Antimicrobial Stewardship Advisory Committee Meeting

August 25, 2016 3:00 PM-4:30 PM
Washington State Dept of Health
Room A42
1610 NE 150th St
Shoreline, WA 98155
Call in: (571) 317-3116
Access Code: 211-449-029
https://global.gotomeeting.com/join/211449029
Agenda

3:00 - 3:05 P.M. Welcome/Introductions
3:05 - 3:20 P.M. Member Updates (All)
3:20 – 3:25 P.M. National AMS Policy Updates
3:25 – 3:35 P.M. DOH Funding & Planned Projects
3:35 – 3:50 P.M. NHSN Hospital Survey
3:50 – 4:10 P.M. Hospital ASP literature review
4:10 – 4:15 P.M. Brainstorm ideas for Nov 2016 Get Smart week (All)
4:15 – 4:30 P.M. Wrap up
CMS New Proposed Rules for LTCF—
Proposed July 2015, effective 2017

• Medication review, particularly for psychotropic drugs and antibiotics
• Implement comprehensive Quality Assurance and Performance Improvement (QAPI) program that focuses on care and quality of life
• Implement infection prevention and control program, including “infection control and prevention officer” for each facility
• Limits on the number of residents sharing a room
• New requirements for training of all service providers

CMS New Proposed Rules for Hospitals—Proposed June 2016, effective 2018

- Align with current standards for infection control and prevention
- Require effective antibiotic stewardship programs
- Integrate quality reporting program data into hospitals’ quality assessment and performance improvement programs

TJC New Standards for Medication Management
Published June 2016, effective 2017

• Hospitals must have ASP aligned with CDC Core Elements including
  – leadership and team
  – AMS education for staff, patients and families
  – Facility specific protocols
DNV GL Revising Standards for Accreditation

- Will include AMS in revisions
Practical strategies for implementing ASP in acute care
Aligned with CDC Core Elements of AMS
Basic, intermediate and advanced options for implementation
Includes tools and resources
Includes solutions to potential barriers
Suggests outcome and process measures

http://www.qualityforum.org/Publications/2016/05/Antibiotic_Stewardship_Playbook.aspx
Implementing an Antibiotic Stewardship Program: Guidelines by the Infectious Diseases Society of America and the Society for Healthcare Epidemiology of America


1Section of Infectious Diseases, Boston University School of Medicine, Boston, Massachusetts; 2Division of Infectious Diseases, Johns Hopkins University School of Medicine, Baltimore, Maryland; 3Division of Infectious Diseases, University of Miami Miller School of Medicine, Miami, Florida; 4Department of Clinical Pharmacy, School of Pharmacy, University of California, San Francisco; 5Department of Medicine, Weill Cornell Medical Center/New York-Presbyterian Hospital, New York, New York; 6Department of Internal Medicine, Texas A&M Health Science Center College of Medicine, Houston; 7Division of Healthcare Quality Promotion, Centers for Disease Control and Prevention, Atlanta, Georgia; 8Division of Allergy and Infectious Diseases, University of Washington School of Medicine, Seattle; 9Department of Medicine, Case Western Reserve University and Veterans Affairs Medical Center, Cleveland, Ohio; 10Department of Medicine, University of Pennsylvania Health System, Philadelphia; 11Hamilton House, Virginia Beach, Virginia; 12Division of Infectious Diseases, Denver Health, Denver, Colorado; 13Department of Anesthesiology and Critical Care Medicine, Johns Hopkins University Schools of Medicine and Nursing, Baltimore, Maryland; 14Division of Infectious Diseases, University of Michigan Health System, Ann Arbor; 15Department of Emergency Medicine, University of California, Davis; 16Department of Emergency Medicine, David Geffen School of Medicine, University of California, Los Angeles Medical Center, Santa Monica; 17Department of Veterans Affairs, Hines, Illinois; 18Department of Pediatrics, Washington University School of Medicine in St. Louis, Missouri; 19Section on Infectious Diseases, Wake Forest University School of Medicine, Winston-Salem, North Carolina; 20Department of Veterans Affairs and University of Utah, Salt Lake City; 21Infectious Diseases, Memorial Sloan Kettering Cancer Center, New York, New York; and 22Trivedi Consults, LLC, Berkeley, California

Evidence-based guidelines for implementation and measurement of antibiotic stewardship interventions in inpatient populations including long-term care were prepared by a multidisciplinary expert panel of the Infectious Diseases Society of America and the Society for Healthcare Epidemiology of America. The panel included clinicians and investigators representing internal medicine, emergency medicine, microbiology, critical care, surgery, epidemiology, pharmacy, and adult and pediatric infectious diseases specialties. These recommendations address the best approaches for antibiotic stewardship programs to influence the optimal use of antibiotics.

