



PHARM NOTES

Neil Medical Group: The Leading Pharmacy Provider in the Southeast

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MRSA: Trends, Treatment, and Prevention

“MRSA”, as the healthcare field calls it, is an infection that has not only been catching the CDC’s attention but has also been catching the media’s attention. Much of this attention comes from the increasing frequency and complications of this infection in the community.

“MRSA”, also known as, methicillin resistant staph aureus, is a type of infection that at one time was known only as an institutionalized infection due to the weakened immune systems of those patients in hospitals and long-term care facilities. The rate of staph infections caused by MRSA in ICUs has risen from 2% in 1974, 22% in 1995, to 64% in 2004. Each year from 2001 through 2003 there were an estimated 12 million outpatient healthcare visits for suspected S. aureus skin and soft tissue infection in the United States. In 2004, 59% of all skin and soft tissues infections community acquired were caused by MRSA.

Common places in the community where MRSA has occurred are: in schools, dormitories, military barracks, households, correctional facilities, and daycare centers. This is because of the frequent skin-to-skin contact or contact with shared items or surfaces that have come into contact with a person’s infection. Referred to as the “5 C’s”, there are 5 factors that can increase the risk of contracting MRSA. These are as follows: crowding, frequent skin-to-skin contact, compromised skin, contaminated items and surfaces, and lack of cleanliness.

Staphylococcus aureus, a gram-positive bacteria, is found in normal skin flora. In fact, staph is so common in normal skin flora that it is a common blood culture contaminant. Many times a skin infection with staph (pustule or boil) is minor and no antibiotic is needed to treat, however, there are cases when the infection is severe enough that antibiotics are needed. One of these

types of severe staph infections is MRSA. Just as the name suggests, this type of staph infection is resistant to methicillin and other penicillin-like antibiotics. MRSA generally occurs in an institutionalized setting from a surgical wound, urinary tract infection, bloodstream infection, or pneumonia.

A patient can be colonized with staph and not be infected. The primary site for colonization is the nares, however, colonization can also be seen in the respiratory secretions of intubated patients, in nonpurulent surgical wounds, draining body fluids, in urine of those patient being catheterized, and patients with extensive history of broad-spectrum antimicrobial therapy. Staph is typically introduced during an insult to the integrity of the skin such as venipuncture.

The CDC suggests that 25-30% of the population is colonized with staph, but only about 1% is colonized with MRSA.



The 5 C’s

There are five factors that can increase the risk of contracting MRSA.
Crowding, frequent skin-to-skin Contact,
Compromised skin,
Contaminated items/surfaces and lack of Cleanliness.

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Meet the Neil Medical Group Quality Assurance Representative!

Jennifer Parker heads up our new position of Quality Assurance Representative. In this position she acts as a liaison between the pharmacy and facility, helping both to troubleshoot to find resolutions to problems that may arise. She uses special computer software to track and monitor the timely resolution of the concerns.

Jennifer was born, raised and continues to reside in Kinston, North Carolina. She earned a Bachelors of Science degree in Human Resource Development (emphasis in Psychology) from Mount Olive College. Jennifer has extensive pharmacy experience having worked in several Wal-Mart pharmacies in high school and college as well as five years with Neil Medical Group. Also, she has taught high school chemistry at her alma mater, North Lenoir High School. She admits to being a little bit of a “nerd” and loving chemistry. She must also be a great teacher as her students had the highest chemistry state test scores in Lenoir County while she was teaching!

On the personal front, she has a younger brother and sister and an awesome brother-in-law and sister-in-law and niece. Jennifer is still single, but “looking” for the right husband. She has many varied interests. Jennifer loves to sing, and is part of a trio called the “Tentmakers” that has performed in churches through the Eastern part of North Carolina. She also loves to sing Karaoke.

Another interest includes spending a week each summer of her “vacation” as a camp counselor at Cragmont, a

Free-Will Baptist sponsored camp in Black Mountain, North Carolina. She admits that although it is a lot of work with almost 200 kids, it is the most fun of the summer for her.

