Antimicrobial Stewardship

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Rising Antimicrobial Resistance

• Methicillin resistant staphylococcus aureus (MRSA)
• Vancomycin resistant enterococci (VRE)
• MDR and extremely drug resistant (XDR TB)
• Carbapenemase producing Enterobacteriaceae (CPEs)
  – e.g. Klebsiella pneumoniae carbapenamases
Objectives

• To describe the rationale for antimicrobial stewardship
• To state the definition and goals of antimicrobial stewardship
• To identify the components of an antimicrobial stewardship program (ASP)
• To identify resources
Introduction

• Formal presentation – 20 minutes
• Table discussion #1 – 10 minutes
• Group presentation #1 – 20 minutes
• Recap: 10 minutes
Your Lived Experience

- Personal experiences
- Institutional outbreak management
- Case management
  - MRSA → VRE → Clostridium difficile
- Outbreak management
  - MRSA → VRE → Clostridium difficile
- Infection prevention and control programs
- Hand hygiene best practices
Antimicrobial Stewardship Program (ASP) Collaborations

• Public Health Ontario has partnered with Ontario Hospital Association to establish a province-wide sustainable ASP for Ontario hospitals
• Established 4 program goals
• Identified 2 guiding principles
Antimicrobial Stewardship

• After confirming that the patient has an indication for antimicrobial therapy, antimicrobial stewardship is the 8 R’s:
  Right drug,
  Right time
  Right dose
  Right route
  Right Resident
  Right Documentation
  Right Reason
  Right Response
• **Right drug**
  – Check the medication label, check the order

• **Right time**
  – Check the frequency of ordered medication
  – Confirm when last dose was given

• **Right dose**
  – Check the order,
  – Confirm appropriateness of the dose using a current drug reference
• **Right route**
  – Check order for appropriateness of route ordered
  – Confirm resident can take or receive med by the ordered route

• **Right resident**
  – Check name on the order and the resident
  – Use 2 identifiers
  – Ask resident to identify him/herself (if possible)
• **Right documentation**
  – Document administration after giving med
  – Chart the time, route, and another other necessary information

• **Right reason**

• **Right response**
  – Desired response achieved?
Goals of an Antimicrobial Stewardship Program

Optimize patient safety

– Achieve best clinical outcomes related to antimicrobial use

Reduce resistance

– Limit selective pressure on antimicrobial populations

• ASPs may also reduce costs associated with suboptimal antimicrobial use, but this is not the primary goal of an ASP
Antimicrobial Stewardship: Not Just for Hospitals

- To date, most ASPs have been focused in hospitals
- To curb antimicrobial resistance, ASPs will have to apply to community health care settings and long term care facilities
- In general, most hospitals tend to start their ASP within the hospital setting and extend outwards
What does an Antimicrobial Stewardship Program Look Like?

• Not “one size fits all”
• ASPs should be tailored to each healthcare facility and depends on:
  – Facility
  – Resources
  – Local antimicrobial prescription and resistance patterns
  – Patient/resident population
• Each facility needs to define how their facility can best meet the objectives of an ASP
Antimicrobial Stewardship Program: The Team

ASP team members should include (but are not limited to):

• Physician
  – Typically an ID physician, but could be hospitalist, internist, ER physician, FD or other

• Nurse Practitioner

• Pharmacist

• Clinical microbiology laboratory services

• Infection prevention and control
Antimicrobial Stewardship: The Team

Ad hoc team membership can include (but is not limited to):

- Information Services/Decision Support
- Senior Administrators
- Patient Safety Leads
- Nursing Staff
Antimicrobial Stewardship Program: Importance of an ASP Champion

- ASP champions are typically a physician and/or pharmacist
- ASP success is critically dependent on the ASP champion(s)
  - Relationship and credibility are key: an ASP with all the right “pieces” will fail if the champion is not a respected and credible individual
Antimicrobial Stewardship Program: The Components

Examples of ASP components

• Prospective audit with intervention and feedback
• Formulary restriction and preauthorization
• Education
• Guidelines and clinical pathways
• Antimicrobial order forms
• Streamlining and de-escalation of therapy
• Dose optimization
• Parenteral to oral conversion
Metrics and Evaluations

• Measuring the impact of an ASP is an essential component of an ASP
• No consensus as to the optimal measurement strategy
• Examples of ASP Measurement options include:
  – Defined daily dose
  – Days of therapy
  – Length of therapy
  – Antimicrobial trends
  – C difficile rates
  – Antimicrobial expenditures
Metrics and Evaluation Bottom Line

- Measure something
- Measure what you can, reliably and consistently
- Essential to use the metrics to evaluate the ASP on an ongoing basis and share results with stakeholders in the organization
Choosing Where to Start: Pick the Low Hanging Fruit

• Select the most obtainable targets for early successes
Prospective Audit and Feedback for a Clinical Syndrome: Urinary Tract Infections

• Antibiotic use is common in setting of asymptomatic bacteriuria, despite guidelines stating that antibiotics are almost never needed for this indication

• Broad spectrum antibiotics are commonly used (i.e. ciprofloxacin)

• Ideal clinical syndrome for an ASP intervention
Table Discussion

Recognizing the dynamics within your health care facility, what could an ASP look like?
Summary of Table Discussions

- Work with those who want to work with you – start small and spread
- Be flexible – what works in one place may or may not work in another. No one size fits all
- Education is necessary but not sufficient
- Success can be achieved without having subspecialty MDs (ID, Micro) on staff
Summary of Table Discussions

- Develop simple goals to initiate the program e.g. identify on frequently used antibiotic
- Explore if the dose of some antibiotics can be reduced
- Measure what you can
- Celebrate your successes and communicate these clearly
• Educate residents of benefits of ASP
• Develop customized clinical pathways
• Pharmacist is a key plays in LTC ASP
• Physician “buy-in” is important
• Create an ASP resource centre
• Surveillance for recurring illness (e.g. UTI)
• Include ASP with PAC meetings
Recap

There have been successful implementations of ASP in Ontario

Tools

- ASP gap analysis
- ASP 101 slide deck
- How to build a business case
- Metrics primer
Resources

- Public Health Ontario Antimicrobial Stewardship Program: [http://www.oahpp.ca/services/antimicrobial-stewardship-program.html](http://www.oahpp.ca/services/antimicrobial-stewardship-program.html)
- Antimicrobial Awareness: [http://antibioticawareness.ca/](http://antibioticawareness.ca/)
References

• http://www.oahpp.ca/services/documents/asp/ASP%20101%20September%207%2002012%20FINAL%20(2).pdf
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