Keywords. antibiotic stewardship; antibiotic stewardship programs; antibiotics; implementation.
CDC Core Elements of Outpatient Antibiotic Stewardship, expected Nov 2016

• Aligned with Core Elements of AMS in Acute Care and NH
  – Leadership and accountability for improving antibiotic use
  – Implement policy or practice to improve use
  – Track prescribing and report back to providers
  – Provide education and expertise to improve use
DOH Funding Update and Planned AMS Projects

• Increase in CDC funding to HAI Program to support expanded AMS activities
  – New staff and expert consultants
• WA PHL selected as 1 of 7 regional laboratories for resistance testing for carbapenemases, MDR-Gonorrhea, MDR-Candida
Expanded AMS Projects

**Acute Care**
- Telestewardship for CAH
- DOH Honor Roll for Hospital AMS
- NHSN AUR

**Nursing Homes**
- EQuiP for Nursing Homes

**Ambulatory Care**
- Toolkit – choosing wisely materials, commitment poster
- Clinical Practice Guidelines
- Interactive training for prescribers
- AMS videos for public
MDRO Surveillance

- CRE & other CRO (*Pseudomonas* and *Acinetobacter*)
- NHSN CLABSI AST reports
- MRSA reports from hospital discharge abstracting system
- AR reports from electronic lab reporting
- CDI in hospital discharge abstracting system and electronic death record reports
- Antibiogram from select WA nursing homes

In the future...
- Antibiotic prescribing from IMS Xponent
- Antibiotic prescribing from APCD
PERCENT OF FACILITIES MEETING CDC 7 CORE ELEMENTS 2014 AND 2015

- Drug Expertise: 82% (2014), 90% (2015)
- ACT: 92% (2014), 92% (2015)
- Track: 78% (2014), 79% (2015)
- Educate: 57% (2014), 65% (2015)
- ASP Program: 36% (2014), 47% (2015)
LEADERSHIP

QUESTIONS 23, 26

AMS Policy Statement
- 2015: 67%
- 2014: 54%

Salary Support for AMS leader
- 2015: 54%
- 2014: 37%
ACCOUNTABILITY AND DRUG EXPERTISE

Questions 24, 25

- Appointed AMS Leader: 74% (2015), 67%
- Pharmacist Improving ABX use: 90% (2015), 82%
BREAKDOWN OF AMS LEADER (POSITION)

- Physician: 16 (18%)
- Pharmacist: 25 (27%)
- Co-Led: 21...
- Other: 5 (6%)
- None: 24 (26%)
QUESTIONS 27, 28, 29, 30, and 31

ACTIONS

- ABX Feedback (audit/feedback): 70%
- ABX approval: 57%
- ABX Review (ex. Time out): 19%
- ABX TxRec. (national guidelines/local sucep): 68%
- Require ABX indication: 20%

2015
Antibiotic use monitor (unit, service, …)

Adherence to Fac-Spec Treatment Rec.

Adherence to policy: document…

2015

QUESTIONS 27a, 28a, 29, and 32

TRACK
MEASURING AU AND METRIC USED
Feedback on improving ABX use

ABX Use reports shared with prescribers
ASP provides education improve ABX use

Feedback on improving abx use

65% 57%

69% 54%

EDUCATE

QUESTIONS 33, 34
ASP PROGRAMS: HOSPITALS REPORTING DOT TO WSHA VS NOT:

- Leadership: Reporting DOT 69%, Not reporting DOT 64%
- Accountability: Reporting DOT 82%, Not reporting DOT 64%
- Drug Expertise: Reporting DOT 94%, Not reporting DOT 86%
- Actions: Reporting DOT 96%, Not reporting DOT 88%
- Track: Reporting DOT 94%, Not reporting DOT 88%
- Report: Reporting DOT 82%, Not reporting DOT 64%
- Educate: Reporting DOT 76%, Not reporting DOT 52%
- ASP Program...: Reporting DOT 57%, Not reporting DOT 36%
- Total participating: Reporting DOT 46%, Not reporting DOT 54%
Nationally 39% of hospitals have stewardship programs. (1642 / 4184)

