3.4: Nursing Process

Now that we have reviewed antimicrobial basics and administration considerations, we will take a closer look at specific antimicrobial classes and administration considerations, therapeutic effects, adverse effects, and specific teaching needed for each class of antimicrobials. But before we do that, let's reexamine the importance of the nursing process in guiding the nurse who administers antimicrobial medications. The nursing process consists of assessment, diagnosis, outcome identification, planning, implementation of interventions, and evaluation. For more information about the nursing process, refer to the Chapter 2 sub-module on "Ethical and Professional Foundations of Safe Medication Administration by Nurses." Because diagnosis, outcome identification, and planning are specifically tailored to the individual patient, we will broadly discuss considerations related to assessment, implementation of interventions, and evaluation when administering antimicrobials.

Nursing Process: Assessment

Although there are numerous details to consider when administering medications, it is important to always first think more broadly about what you are giving and why. As a nurse who is administering an antimicrobial, you must remember some important broad considerations.

First, let's think of the WHY?

Antimicrobials are given to prevent or treat infection. If a patient is prescribed an antimicrobial, an important piece of the nursing assessment should be to look for signs and symptoms of infection. The nurse should always know WHY the patient is receiving an antimicrobial to evaluate if the patient is improving or deteriorating. Remember, the nurse must assess how this medication is working, and having pre-administration assessment information is an important part of this process. Typical data that a nurse collects at the start of a shift include a baseline temperature, heart rate, blood
pressure, and white blood cell count. Focused assessments are then made based on the type of infection. For example, if it is a wound infection, the wound should be assessed. If it is a respiratory infection, the nurse should assess the patient’s lung sounds. If a patient has a urinary tract infection (UTI), the urine and symptoms related to a UTI should be assessed. Additionally, whenever a patient has an infection, it is important to continually monitor for the development of sepsis, a life-threatening condition caused by severe infection. Early signs of sepsis include new onset confusion, elevated heart rate, decreased blood pressure, increased respiratory rate, and elevated fever.

Additional baseline information to collect prior to the administration of any new medication order includes a patient history, current medication use including herbals or other supplements, and history of allergy or previous adverse response. Many patients with an allergy to one type of antimicrobial agent may experience cross-reactivity to other classes. This information should be appropriately communicated to the prescribing provider prior to the administration of any antimicrobial medication.

### Nursing Process: Implementation of Interventions

With administration of the antimicrobial medication, it is important for the nurse to anticipate any additional interventions associated with the medications. For example, antimicrobials often cause gastrointestinal upset (GI) such as nausea, diarrhea, etc. The patient should be educated about these potential side effects, and proper interventions should be taken to minimize these occurrences. For example, the nurse may instruct the patient to take certain antimicrobials with food to diminish the chance of GI upset, whereas other medications should be taken on an empty stomach for optimal absorption.

Hypersensitivity/allergic reactions are always a potential adverse reaction, especially when administering the first dose of a new antibiotic, and the nurse should monitor for these symptoms closely and respond appropriately by immediately notifying the prescriber. Hypersensitivity reactions are immune responses that are exaggerated or inappropriate to an antigen and can range from itching to anaphylaxis. Anaphylaxis is a medical emergency that can cause life-threatening respiratory failure. Early signs of anaphylaxis include, but are not limited to, hives and itching, the feeling of a swollen tongue or throat, shortness of breath, dizziness, and low blood pressure.

### Nursing Process: Evaluation

Finally, it is important to always evaluate the patient’s response to a medication. With antimicrobial medications, the nurse should assess for absence of or decreasing signs of infection, indicating the patient is improving. It is important to document these findings to reflect the patient’s trended response.

Additionally, it is also important for the nurse to promptly identify and communicate signs of worsening infection to the provider. For example, increasing white blood cell count, temperature, heart rate, and respiratory rate may indicate that the patient’s body is experiencing a life-threatening response to the infection. These signs of worsening clinical assessment require prompt intervention to prevent further clinical deterioration. Additionally, patients receiving antibiotics should be closely monitored for developing a complication called “C-diff,” resulting in frequent, foul-smelling stools. C-diff requires the implementation of modified contact precautions, including the use of soap and water, not hand sanitizer, as well as antibiotic therapy. [1]