

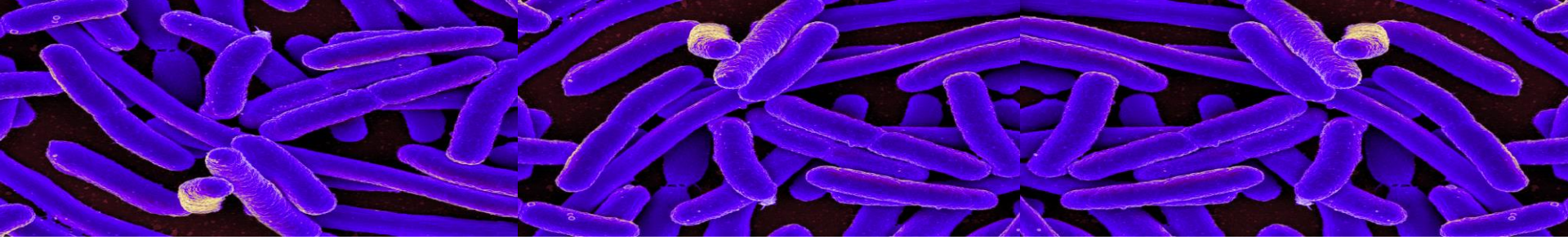
# **Antimicrobial Stewardship:**

A comprehensive literature review of the role of the nurse in antimicrobial stewardship in preventing multi-drug resistant infections in the hospitalized patient

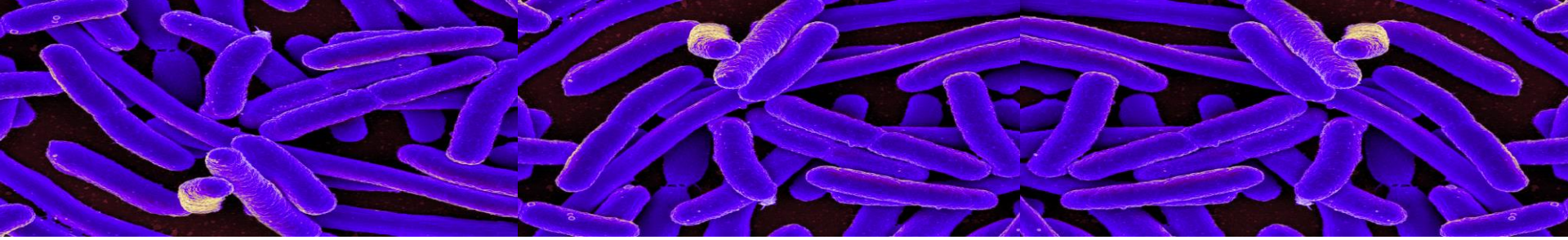
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The following presentation contains information accumulated through a literature review performed by Casey May, BSN, RN, Kaitlyn Thormahlen, BSN, RN, Celina Calo, BSN, RN, and Renee Vittone, BSN, RN. No sponsorship or commercial support were given to the authors. The authors declare that there is no conflict of interest.

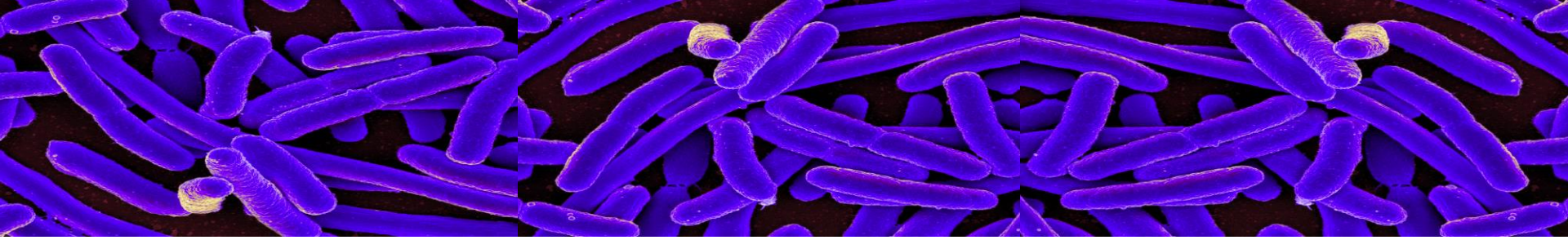


What is the nurse's role in antimicrobial stewardship in preventing multi-drug resistant infections in the hospitalized patient?



