



# OBSERVE THE MISSING LINK:

Pharmacology is Safer  
When You Think!

By Loretta Manning

Less than 30 years ago when your mom was practicing nursing and administering medications to patients, there were 900 drugs to select from in the PDR. Today, there are over 9000 drugs. Not only are there more than 9000 drugs, over 600 herbal products are also available which may result in drug-drug interactions.

One and one half million preventable adverse drug effects occur annually in the United States. Adverse drug effects are the highest single source of health care errors costing \$3.5 billion (in 2006 dollars). Many hospitals are responding to this national problem by turning to technology to assist with decreasing these errors, however, medication errors are still on the rise. A question we may ask ourselves is, “*Why do medication errors continue to rise?*”

One contributing factor is that many of our patients today are 65 and older. In many situations, these patients have several systems involved and take more medication than they did 30 years ago. These trends may lead to drug-drug interactions as well as disease-drug interactions.

Today, with the use of more technology, it is imperative to check the equipment prior to using with the patients. When equipment is not working appropriately, then this can result in complications with patient safety.

Twenty years ago, pharmacology predominantly focused on the action, side effects, and levels of the drug. There was less of a focus on numerous drug-drug interactions. Nursing faculty in the 1970’s had students complete drug cards. The students would memorize these cards prior to going to clinical. Today, we have to know



the same information, but now we must also have an understanding of the physiological changes that occur during the aging process that may contribute to complications from medications. For example, Coumadin is 99 percent protein bound. During the aging process, protein receptors decrease resulting in potential drug interactions. Today, nurses must make appropriate system specific assessments in order to evaluate the effectiveness of the medication as well as continuously assess for potential adverse effects.

Nurses today must be alert to incorrect orders for the client and verify the accuracy if inappropriate since there are numerous physicians / providers of care directing the patient’s care. Nurses must be alert to potential changes with electrolytes from specific medications and make appropriate assessments.

The National Council of State Boards of Nursing has addressed these challenges with medications by increasing the percentage of questions evaluating pharmacology to 13-19 percent on the 2004 NCLEX-RN® and has continued with this in the 2007 Test Plan as well.

The questions remain, “What is the missing link to providing safe medication administration? What can we do to transform this challenge into excellent, safe practice

with medication administration?”

We have to address the overwhelming amount of information that you must learn to practice safe medication administration. How did you feel the first time you had to administer more than one medication? Did you know the most important information to review or did you feel loaded down with volumes of “nice to know information” versus “necessary to know information.” To facilitate and simplify learning the numerous medications, I suggest the “Six-Step Approach to assist you to master Pharmacology.”

- M Memory Techniques
- A Association
- S Significance to Clinical
- T THINK
- E Explain New information
- R Reflection

Remember, as a novice in medication administration, you may not be able to distinguish relevant from irrelevant information. The memory traces in the brain that assist the novice learner with remembering information are small in number. There are few linkages, so the novice learner must learn how to develop those links while studying to assist with remembering.

With this approach to assist with learning facts about pharmacology, focus on a strategy for “SAFE” medication administration that will assist in organizing your thinking.

- S System Specific Assessment Safety (identify client)
- A Action, Accuracy of order Adverse Effects
- F Food-Drug, Drug-drug interactions, First (plan, action, etc.)
- E Educate, Evaluate data prior to giving, Evaluate client response, Expected outcome

## It's Not What You Know, But What You Remember!

### M Memory Techniques - Learn Generic names NOT Brand names!

Many of the drugs have similar generic parts in the name. For example, Cephalosporins either have a “cef or ceph” in the generic name. In order to optimize your memory and association, think of “CEF THE GIANT”!



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### A Association - “CEF” attacks “GIANT” organisms and may also result in “GIANT” adverse effects.

- G Gastrointestinal (GI): nausea, vomiting, diarrhea
- I Increase in glucose values
- A Anaphylaxis if allergic to penicillin
- N Nephrotoxicity
- T Thrombocytopenia

### S Significance to Clinical - Now that you have a way to assist with recall, what is the significance to clinical practice or the NCLEX-RN®? Take a look at the example below:

*During the history, a client reports a previous allergic reaction to penicillin. The provider of care orders cefaclor (Ceclor).*

*What is the highest priority of care?*

1. Immediately start an IV.
2. Verify accuracy of order.
3. Identify client by the wrist bracelet.
4. Monitor BUN and creatinine.

### T THINK - This is the missing link to safe medication practice!

Before you can *think*, however, you must know the accurate information regarding the medications. Now, let's think about the question above. The answer is #2 because if the client had an allergic reaction to penicillin, there is a chance they could have the same response to cephalosporins. Option #1 is not a priority. Options # 3 and #4 would be important for the plan of care, but not with this situation.

Now a major link to safe medication administration, is for the nurse to *think* and have the courage to communicate assessment findings, question order accuracy, etc. Thinking without communicating does not achieve excellent client outcomes. Nurses are leaders of medication administration, and are responsible for client safety!

### E Explain New Information

Part of the success in learning any new information is to be able to explain it verbally to another person. When you can explain newly learned information, then you have made connections and have an understanding of the content.

### R Reflection

After you administer any medications, reflect back over the experience and evaluate the process and review any learning that took place.

## Courage to Communicate

This “SAFE” approach provides successful outcomes when it becomes a habit and is consistently practiced. This approach has been adapted from the NCLEX activities that are outlined in the Detailed Test Plan. I organized it differently to assist you with association.

The last approach to safe medication administration is the “COURAGE to COMMUNICATE” appropriate findings as well as inappropriate medication orders, doses, adverse drug effects, etc. The missing link to safe medication administration is the courage to think and communicate this process verbally to the provider of care as necessary. This is the link to success! It takes time and energy to develop excellent habits, but the investment is well worth it. Imagine what would happen with the quality of care for patients if every nurse in the country committed to practice “SAFE” medication administration!

Even though pharmacology has changed since your mother practiced nursing, pharmacology can be much safer when you think. When our mothers were practicing nursing 30 years ago, nurses were educated to follow the physician’s orders. In some situations, nurses were treated like assistants. Today, nurses are independent health care professionals who are responsible to think, collaborate with the health care team, and be an advocate for the patient.

I wish you much success on your journey as a leader of medication administration. I challenge you as you continue on your path in nursing to always think and have the courage to be an advocate for the patient! The patient in the bed is ALWAYS a very important person! It may be you in the future who saves a patient’s life due to your excellent leadership with medication administration. ☺

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