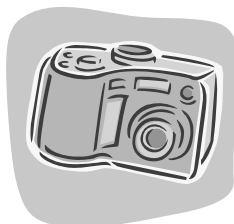
Jennifer enjoys Photography and is currently working on a website to showcase her photographs – anyone needing a Photographer give her a call! A camera is not the only thing she likes to shoot – she has recently taken up target shooting with a .22 rifle and hopes to start shooting in local competitions. She also enjoys movies, live theatre and ballet. She would love to attend the Tony Awards in New York City this summer. Jennifer also enjoys sports – especially anything football and anything Carolina!

Jennifer wants all the facilities to know that she can educate and train facility staff on pharmacy policies and procedures; offer assistance with med room inspections, changing out med carts (whether due to receiving new carts or new packaging...or both); observe med passes; present “non-clinical” in-services—those dealing again with pharmacy policies and procedures and provide information on the

latest technology available to our facilities.

Jennifer states the following regarding her new position:

“I must say that I am thoroughly enjoying meeting the administrators, DON’s, and other facility staff, getting to know them, and building relationships with them!”



New Drug Update - Lovaza®

Lovaza® is a combination of omega 3 and omega 6 fatty acids. Lovaza has received approval as an adjunct to diet changes for the treatment of severe Hypertriglyceridemia. Hypertriglyceridemia is an independent risk factor for coronary heart disease. High levels are often found with insulin resistance, obesity, and low levels of HDL. Extremely high levels may also contribute to acute pancreatitis. The drug acts by reducing the production of triglycerides by the liver, increasing triglyceride clearance and decreasing the production of very low density lipoprotein cholesterol (VLDL-C).

The recommended dose is 4 grams (4 capsules) by mouth daily with a meal. The dose may be split into 2 grams by mouth twice a day if needed. It may be used alone or in combination with a statin drug. Studies show a decrease of total cholesterol by 9.7%, a decrease in triglycerides by 44.9%, an increase in LDL-C by 44.5% and an increase in HDL-C by 9.1%. LDL-C increases, which is usually worrisome, but it was found that the LDL particles change from being small and dense to larger, more buoyant and less atherogenic particles.

Patients with an allergy to fish should use caution. The most common side effects seen in the studies include: belching, taste perversion (fishy), increased ALTs, rash and infection. Cost is estimated at \$150.00 for a 30 day supply and is usually a Tier 3 drug requiring prior authorization on most Medicare Part D plans.



MEDICATIONS THAT MAY CAUSE PHOTOSENSITIVITY REACTIONS

Drug	Photosensitivity Reactions/Comments
Tetracyclines	Phototoxic; Incidence lowest w/ minocycline & doxycycline; highest w/demeclocycline
Ibuprofen, Ketoprofen, Naproxen	Phototoxic
Celecoxib	Photoallergic
Hydrochlorothiazide	Phototoxic and Photoallergic
Furosemide	Phototoxic
Amiodarone	Phototoxic; Incidence may be as high as 76%; usually occurs within first 4 months of use of the drug
Diltiazem	Phototoxic
Quinine or Quinidine	Phototoxic and Photoallergic
Carbamazepine	Photoallergic; Incidence is about 0.1%; even reported with UVA light from a photocopier
Sulfonylureas (glipizide, glyburide) and Sulfonamides	Photoallergic
Quinolones	Phototoxic; Reported with ciprofloxacin, lomefloxacin, ofloxacin, nalidixic acid, moxifloxacin; incidence may be as high as 10% and appears dose related
Pyrazinamide	Red-brown discoloration on sun-exposed skin
Methotrexate	May enhance sunburn if given up to 3 days after sun exposure

Phototoxic reactions occur minutes to hours after exposure, while photoallergic reactions occur between 24 to 72 hours after exposure.