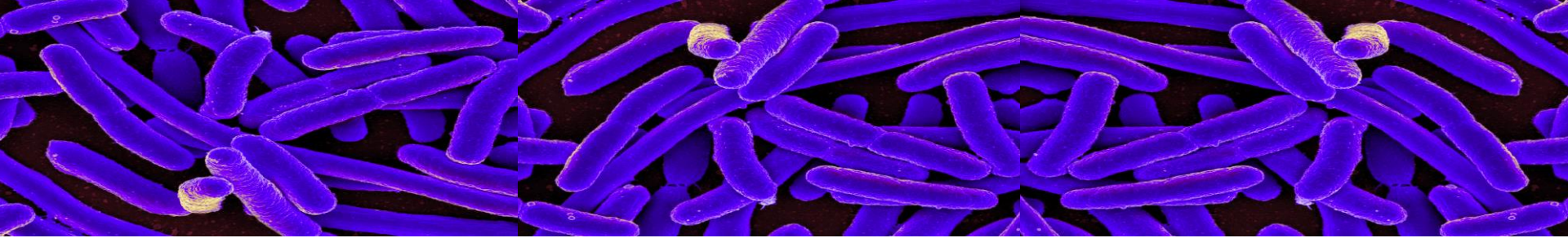
# Objectives

- Discuss the origins of multi-drug resistant organisms
- Discuss Antimicrobial Stewardship Programs (ASPs)
- Highlight areas of improvement within the nursing scope of practice
  - Hand hygiene
  - Education
  - Preventing over-prescription of antibiotics



# Significance

- Center for Disease Control and Prevention (CDC) estimates that over 2 million illnesses and 23,000 deaths occur related to antibiotic resistant infections per year (2013)
- Upwards of 50% of the time, antibiotics are either prescribed when they are not indicated or given in the incorrect dose or duration (CDC, 2013)
- "[MRSA] kills more Americans every year than emphysema, HIV/AIDs, Parkinson's disease and homicide combined," (Llor and Bjerrum, 2014)



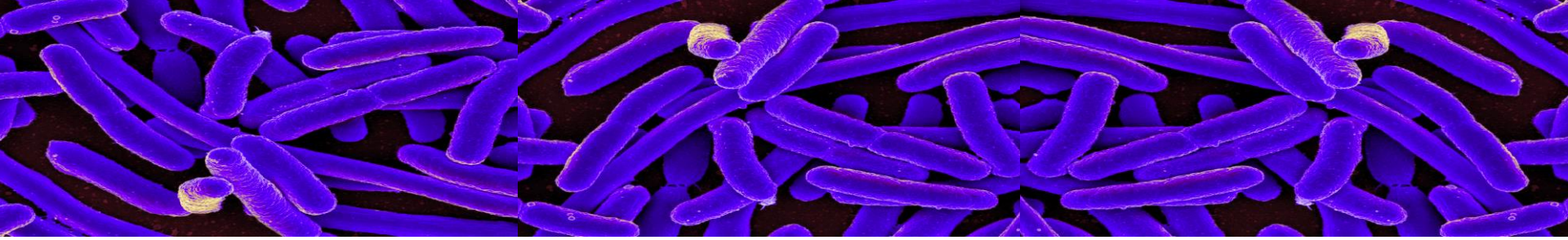
## Multi-drug resistant organisms

- The resistance shown by specific microorganisms to certain medications
- Antibiotic resistance occurs when a microorganism no longer responds therapeutically to antibiotics after a period of time
- When used unnecessarily or incorrectly, antibiotics may have detrimental health consequences (CDC, 2013)



# Antimicrobial Stewardship Programs (ASPs)

- Purpose is to educate clinicians on appropriate antibiotic use and to implement evidence-based standards of practice in order to improve patient safety and quality of patient care
- Literature related to antibiotic resistance shows that there is a lack of knowledge about multi-drug resistant bacteria and specific infection prevention measures regarding the nursing role
- Many nurses do not directly see their impact in ASPs, due to being omitted from formal ASP guidelines (Olans, 2015)



