Antimicrobial stewardship in a community hospital

What should be the goals of an ASP?

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PHO ASP Resources

Antimicrobial Stewardship Program (ASP)

PHO, in partnership with the Ontario Hospital Association, is developing an antimicrobial stewardship program (ASP) in Ontario. As of January 2013, all acute care hospitals undergoing accreditation must have an ASP in place in accordance with Accreditation Canada’s Required Organizational Practices. There are any number of ways to initiate and sustain a stewardship program. How will you build your program? Share your story.

For more information email: asp@oahpp.ca.

Building a Stewardship Program

- Initiating and sustaining an ASP
- Metrics and Evaluation

ASP in Action

- Hospitals share their ASP stories

About ASP

- Goals and Principles
- Advisory Committee
Topics for review

• What is an Antimicrobial Stewardship Program (ASP)?
• Why does our hospital need one?
• What will our ASP look like?
• Is our ASP working?
What is an ASP?

ASP + IPAC

Patient Safety and Quality of Care
What is an ASP?

Evidence-based best practice

ASP = knowledge translation tool

Effective Clinical practice
Why does our hospital need one?

- Accreditation Canada Required Organizational Practice (ROP) 2012 (assessment begins in 01/2013)
  - ROPs are “evidence-based practices that mitigate risk and contribute to improving the quality and safety of health services”

- Compliance will be assessed by the following criteria:
  1. ASP implementation (major)
  2. Accountability framework for ASP implementation (major)
  3. Inter-disciplinary ASP program (major)
  4. Evidence-based ASP interventions (major)
  5. Program evaluation and dissemination of results (minor)
Why does our hospital need one?

- For every 1% increase in each independent variable, the predicted % change in ESBL incidence (colonization/infection)
Why does our hospital need one?
Why does our hospital need one?

<table>
<thead>
<tr>
<th># MRSA isolation/100 pt days</th>
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<tbody>
<tr>
<td><strong>FQ</strong></td>
</tr>
<tr>
<td>Non-exposed</td>
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<tr>
<td>Exposed</td>
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<tr>
<td><strong>Penicillin</strong></td>
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<tr>
<td>Non-exposed</td>
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<tr>
<td>Exposed</td>
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</table>

Weak=Hospital unit low Abx consumption
Strong=Hospital unit high Abx consumption

Why does our hospital need one?

ASP

Variation

Unwarranted

Warranted

Health System Performance

Patient-related

Effective-care compliance

Supply-side care

Preference-based care

Health care capacity
Why does our hospital need one?

Median=0.4  
Q1=0.195  
Q3=0.595  
Lag=0

Median=0.0  
Q1=0.0  
Q3=0.765  
Lag=18

Large Community Hospitals

Median=0.15  
Q1=0.0  
Q3=0.5
What will our ASP look like?

The Royal Victoria Hospital ASP
What will our ASP look like? At RVH, we chose

**Figure 1: Antimicrobial Stewardship (AMS) – treatment algorithm**

Advocating patient safety and auditing of antimicrobial stewardship in hospitals should be based around the principles stated in this AMS algorithm. Examples of audit tools are shared in Appendix 1.
What will our ASP look like?

®START SMART....THEN FOCUS

Start Smart:

- Focus on CAP and UTI
- Diagnostic “Guide”
- Antibiogram
- Audit

Do Not Start Antibiotics in the Absence of an Infection
### Community-Acquired Pneumonia

#### Diagnostic Guides

**Antimicrobial Stewardship Program (ASP) Diagnostic Guide (START SMART™)**

#### Do Not Start Antibiotics in the Absence of Bacterial Infection

**Diagnostic Criteria – Community Acquired Pneumonia (CAP) (CDC 2013)**

- **Check off all diagnostic criteria that apply:**

  1. **Patient** has not been admitted to an acute care hospital or long-term care nursing facility in the last 90 days **AND**