The distribution of phototoxic reactions is apparent on sun-exposed skin only and resembles an exaggerated sunburn; photoallergic reactions are apparent on sun-exposed skin in addition to spreading to unexposed areas and appear as a dermatitis. Phototoxic reactions can occur on first exposure, while photoallergic reactions require more than one exposure.



Community-acquired MRSA and Hospital-acquired MRSA are typically treated differently due to a different strain of MRSA. MRSA is considered to be community acquired only if a patient has not had any hospitalization or long term stay at a healthcare facility or medical procedure within the last year. Common empiric antibiotics are listed below. If a CA-MRSA is considered severe enough to admit a patient to a hospital, then HA-MRSA antibiotics are usually recommended.

Hospital-acquired MRSA

Antistaphylococcal agent	Usual adult dose	Side effects
Daptomycin	Complicated skin/soft tissue infections 4 mg/kg (IV) q 24 h	None
	Bacteremias 6 mg/kg (IV) q 24 h (q 24 h dosing CrCl > 30 mL/min; q 48 h dosing CrCl ≤30 mL/min)	
Linezolid	600 mg (IV/PO) q 12 h	Transient/reversible thrombocytopenia
Quinupristin/ dalfopristin	7.5 mg/kg (IV) q 8 h	Painful myalgias (rare)
Minocycline	100–200 mg (IV/PO) q 12 h	Skin discoloration with prolonged use
Vancomycin	1 g (IV) q 12 h	Neutropenia “Red Man” syndrome
Tigecycline	100 mg (IV) × 1 dose, then 50 mg (IV) q 12 h	None

Community-acquired MRSA

Antistaphylococcal agent	Usual adult dose	Side effects
Clindamycin	300mg po QID	Diarrhea/N/V Rash/ pruritis
Doxycycline	100mg po q12h	Photosensitivity
TMP-SMX	160/800 (DS tab) po BID CrCl 15-30ml/min dec. dose 50% CrCl <15ml/min avoid use Hepatic impairment caution advised	Allergic rash, photosensitivity, GI upset

Despite the increasing frequency of MRSA in both the community and institutionalized settings, MRSA can be prevented. In the community, hand washing with soap and water or an alcohol-based hand sanitizer, keeping cuts and scrapes clean and covered with a bandage, not touching other people’s cuts or bandages, and not sharing personal items like towels or razors are all great ways to prevent transmission of MRSA in areas where crowding and skin-to-skin contact occurs.

In the long-term care setting there are steps that the CDC has campaigned to help prevent all antimicrobial resistance, not just MRSA.

- Δ The first step is vaccinating both patients and staff with influenza and pneumococcal vaccines.
- Δ The second step is to prevent conditions that lead to infections such as aspiration, pressure ulcers, or dehydration. It is also important to remove any unnecessary devices such as catheters.

MRSA continued on next page...



... *MRSA continued*

- Δ The next two steps relate to diagnosing and treating an infection effectively. It is important to target empiric therapy to likely pathogens but then to change to definitive therapy for known pathogens. It is additionally important to know the history of transfer residents in relation to their past infections. As resistance to antibiotics increases, clinicians should know when to say “no” to the use of broad-spectrum antibiotics and chronic or long-term antimicrobial prophylaxis. As mentioned earlier, many patients are colonized with staph but few are actually infected. It is important to treat an infection and not a colonization or contamination, therefore, proper technique is needed when gathering cultures as well as re-assessing a patient’s need for continued therapy 48-72 hours later. Antimicrobial therapy should be stopped when cultures are negative or infection has resolved or is unlikely.

- Δ The last four steps are already being used in the healthcare system but always need to be re-stated and encouraged. Standard precautions and contact precautions are a must to isolate the pathogen; therefore, contact precautions should be carried out until a possible infection is ruled out by negative cultures. Hand-washing with soap and water or an alcohol based sanitizer can not be stressed enough in being the number one way that healthcare providers and visitors can prevent transmission. MRSA is becoming resistant to our current antibiotic treatments and prevention measures are more important now than ever to keep this infection minimized in both the community and long-term care facilities.

