ASP 101: The Basics or “How to get your ASP off the ground”

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Antibiotic Stewardship

- **stewardship** (noun) |ˈst(y)oōərd sh ip|
  - A position whose responsibility it is to take care of something
- **Antibiotic** |ˌantēbīˈätik, ˌantī-|stewardship (noun) |ˈst(y)oōərd sh ip|
  - An activity whose responsibility it is to take care of antibiotic use
ASP 101: Objectives

At the end of this session, the participant will be able:

• To develop the basic structure & function of an Antibiotic Stewardship Program (ASP).

• Organize the essential elements of a business case/project charter to initiate an ASP
ASP GETTING STARTED
ASP: How to get started

1. Verify an ASP is able to be constructed at your facility
   • ASP pharmacist and/or ICP
   • MD champion
   • Administrative support(s)
     • Clerical
     • IT

2. Get institutional buy-in (The Business Plan)
   • This is not hard, now that ASP is an accreditation ROP
   • Business plan may be “required”
   • Program charter
ASP: How to get started

3. Develop your Project Charter
   • Establish goals and objectives for ASP
   • Choose your core strategy
     • Prospective audit & feedback
     • Formulary restriction and preauthorization
     • Install universal components
     • Surveillance & reporting
     • Develop and report metrics and outcomes
ASP STRUCTURE & FUNCTION
CORE Components of a Hospital-based Antimicrobial Stewardship Program

- The foundation of an ASP are 2 core, proactive strategies
  - Prospective audit with intervention and feedback
    • Resource intensive
  - Formulary restriction and preauthorization
    • Less resource intensive
Universal Components of an ASP

• Surveillance & reporting
  • Antimicrobial resistance – The “Antibiogram”
  • Antimicrobial use
    • Using Defined Daily Dose (DDD) or Days Of Therapy (DOT)/1000 patient-days
  • Nosocomial infections esp. CDI

• You really must have:
  • Pharmacy services
    • Institutional formulary
  • Infection Prevention & Control service
Prospective Audit & Feedback Tools

• Prospective Audit
  • Review of patient data for those on antibiotics at Day 3 & 10 of admission
  • Culture review
    • Determine if infection, colonization or contamination
  • Ancillary testing
    • e.g. CXR and other imaging, WBC, inflammatory markers
  • Antibiotic choices, if and when allergies present
  • Avoidance of specific agents. i.e. FQs, aminoglycosides
  • Discussion with patient care team
Prospective Audit & Feedback Tools

- Feedback
  - Appropriateness of initial or empiric antimicrobial therapy
    - Broad-to-narrow antibiotic coverage
    - Eliminate duplication of antibiotic coverage
  - Dose optimization
    - Correct dose
    - Correct route of administration
    - Renal dose adjustment

- De-escalation of therapy
  - Shorten duration
  - IV to oral dose conversion
  - Conversion to outpatient antimicrobial therapy
Formulary Restriction and Preauthorization Tools

- Formulary Restrictions
  - By Service/Prescriber aka “Approvals”
  - By Indication
  - By location

- Standardized order sets

- Clinical pathways that direct evidence-based prescribing

- Antimicrobial order forms
THE ASP BUSINESS PLAN
Elements of an ASP Business Plan

• Why do you need an ASP?
  • Positive impact on patient quality of care and safety and harm reduction by reducing
    • Prevalence of antibiotic resistance
    • Drug adverse reactions
    • Antibiotic associated harms like CDI

• What are the elements of an ASP?

• How much will it cost?

• Where are the resources going to come from?
Why an ASP?
# Antimicrobial Stewardship Program Resource Elements

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Details</th>
<th>Annual Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Human Resources</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clinical Pharmacist or ICP</td>
<td>FTE needs vary</td>
<td>$xx</td>
</tr>
<tr>
<td></td>
<td>with size</td>
<td></td>
</tr>
<tr>
<td>Physician champion</td>
<td>0.1 FTE</td>
<td>$xx</td>
</tr>
<tr>
<td>Laboratory support</td>
<td>0.1 FTE</td>
<td>$xx</td>
</tr>
<tr>
<td>IPAC +/- Information Management Support</td>
<td>0.2 FTE</td>
<td>$xx</td>
</tr>
<tr>
<td><strong>Administrative Support</strong></td>
<td>0.2 FTE</td>
<td>$xx</td>
</tr>
<tr>
<td><strong>Other expenses</strong></td>
<td>Education, training, networking</td>
<td>$xx</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>$xx</td>
</tr>
</tbody>
</table>

*Kingston General Hospital, Internal Data*
## Opportunity Costs avoided

<table>
<thead>
<tr>
<th>Economic Outcome</th>
<th>Goal</th>
<th>Projected Cost Avoidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduced Antimicrobial Acquisition Costs</td>
<td>See Appendix A</td>
<td>$131,847</td>
</tr>
<tr>
<td>Reduction in hospital-acquired <em>Clostridium difficile</em> infections</td>
<td>28 cases at conservative incremental case cost of $5,243 each$^1</td>
<td>$149,051</td>
</tr>
<tr>
<td>Reduction in length of stay (LOS)</td>
<td>Conservatively estimated at a LOS reduction of 0.25 days in 25% of patient population (Medicine/Surgery)$^*</td>
<td>$59,902 $^2</td>
</tr>
<tr>
<td>Reduction in VRE precautions</td>
<td>Screening ($90,340)$^3 and Isolation ($571,440)$^4</td>
<td>$661,780</td>
</tr>
<tr>
<td>Total Cost Savings</td>
<td></td>
<td>$1,002,580</td>
</tr>
</tbody>
</table>

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$^1$ Incremental case cost calculated from Kingston General Hospital Internal Data.  
$^2$ LOS reduction estimated based on patient population data.  
$^3$ VRE screening costs calculated from hospital's cost breakdown.  
$^4$ VRE isolation costs calculated from hospital's cost breakdown.

*Kingston General Hospital, Internal Data*
THE ASP PROJECT CHARTER
Elements of an ASP Project Charter

• What is the scope of the ASP?
• When should we start doing ASP?
• Who are the participants?
• Who does the ASP report to?
• How are we going to measure the outcomes of the ASP?
Proposed Outcome Measurements for an ASP

Benefits

• Reduction in overall or targeted antimicrobial use
• Reduction in hospital-acquired CDI
• Reduced length of stay (LOS)
• Stabilization and reduction in rates of antibiotic resistance

Risks

• No increase in re-admission rates for infection
• No increase in infection-related mortality
ASP REPORTING STRUCTURE
Antimicrobial Stewardship Program
Lines of Reporting

- Medical Advisory Committee
- Patient Safety and Quality Committee
- Operations Committee
- Infection Prevention & Control Committee
- Pharmaceuticals and Therapeutics Committee
- Joint Quality and Utilization Improvement Committee

- Medical Care Issues
- QIP Targets
- Activities
- Guidelines/PPOs/Formulary Issues
Assessment of Program

- Assess acceptance of ASP recommendations & reasons for rejection
- Assess quality of recommendations
- Measure & determine trends in antimicrobial usage at KGH
- Measure resistance rates over time
- Match goals to hospital Strategic Plan
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