  2. **Signs and Symptoms/Laboratory**
     - **FOR ANY PATIENT,** at least one of the following:
       - Fever (greater than 38°C) with no other recognized cause
       - Leukocytosis (WBC less than 4x10^9/L) or leukopenia (WBC greater than or equal to 12x10^9/L)
       - **Elderly** adults greater than or equal to 70 years old, altered mental status with no other recognized cause **AND** at least two of the following:
         - New onset of purulent sputum, or change in character of sputum, or increased respiratory secretions
         - New onset or worsening cough, or dyspnea, or tachypnea (greater than or equal to 25 bpm)
         - Worsened gas exchange (e.g. O₂ desaturations (e.g. PaO₂/FIO₂ less than or equal to 240) or increased oxygen requirements **AND**

  3. **Radiology**
     - *One definite* chest radiograph with at least one of the following:
       - New or progressive AND persistent infiltrate
       - **Consolidated**
       - **Opacified**

   *Note:* in patients with underlying pulmonary or cardiac disease (e.g. respiratory distress syndrome, bronchopulmonary dysplasia, pulmonary edema, or chronic obstructive pulmonary disease), two or more **second** chest radiographs are recommended.

#### Outcome

- **Please indicate by checking off appropriate box:**

  1. **Your patient meets accepted diagnostic criteria for CAP**
     - If you choose to prescribe empiric antibiotic therapy, please refer to PPO-0111 (Pneumonia – Adult) and RVH antibiotic

  2. **Your patient does not meet accepted diagnostic criteria for CAP**
     - If you choose to prescribe antibiotics, please indicate reason:
       - **Unlikely diagnosis**
       - **Suspect pneumonia**
       - **Suspect sepsis**

  3. **Other** (please indicate rationale below)

**Date:** ____________________________  **Practitioner’s Signature:** ____________________________

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RVH:  

Start Smart ™ is adopted from: Department of Health Advisory Committee on Antimicrobial Resistance and Healthcare Associated Infection (ARHAI) Nov 2011.  

What will our ASP look like?

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......... Then Focus:

- CAP patients
- Any use of oral FQ, cefuroxime axetil or cefprozil ≥ 48 hours
- Any use of IV antibiotics ≥ 48 hours
- Any use of antibiotics ≥ 5 days
What will our ASP look like?
What will our ASP look like?

®START SMART....THEN FOCUS

- Direct provider feedback
- Documentation of decision
  - Chart (stamp)
  - PCS template
  - PCS note
What will our ASP look like?

<table>
<thead>
<tr>
<th>Ward</th>
<th>Reporting Interval (month since start of program = April 1\textsuperscript{st})</th>
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ASP = intervention  \( \times = \text{no intervention (control intervals) } \)
Is our ASP working?

• Programmatic evaluation
  • Primary outcomes
    1. Incidence rates of CDI
    2. Length of stay in CAP patients
  • 2 REB-approved research studies
    1. Intervention study of the impact of an antimicrobial stewardship program (ASP) on antimicrobial resistant organism (ARO) infection rates among hospitalized patients at the Royal Victoria Hospital using a before-and-after quasi-experimental design with a control group
      • Time-series analysis
    2. Intervention study of the impact of an antimicrobial stewardship program on the length of stay of patients admitted to the Royal Victoria Hospital with a diagnosis of community-acquired pneumonia (CAP) using a before-and-after quasi-experimental design with a control group
      • Survival analysis
Is our ASP working?

• Early lessons from RVH ASP
  1. No matter how clear or obvious something is to you, it will not be to most everyone else
     • Communication, communication, communication
  2. The prevalence of short-term amnesia is very high in the acute care setting
     • e.g., timelines for primary outcomes
  3. Don’t take anything for granted
     • e.g., DOT calculations
  4. Not everything will work as desired
     • e.g., diagnostic guides, ICNet ASP software
  5. Be comfortable and confident with the program you’ve implemented
Thank you