## Intervention: Hand hygiene

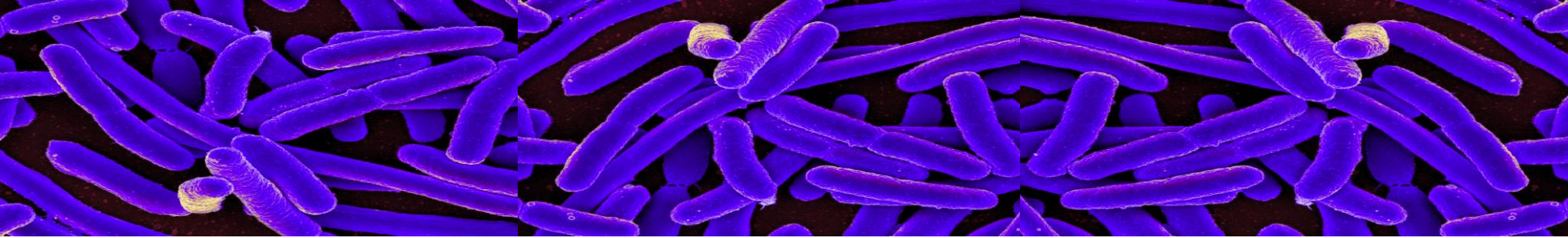
- Simplest yet most fundamental method to prevent hospital acquired infections
- Edmond et al. concluded that time spent by nurses washing their hands after patient care does not differ between patients requiring contact precautions versus those treated with standard precautions (2013)
- Chun et al. studied the effect of hand washing education programs on the frequency and effectiveness of proper hand hygiene and its effect on transmission of MDROs (2013)





## Intervention: Education

- Nurses reported they would question the need for IV antibiotics and the length of use after being educated on the benefits and risks for patients (Gillespie et al., 2013)
- Percentage of nurses reporting that they would question an order for antibiotics after education increased from 14% to 42% (Gillespie et al., 2013)
- Antibiotic stewardship education is not specifically included in educational requirements at the baccalaureate, masters and doctoral level (American Association of Colleges of Nursing's "Essential Series" 2016)
- It is also excluded from the NCLEX-RN exam (NCSBN, 2016)



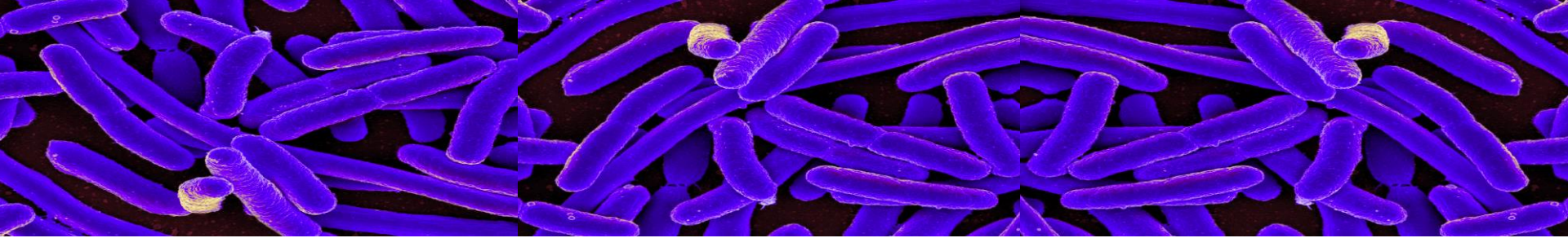
## Intervention: Preventing over-prescription

- 132 patient cases from two New Hampshire nursing homes in which the patients reviewed had a urinary tract infection and were prescribed an antibiotic
- Of the 132 cases, 41% were prescribed an antibiotic without meeting the appropriate criteria (based on McGeer criteria), and 56% were given the wrong antibiotic initially
- As a result, the rate of *Clostridium difficile* development increased (Dosa et al., 2011).



## What can we do?

- Implementation of hand hygiene education and protocol promotion
- Education regarding MDROs, types of antibiotics and their indications
- Empowering nurses to facilitate open communication between health care providers regarding prescription orders
- Participate in Antibiotic Stewardship Programs in the hospital setting to advocate for a stronger nursing presence



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