Article written by Rachel Amodei, PharmD Candidate of UNC-Chapel Hill

**Medications Frequently
Not Covered By
Medicare Part D
Insurance:**



Medicare Part D insurance companies have been showing some consistency with regard to medications that they are not covering this year. Listed below are formulary alternatives or over-the-counter alternatives clinicians might consider if a substitution is clinically appropriate.

<u>Medication Frequently not Covered by Medicare Part D</u>	<u>Consider Using</u>
Duoneb® solution or generic Albuterol/Ipratropium nebulization solution	Albuterol 0.083% nebulization solution and Ipratropium 0.2% Nebulization solution (as separate medications)
Xenaderm® Ointment	Sween® Cream
Accuzyme® Ointment	Collagenase Santyl® Ointment
Panafil® Ointment	Collagenase Santyl Ointment
Granulex® or TBC Spray	Proderm® Spray
Vusion® Ointment	Miconazole 2% Topical Cream
Prevacid® Solutabs	Omeprazole capsules
Clarinet® Tablets	Loratadine OTC tablets

Article by Kathleen Slavinski, Pharm.D.



Statins: Are They Causing Confusion?

According to *The Wall Street Journal*, doctors resurfaced the discussion stating that cholesterol-lowering medications might protect the heart, yet they also may harm the mind. These doctors were referring to the cognitive side effects of memory loss and “fuzzy thinking” that statins may cause. Worldwide it is estimated that twenty-five million people take statins including Zocor®, Crestor®, Lipitor®, Pravachol®, Mevacor®, and Vytarin®. In clinical trials these medications have been credited with decreasing heart attacks and strokes in high-risk patients with the most common side effects being muscle aches and liver toxicity. Memory loss has not been reported as a common side effect with statins in the literature; however more cases are being reported every year.



Since hypercholesterolemia is a risk factor for Alzheimer’s disease (AD), some evidence has been reported that statins could be used to protect against the disease. Pharmacologic properties of anti-inflammation and antioxidant are thought to be of benefit in the protection of AD with statins. In animal models with AD, statins have reduced the A β deposition that affects disease progression. This evidence is still very controversial and at this point the benefits are not substantial enough to use these medications for prophylaxis or treatment. So how can a medication prevent against dementia and cause memory loss all at the same time?

To understand the mechanism for potential memory loss it is necessary to recognize how crucial cholesterol is to brain function. The brain contains 25% of the body’s non-esterified cholesterol. This is 5-10 fold more than any other organ. Some of the statins, simvastatin specifically, have a local effect due to their permeability of the blood-brain barrier. Glial-derived cholesterol is important to the formation of synapses, is a major component of myelin, and is an important part to cellular membranes. Glial-derived cholesterol also plays a role in membrane exchange and regulator expression, including neurotransmitters. The brain cannot regulate neurotransmitters with lower cholesterol levels. Consequently, this affects mood and memory.

The Cardiovascular Heart Study recently showed results that statin drugs in the elderly were associated with a very slight reduction in the rate of cognitive decline compared with individuals in whom statin medications were not indicated. One key point to remember is that dementia/memory loss is multi-factorial and in all clinical trials statin use has not been directly associated with memory loss. That being said, a practitioner should address any immediate memory loss or an uncharacteristic, aggressive mood after starting a statin. A practitioner should stop the statin and monitor the patient for reversal of memory loss and mood changes. A patient *could* then be re-challenged with the same or another statin to verify the adverse event.

Article by Rachel Amodei, Pharm.D. Candidate from UNC- Chapel Hill

Help Neil Medical Group Stay Up-to-Date!

Remember to utilize the **Resident Data Sheet** form to communicate room changes, discharges, changes in payer source, etc. This way we can have the most up-to-date information in our computer system. This helps with accurate billing, delivery of medications and printing of the monthly Physician Orders/MARs/TARs.