National goal is 100% by 2020
ESTIMATE FOR 2015 CDC MAP

45%
LITERATURE REVIEW: EFFECTS OF HOSPITAL ANTIMICROBIAL STEWARDSHIP PROGRAMS

MACKENZIE FULLER
UNIVERSITY OF WASHINGTON DEPARTMENT OF EPIDEMIOLOGY, WASHINGTON STATE DEPARTMENT OF HEALTH OFFICE OF CDE
What is the impact of hospital antimicrobial stewardship programs?
- Clinical outcomes (e.g., mortality, length of stay (LOS), adverse events)
- Microbial outcomes (e.g., rates of resistant infections, Clostridium difficile)
- Prescribing outcomes (e.g., change in consumption quantity, route, duration)
- Financial outcomes – not addressing
Several systematic reviews covering 1979 – November 2014 (or April 2014 for non-financial outcomes):


Individual studies (limited literature search for 2015-2016)
## OUTCOME: MORTALITY

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Pooled effect of studies</th>
<th>Number of studies</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Empirical treatment according to guidelines</td>
<td>RRR of 35% (RR 0.65, 95% CI 0.54-0.80)</td>
<td>37</td>
<td>Schuts et al 2016</td>
</tr>
<tr>
<td>De-escalation of therapy based on culture</td>
<td>RRR of 56% (RR 0.44, 95% CI 0.30-0.66)</td>
<td>19</td>
<td>Schuts et al 2016</td>
</tr>
<tr>
<td>Bedside consultation</td>
<td>Nonsignificant, but sensitivity analysis for patients with S. aureus bacteraeemia yielded RRR of 66% (95% CI 0.15-0.75)</td>
<td>7</td>
<td>Schuts et al 2016</td>
</tr>
<tr>
<td>Intervention intended to increase guideline compliance for pneumonia</td>
<td>RR of 0.89 (99% CI 0.82-0.97)</td>
<td>4</td>
<td>Davey et al 2013</td>
</tr>
</tbody>
</table>

Nonsignificant* results for the following interventions: switch from IV to oral therapy, therapeutic drug monitoring, discontinuation of empirical treatment based on no clinical or microbiological evidence of infection, presence of local antibiotic guide, list of restricted antibiotics (Schuts et al 2016); ASP without specifying interventions (Karanika et al 2016); rapid reporting of microbiology results to increase effective antibiotic treatment, interventions intended to reduce excessive use of antimicrobials (Davey et al 2013); audit and feedback (with a noted single study that did find significant RR 0.48), formulary restriction and preauthorization, guidelines with feedback, computerized decision support, switch from IV to oral antibiotic protocol, procalcitonin monitoring (Wagner et al 2014).
Figure: Effect on mortality of prescribing empirical antimicrobial therapy according to guidelines.

Figure: Risk ratios for mortality from randomized controlled trials.

Figure. Forest plot comparing mortality outcome for interventions intended to decrease excessive prescribing.

Figure. Forest plot comparing mortality outcome for interventions intended to increase appropriate antimicrobial therapy, all infections.

Figure. Forest plot comparing mortality outcome for interventions intended to increase appropriate antimicrobial guideline compliance for pneumonia.

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Outcome</th>
<th>Number of studies</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASP without specifying intervention</td>
<td>Mean hospital LOS reduced by -8.9% (95% CI -12.8 to -5)</td>
<td>4</td>
<td>Karanika et al 2016</td>
</tr>
<tr>
<td>Empirical treatment according to guidelines**</td>
<td>Statistically significant decrease (-1.2 to -4.5d, or different measure)</td>
<td>8</td>
<td>Schuts et al 2016</td>
</tr>
<tr>
<td>De-escalation of therapy based on culture**</td>
<td>Statistically significant decrease duration</td>
<td>2</td>
<td>Schuts et al 2016</td>
</tr>
<tr>
<td>Adjustment of therapy according to renal function</td>
<td>Statistically significant decrease in ICU (-3d)</td>
<td>1</td>
<td>Schuts et al 2016 (Jiang et al 2013)</td>
</tr>
<tr>
<td>Switch from IV to oral therapy**</td>
<td>Statistically significant decrease</td>
<td>7</td>
<td>Schuts et al 2016</td>
</tr>
<tr>
<td>Protocols for switching from IV to oral antimicrobials</td>
<td>Statistically significant decrease</td>
<td>2</td>
<td>Wagner et al 2014</td>
</tr>
<tr>
<td>Therapeutic drug monitoring**</td>
<td>Statistically significant decrease</td>
<td>5</td>
<td>Schuts et al 2016</td>
</tr>
</tbody>
</table>

