery of rivastigmine over 24 hours, has better GI tolerability than the capsule, and is similar in cost to the capsule. Novartis, manufacturer of the Exelon Patch, recommends the patch be applied once a day to clean, dry, hairless, and healthy skin. The site of application is recommended to be rotated to at least 14 different sites to minimize potential irritation (i.e. the patch should not be applied to the same spot for 14 days). There is a potential problem since the paper MAR does not list 14 different sites for rotation and recording. If the nursing staff is not performing and documenting site rotation per the manufacturer's recommendation, the facility could be subject to possible citations by state surveyors.

The following form is a tool that may be helpful in rotating the Exelon Patch as recommended. This form can be printed front and back on one sheet and kept in the MAR book. Apply the patch to the back of your resident at site location one, date and initial on the form. Remember the patch should be dated and initialed as well. The following day, place a new patch on the next corresponding site (two), date and initial, and then remove the old patch. Continue to use the form each day until the patch has been rotated 16 different times, then start a new form again beginning at site one.

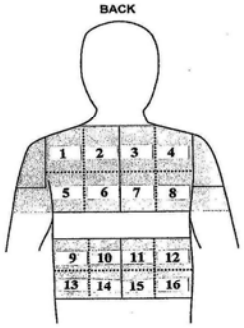
Neil Medical Group

Exelon Patch Rotation Site Form

Resident Name:_____ **Room #:**_____
Physician:_____ **MR #:**_____

Please place new patch on the next day's corresponding site, and remove old patch. Patch should be initialed and dated along with the documentation below.

Site	Date	Initial
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		



Hot Topics is a new feature of Pharm Notes that includes:

Survey Trends
With the large number of LTC facilities that Neil Medical services, our Consultant Pharmacists are able to share information on current surveyor focus and deficiencies. Write "morphine sulfate" or "magnesium sulfate"

Best Practices
All LTC facilities have common everyday struggles with documentation and in meeting CMS guidelines. *Best Practices* will share an innovative solution to a common LTC problem that has been devised by a particular facility. If your facility has a smart idea that you are willing to share, please contact the Pharm Notes editor. Likewise, if there is an area in which you are seeking a solution, contact us and we will try to address it in a future issue.

Write it Right!
Proper documentation is vital in supporting the care that we give to our residents. *Write it Right!* is devoted to Risk Management and the importance of accurate and appropriate documentation.

Write it Right!

Series by Cathy Fuquay, RPh

10 COMMON CHARTING MISTAKES	
1. Failure to record pertinent patient information.	6. Failure to properly document a discontinued medication.
2. Failure to record nursing actions.	7. Transcribing orders improperly or transcribing improper orders.
3. Failure to record drug reactions OR changes in condition.	8. Failure to record that medications have been given.
4. Recording information in the wrong patient's chart.	9. Failure to follow a specific physician order.
5. Writing illegible or incomplete orders.	10. Inappropriate use of abbreviations.

When dealing with litigation in long term care, documentation is an important factor in having a substantial defense against medical malpractice claims. We are in the process of reviewing the ten most common charting mistakes with a goal of improving overall documentation and thus minimizing the risk of litigation.

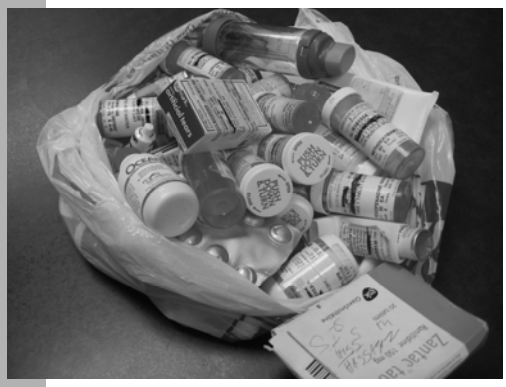
A common source of errors in long term care results from failure to properly discontinue a medication order. It is vital when new orders are received that the order is written ***completely.*** Let's look at an example.
Your patient has an order for Xanax 0.5mg bid. You find a new order written by the physician that simply states "Start Xanax 0.5mg p.o. q hs". How do you interpret this order? If you know the patient well….and know that the resident has been over sedated and sleeping a lot during the day...you could assume that the physician's intent was to decrease the dose. On the other hand, if the patient has had increased anxiety and behaviors, you would assume that the physician intended to increase the dose. The proper way to avoid these situations, so that the correct order is written (and then interpreted correctly by the pharmacy) would be to write the order as follows:

"D/C Xanax 0.5mg p.o. bid; Start Xanax 0.5mg p.o. q hs".

This issue is also commonly seen when new orders are received for antibiotics once a culture and sensitivity is received. For instance, the physician may start a patient on Bactrim DS….and when the C & S is received, the organism is not sensitive to the Bactrim and a new order is received for Cipro. Frequently, the new order is written for the Cipro…..with no order to discontinue the Bactrim. Since there are some occasions (i.e. multiple organisms with conflicting antibiotic resistance) when both antibiotics could be needed, it is vital that the complete order be written with no presumptions on the discontinuance of a prior order.
Another issue important with properly discontinuing orders is to make sure that changes made toward the end of the month are properly transcribed (in this case discontinued) on the next month's orders. Being alert to these potentials for errors will help reduce medication errors in our facilities.

Write it Right! Tip

When medications are discontinued, make sure that they are promptly removed from the medication cart and returned to the pharmacy. In addition, extra boxes and cards of d/c'd medications should be removed from the med room and all possible drug storage areas. This prevents the risk of medications being given from memory and without closely following the MAR.



Kinston Pharmacy
2545 Jetport Road
Kinston, NC 28504
Phone 800 735-9111
Fax 800 633-3298

Neil Medical Group Pharmacy Services

Mooresville Pharmacy
947 N. Main Street
Mooresville, NC 28115
Phone 800 578-6506
Fax 800 578-1672

...a note from the Editor

I have received numerous requests for more information on the Neil Medical Educational Summit. Brochures will be sent to facilities in mid to late April. If you have not received a brochure by the end of April, you can contact Neil Medical in Kinston and ask for Glenda Oliver who will be happy to send you a brochure. The Summit will be held at the Embassy Suites in Winston Salem, NC on June 2nd—3rd. CE Credit will be awarded for the participants (Nursing Home Administrators and Nurses). The registration fee for this event is $50.

Topics include: MDS 3.0, LPN Scope of Practice, Management of the Demented Resident, New Drug Update, Falls Prevention, Medication Error Prevention, Developing Others through Coaching.

Don't' miss this wonderful event!

Sincerely,

Cathy Fuquay

Pharm Notes is a bimonthly publication by Neil Medical Group Pharmacy Services Division. Articles from all health care disciplines pertinent to long-term care are welcome. References for articles in Pharm Notes are available upon request. Your comments and suggestions are appreciated. Contact:

Cathy Fuquay (cathyf@neilmedical.com)

1-800-862-4533 ext. 3489

Note: Periodically, we are asked to add a name to our distribution list. At this time, copies of Pharm Notes newsletters are distributed in bulk to Neil Medical Group customers only.