Another way to help is to assign a staff member the duty of faxing an updated census to our pharmacy by the **15th day of each month**. This will help the MAR department delete discharged residents and their records so that you will not receive Physician orders, MARs and TARs that are no longer needed. Any staff member may do this – office manager, nurse manager, billing representative, receptionist, etc.

Your help is much appreciated!



OBTAINING C-II MEDICATIONS IN A LONG TERM CARE SETTING

C-II (i.e. Schedule II) controlled substance orders must have a signed prescription from the M.D. with a quantity indicated on the prescription. These prescriptions may be faxed to the pharmacy, but have some limitations:

- (a) Prescriptions faxed directly from the physician to the pharmacy may serve as the “original.”
- (b) Hard copy Prescriptions sent to the facility and then faxed from the facility to the pharmacy, require the facility to send the original (hard copy) to the pharmacy so that the total quantity can be filled.
- (c) As a last resort, a pharmacist may take a direct, verbal order from the physician and fill an emergency supply (the physician must still counter-sign a “hard copy” and forward it to the pharmacy within 7 days).

Please follow the following procedures regarding Schedule II controlled substances for patients in long term care (LTC) facilities:

- (1) If you, as a nurse, receive a verbal/telephone orders for a new C-II prescription, prompt the physician to write a “hard copy” prescription (with a quantity indicated on it) and fax it directly to the pharmacy (the physician may then file the hard copy in his own office). If the physician does not have immediate access to a fax machine, please explain that the pharmacist will need to take a direct, verbal order from the physician to fill an “emergency C-II prescription” (the emergency verbal order still requires the physician to forward a signed hard copy to the pharmacy within 7 days).
- (2) If you have a new admission with an order for a C-II prescription, please fax the admission orders as early as possible to the pharmacy (if possible, please ask the physician for a hard copy). The pharmacy will first check with the LTC facility to see if they have a “hard copy.” If not, the pharmacy will then attempt to directly obtain a hard copy from the physician (or obtain an emergency verbal order from the physician).
- (3) If you have reached the “refill” point on an existing supply of C-II medication in the facility, please pull the prescription label and forward it to the pharmacy.

C-II Prescription Facts for Physicians / PAs / NPs:

- (A) All C-II orders must be complete with medication name, strength, dose, directions and “quantity.” If the physician is writing the C-II order while making rounds in the facility, the “complete” order may be written on the telephone order sheet in the patient record. The pharmacy, in this situation, may dispense the entire quantity from the faxed order from the facility (i.e. no additional hard copy required).
- (B) A physician may fax a “hard copy” directly to the pharmacy from his work location and the “entire” quantity may be dispensed (the physician simply files the hard copy in his office).
- (C) If the physician does not have a convenient way to get a hard copy to the pharmacy, a pharmacist may take an “Emergency Verbal Order” directly from the physician to fill an emergency supply of medication. The pharmacy will then fax a hard copy directly to the physician who must counter-sign the emergency order and fax it back to the pharmacy within 7 days. This hard copy only covers the “emergency supply.” If a maintenance supply is needed, a separate hard copy must be forwarded to the pharmacy.
- (D) For a patient in a long term care facility, the pharmacy may refill a C-II prescription within a 60 day period up to the maximum quantity indicated on the face of the prescription.
- (E) The pharmacy may not legally fill a “verbal” C-II medication order taken by a nurse from the physician in a long term care setting. The pharmacist needs a hard copy or take a direct “Emergency Verbal Order” from the physician.



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SAVE THE DATE!!!
October 21-22, 2008



The Fifth Annual Educational Summit!

Neil Medical Group: The Leading Pharmacy Provider in the Southeast

**Target
Audience:
Administrators and Nurses**

Location: Embassy Suites, Concord, NC

Sessions Include:

- **Anticoagulation Management**
- **Communication Strategies**
- **Documentation Guidelines**
- **Infectious Disease Updates**
- **MDS 3.0**
- **Survey Trends**
- **AND MUCH, MUCH MORE!!!**

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:

Traci Burge

1-800-862-4533 ext. 3444

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.