CDC Guidelines for Antibiotic Stewardship

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Antibiotic Stewardship

- Objective
  - Review Health care – associated infections.
  - Review what antibiotic stewardship in nursing facilities.
  - Review the core elements of antibiotic stewardship.
Health care – associated infections

- HAIs – are infections that individuals acquired while receiving treatment for another condition in a health setting.
- HAIs can be acquired anywhere health care is delivered.
  - Hospitals
  - Ambulatory surgical centers
  - Dialysis centers
  - LTC settings (NF/SNF/AL)

Health care – associated infections

- HAIs – caused by infectious agents
  - Bacteria
  - Fungi
  - Viruses
  - Less common types of pathogens
Health care – associated infections

- These infections are associated with a variety of risk factors.
  - Indwelling medical devices
  - Surgical procedures
  - Injections
  - Contamination of healthcare environment
  - Transmission of communicable diseases between residents and healthcare workers
  - Overuse or improper use of antibiotics

Health care – associated infections

- Magnitude
  - Significant cause of morbidity and mortality
  - About 1 in every 25 inpatients has an infection related to hospital care
  - HAI costs the health care systems billions of dollars each year
  - Lead to the loss of thousands of lives
  - Can have devastating emotional, financial and medical consequences
Antibiotic Stewardship

- Improving the use of antibiotics in healthcare to protect residents and reduce the threat of antibiotic resistance is a national priority.

Antibiotic Stewardship

- What does antibiotic stewardship mean?
  - Refers to a set of commitments and actions designed to “optimize” the treatment of infections while reducing the adverse events associated with antibiotic use.
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– CDC Recommends:
  – Acute care hospitals implement an antibiotic stewardship program and outlined the seven core elements which are necessary for implementing successful antibiotic stewardship program.
  – Nursing homes take steps to improve antibiotic prescribing practices and reduce inappropriate use.

Antibiotic Stewardship

– Antibiotic stewardship programs are relatively new in LTC
– Antibiotic stewardship programs are important to control antibiotic overuse and antibiotic resistance.
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- Over 4 million Americans are admitted to or resides in NF/SNF each year
- About 1 million individuals resides in assisted living
- Infection data in LTC is limited, it is estimated in medication literature that:
  - 1 out 3 million serious infections occur every year in LTC facilities
  - Infections include
    - UTI
    - Diarrheal infection
    - Antibiotic – resistant staph
  - Infections are major cause of hospitalization and death
  - Many as 380,000 individuals die of infections in LTC every year

Antibiotic Stewardship

- Antibiotics are among the most frequently prescribed medications in nursing homes.
- Up to 70% of residents in a nursing home are receiving one of more course of systemic antibiotics when followed over a year.
Antibiotic Stewardship

- Studies have shown that 40-75% of antibiotics prescribed in nursing home may be unnecessary or inappropriate.
- Harms from antibiotic overuse are significant for the frail and older adults receiving care in nursing homes.
- These harms include:
  - Diarrheal infections from *Clostridium difficile*
  - Increased adverse drug events
  - Drug interactions
  - Colonization and/or infection with antibiotic-resistant organisms

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- World Health Organization – reported that antibiotic resistance is one of the major threats to human health
- Some bacteria have developed resistance to all known classes of antibiotics
- Resistant bacteria is increasing in long term care
- Frequent use of antibiotic in long term care settings have led to the selection of a resistant flora
- Proximity of resident, contract between residents and healthcare workers facilitate the spread of these organisms
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– ASPs have been developed because inappropriate antimicrobial use has been associated with selection of resistant organisms and the findings in multiple studies that antibiotic use is often inappropriate.

Antibiotic Stewardship

– Implementation of antibiotic stewardship program
  – Promotes the appropriate use of antimicrobials
  – Has the potential to limit antimicrobial resistance in long term care settings
  – Improving efficacy
  – Minimizing drug related adverse events
  – Redirecting treatment related cost
Antibiotic Stewardship

- Core elements
  - Elements are the same for both hospitals and nursing homes
  - Implementation of these elements may vary based on staffing and resources
  - Nursing homes are encouraged to work in step-wise fashion
    - Implementing one or two activities to start and gradually adding new strategies
  - Any action taken to improve antibiotic use is expected to:
    - Reduce adverse events
    - Prevent emergence of resistance
    - Lead to better outcome for residents in this setting

Antibiotic Stewardship

- Core elements for antibiotic stewardship in nursing homes:
  - Leadership commitment
  - Accountability
  - Drug expertise
  - Action
  - Tracking
  - Reporting
  - Education
Antibiotic Stewardship

- Leadership Commitment
  - Nursing home leaders commit to improving antibiotic use
  - Demonstrate their support, i.e.:
    - Write statements
    - Include stewardship – related duties
    - Communicate
    - Create a culture

