45th Biennial Convention (16-20 November 2019)

Antimicrobial Stewardship in Long-Term Care Facilities: Focus on Suspected UTI

Margery Shane, DNP, RN-BC, FNP-BC
Evelyn L Spiro School of Nursing, Wagner College / Island Medical Specialists, Staten Island, NY, USA

Resistance to antibiotics used in the treatment of bacterial infections is increasing globally. Residents of long-term care facilities (LTCFs) are at risk for resistant infections and are especially vulnerable. In many LTCFs decisions to prescribe antibiotics are often made by an off-site provider and influenced by limited laboratory results and communication from LTCF staff. Clinicians often prescribe broad-spectrum agents to cover for potential pathogens, without a clear clinical picture on which to base the decision. This potentiates antimicrobial misuse, regarding the frequency and appropriateness of antibiotic initiation. Each year, most long-term care facility residents are prescribed antibiotics, for which urinary tract infection (UTI) is the most common diagnosis, however many of the antibiotics prescribed are unnecessary or inappropriate. Improved knowledge of antimicrobial resistance and stewardship strategies has the potential to impact the global health problem of antimicrobial resistance. Although there are existing guidelines and consensus criteria to guide clinical decision making, they have been relatively underused by healthcare providers.

An eLearning module about UTI specific antimicrobial stewardship in long-term care facilities was developed for nurse practitioners practicing in this setting. The aim of this quantitative quasi-experimental study was to investigate the results of this eLearning module and whether it would increase the knowledge of nurse practitioners about antimicrobial stewardship. The test results of a pre-test and a post-test were compared. The results of this study show a positive effect of the eLearning module on the knowledge of the nurse practitioners.

The link for the eLearning module entitled “Antimicrobial Stewardship in Long-Term Care Facilities: Focus on Suspected UTI”, with links to the pretest and posttest, was sent out to 50 nurse practitioners. Ten (20%) of the nurse practitioners consented to participate in the study and completed the pretest, eLearning module, and posttest. A difference was observed between the number of correct answers on the pretest (M = 6.4, SD = 1.35) and the number of correct answers on the post-test (M = 8.1, SD = 1.197). A paired sample t-test was conducted to compare the number of correct pretest responses with the number of correct post-test responses and calculates p = 0.006. Based on the results, since the p < 0.05, the null hypothesis is rejected. Therefore, a significant difference was determined by the researcher, thus supporting the clinical question. Antimicrobial stewardship education via the eLearning module does increase knowledge of nurse practitioners in long-term care settings.

The researcher has concluded that this eLearning module has shown a significant increase of knowledge of nurse practitioners in the long-term care setting, thereby empowering them to utilize this information and antimicrobial stewardship strategies to improve the safety and quality of care of elderly long-term care facility residents. Nurse practitioners play an important role in antimicrobial stewardship through their roles as
clinician, educator and through use of evidence-based practice and translational research. Focused antimicrobial stewardship strategies including surveillance, criteria for antimicrobial initiation, and SBAR communication would likely improve the burden of antimicrobial resistance in LTCFs.

---

**Title:**
Antimicrobial Stewardship in Long-Term Care Facilities: Focus on Suspected UTI

**Keywords:**
Antimicrobial Stewardship, Asymptomatic Bacteriuria and Suspected Urinary Tract Infection

**References:**


**Abstract Summary:**
There is a high prevalence of asymptomatic bacteriuria in elderly long-term care facility (LTCF) residents. Antibiotics are frequently prescribed in reflex to diagnostic tests in the absence of signs or symptoms of urinary tract infection (UTI). An evidence-based eLearning module was developed to improve antibiotic stewardship regarding UTI in LTCFs.

**Content Outline:**
1. Introduction
   1. Antimicrobial Resistance: Background
2. In long-term care facilities antibiotics are frequently prescribed, however many of the antibiotic prescriptions may be inappropriate or unnecessary
3. An eLearning module was developed for nurse practitioners in long-term care facilities to improve antibiotic stewardship regarding urinary tract infections in long-term care facilities.
2. Body
   1. Long-term care facility residents are vulnerable to infections caused by multi-drug resistant organisms (MDRO), or colonization with these organisms.
   1. Age associated changes in innate and adaptive immunity, multiple comorbidities, and exposure related to long-term care facility residence increase the risk for acquiring or infection with multi-drug resistant organisms.
2. Long-term care facility residents become a reservoir of MDROs and play a role in the spread of resistant organisms due to hospital transfers and discharges to the community.

2. Urinary tract infection (UTI) is one of the most commonly diagnosed infections in older adults, and in long-term care facilities, makes up almost half of all healthcare associated infections.
1. Decisions to treat a diagnosis of UTI is often made based on results of diagnostic tests alone, in the absence of localizing urinary tract symptoms.
2. Urinalysis and culture & sensitivity have a low positive predictive value in long-term care facilities due to the high rate of asymptomatic bacteriuria.

3. Asymptomatic bacteriuria
1. Insufficient evidence to support treatment with antibiotics, as it does not improve morbidity or mortality, and exposes the resident to potential adverse effects of antibiotic use including antibiotic resistance.
1. In this population, screening and treatment is indicated for those undergoing invasive urologic procedures for which mucosal bleeding is anticipated.
5. Current evidence supports antimicrobial stewardship programs in long-term care facilities.
1. Reductions in antibiotic initiation and use of antibiotics of last resort are noted with the use of antimicrobial stewardship programs in long-term care facilities.

3. Conclusion
1. There is sufficient evidence to support development and application of antimicrobial stewardship strategies for long-term care facilities.
2. Antibiotic prescribing is influenced by many factors, and many of the antibiotics that are prescribed are unnecessary.
3. Antimicrobial stewardship strategies focusing on clinical decision making that aids healthcare providers to improve diagnosis of urinary tract infection and asymptomatic bacteriuria, will likely improve on overuse of antibiotics inappropriately prescribed for asymptomatic bacteriuria in long-term care facilities.
4. The eLearning module “Antimicrobial Stewardship in Long-Term Care Facilities: Focus on Suspected UTI” improved knowledge of nursing practitioners in this setting.
5. Improved knowledge of antimicrobial resistance and stewardship strategies has the potential to impact the global health problem of antibiotic resistance. Although there are existing guidelines and consensus criteria to guide clinical decision making, they have been relatively underused by healthcare providers.
6. This eLearning module has shown a significant increase of knowledge of nurse practitioners in the long-term care setting, and thereby empowering them to utilize this information and antimicrobial stewardship strategies to improve the safety and quality of care of elderly long-term care facility residents.

First Primary Presenting Author
**Primary Presenting Author**
Margery Shane, DNP, RN-BC, FNP-BC
Wagner College / Island Medical Specialists
Author Summary: The author of this presentation is Margery Shane, an ANCC Board Certified Family Nurse Practitioner currently employed in a private practice. Margery has privileges to practice at a private sub-acute rehabilitation center and long-term care facility in New York. Margery recently earned the Doctor of Nursing Practice degree at the Evelyn L. Spiro School of Nursing at Wagner College, Staten Island, New York.