Antibiotic Stewardship

- Accountability
  - Nursing homes identify individuals accountable for the antibiotic stewardship activities who have the support of facility leadership
    - Empower the Medical Director
    - Empower the Director of Nursing
    - Engage the Consultant Pharmacist
    - Infection Prevention Program Coordinator
    - Consultant laboratory
    - State and local health department
Antibiotic Stewardship

- Drug Expertise
  - Nursing homes establish access to individuals with antibiotic expertise to implement antibiotic stewardship activities
    - Work with consultant pharmacist
    - Partner with antibiotic stewardship program leads
    - Develop relationship

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- Take Action
  - Nursing homes implement prescribing policies and change practices to improve antibiotic use:
    - Policies that support optimal antibiotic use
    - Broad interventions to improve antibiotic use
    - Pharmacy interventions to improve antibiotic use
    - Infection-syndrome specific interventions to improve antibiotic use
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- Tracking
  - Tracking and reporting antibiotic use and outcomes. Nursing homes monitor both antibiotic use practices and outcomes related to antibiotics in order to guide practice changes and track the impact of new interventions.
    - Process measure: Tracking how and why antibiotics are prescribed
    - Antibiotic use measures: Tracking how often and how many antibiotics are prescribed
    - Antibiotic outcome measure: Tracking the adverse outcome and cost from antibiotics

Antibiotic Stewardship

- Education
  - Nursing home provide antibiotic stewardship education to clinicians, nursing staff, residents and families
Antibiotic Stewardship

- Policy and practice actions to improve antibiotic use:
  - Antibiotic prescribing and use policies
    - *Documentation of dose, duration and indication*
      - Specify the dose (including route)
      - Duration (start date, end date and planned days of therapy)
      - Indications (Prophylaxis or therapeutic)
      - Treatment site (UTI, URI)

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- Establish best practices for use of microbiology testing
  - Inappropriate use of microbiology test in nursing homes may drive unnecessary antibiotic treatment
  - Submitting urine or stool test to demonstrate “test of cure” following clinical resolution after appropriate treatment course
  - Identifying and reducing inappropriate use of laboratory testing
Antibiotic Stewardship

- Develop facility-specific treatment recommendation
- Facility-specific treatment recommendations based on national guidelines
- Local susceptibilities are optimize antibiotic selection and duration

Antibiotic Stewardship

- Review the antibiotic agents available in the facility
- Inventory of drugs assessable during off hours
  - *Emergency kits or overnight box*
- Ensure availability is not a barrier to use of preferred agents
Antibiotic Stewardship

– Broad interventions to improve antibiotic use:
  – Develop and implement algorithms for the assessment of residents
  – Utilize a communication tool for residents suspected of having an infection
  – Perform antibiotic “time outs”
  – Reduce prolonged antibiotic treatment course for common infections

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– Pharmacy interventions to improve antibiotic use:
  – Review of antibiotic prescriptions
  – Establish standards on laboratory testing
  – Review of microbiology culture results
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- Infection specific interventions to improve antibiotic use:
  - Reduce antibiotic use in asymptomatic bacteriuria
  - Reduce antibiotic prophylaxis for prevention of UTI
  - Optimize management of nursing home associated pneumonia
  - Optimize use of superficial for management of chronic wounds

Multi Drug Resistance Organisms

- Antibiotic-resistant infections can happen anywhere
- Most happen in general community
- Most deaths related to antibiotic resistance happen in healthcare setting such as hospitals and nursing home
Multi Drug Resistance Organisms

– Antibiotic resistance in LTC settings:
  – Numerous outbreaks of infection and colonization of Multi Drug Resistant Organisms (MDRO) have been reported in LTC.
  – Incidence of MDRO in LTC setting is increasing significantly.
  – Common MDRO described in LTC have been MRSA and VRE. Also, some gram negative organisms *Klebsiella* and *Acinetobacter* are being seen with increase frequency.
  – Getting an antibiotic increases a patient’s chance of becoming colonized or infected with resistant organism.
  – Increasing use of antibiotics increase the prevalence of resistant bacteria in hospitals and LTC setting.

Multi Drug Resistance Organisms

– *Clostridium difficile* also know as *C. diff.* or *C. difficile*.
  – *C. difficile* infections are among the most serious healthcare complications that impact nursing home population. These infections can result in:
    – Malnutrition
    – Increased frailty
    – In some case hospitalations
    – Even death
Multi Drug Resistance Organisms

- *C. difficile*
  - Improving antibiotic use and preventing infections will also reduce costs of care and improve the quality of life for our residents.
  - *C. difficile* infections became a quality measure for hospitals, nursing homes now have an opportunity to engage with hospitals in addressing and preventing these serious infections to improve health of the community.

Antibiotic Stewardship

- Conclusion
  - Core elements
    - Same for both hospitals and nursing homes
    - Nursing homes are encouraged to select one or two activities to start with
    - Expand efforts to add new strategies as improvements are implemented to improve antibiotic use.
Thank You

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