**Also non-significant increase or no effect found in some studies**
<table>
<thead>
<tr>
<th>Intervention</th>
<th>Outcome</th>
<th>Number of studies</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discontinuation of empirical treatment based on no clinical or microbiological evidence of infection</td>
<td>Statistically significant decrease in ICU (-5d)</td>
<td>1</td>
<td>Schuts et al 2016 (Singh et al 2000)</td>
</tr>
<tr>
<td>Bedside consultation**</td>
<td>Statistically significant increase (+13.8d) with sig increase in identification of deep infection foci</td>
<td>1</td>
<td>Schuts et al 2016 (Forsblom et al 2013)</td>
</tr>
<tr>
<td>List of restricted antibiotics**</td>
<td>Statistically significant decrease</td>
<td>2</td>
<td>Schuts et al 2016</td>
</tr>
<tr>
<td>Guideline implemented without feedback for non-ICU</td>
<td>Statistically significant decrease</td>
<td>1</td>
<td>Wagner et al 2014 (Capelastegui 2004)</td>
</tr>
<tr>
<td>Computerized decision support**</td>
<td>Statistically significant decrease</td>
<td>1</td>
<td>Wagner et al 2014 (Barenfengler 2001)</td>
</tr>
</tbody>
</table>

Nonsignificant result for the following intervention: rapid reporting on microbiology results to increase effective antibiotic treatment, interventions intended to reduce excessive use of antibiotics (Davey 2013); audit and feedback, formulary restriction and preauthorization, guidelines with feedback for management of respiratory illness or to reduce broad-spectrum antimicrobial prescribing in patients with unspecified infection, guideline without feedback for ICU or community or long term care hospitals**, protocol for systematic reassessment at 72 hours (Wagner et al 2014).

**Also non-significant increase or no effect found in some studies
Figure. Change in hospital LOS after ASP.
Figure. Forest plot comparing LOS for interventions intended to decrease excessive prescribing.  
## OUTCOME: ANTIBIOTIC RESISTANCE

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Organism</th>
<th>Pooled effect of studies</th>
<th>Number of studies</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-specific ASP implementation</td>
<td>MRSA</td>
<td>RD = -0.017</td>
<td>6</td>
<td>Karanika et al 2016</td>
</tr>
<tr>
<td>Imipenem-resistant Pseudomonas aeruginosa</td>
<td></td>
<td>RD = -0.079</td>
<td>5</td>
<td>Karanika et al 2016</td>
</tr>
<tr>
<td>ESBL Klebsiella spp.</td>
<td></td>
<td>RD = -0.104</td>
<td>5</td>
<td>Karanika et al 2016</td>
</tr>
<tr>
<td>Gram-negative bacteria (including VRE and MRSA)</td>
<td></td>
<td>≥10% decrease in colonization</td>
<td>6</td>
<td>Davey et al 2013</td>
</tr>
<tr>
<td>P. aeruginosa resistance to imipenem-cilastatin or levofloxacin; MRSA</td>
<td></td>
<td>Significant decrease</td>
<td>1</td>
<td>Jenkins et al 2015</td>
</tr>
<tr>
<td>E. coli resistance to levofloxacin and ceftriaxone</td>
<td></td>
<td>Small significant increase</td>
<td>1</td>
<td>Jenkins et al 2015</td>
</tr>
<tr>
<td>E. coli resistance to cefuroxime and ciprofloxacin</td>
<td></td>
<td>Significant decrease (-0.13 percentage points per month, -0.15 percentage points per month)</td>
<td>1</td>
<td>Boel et al 2016</td>
</tr>
<tr>
<td>Intervention</td>
<td>Outcome</td>
<td>Pooled effect of studies</td>
<td>Number of studies</td>
<td>Reference</td>
</tr>
<tr>
<td>----------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------</td>
<td>--------------------------</td>
<td>-------------------</td>
<td>------------------------------------</td>
</tr>
<tr>
<td>Discontinuation of empirical treatment based on no clinical or microbiological evidence of infection</td>
<td>Pooled antimicrobial resistance and/or superinfections with <em>Pseudomonas aeruginosa</em>, <em>Enterobacter cloacae</em>, MRSA, <em>Pseudomonas cepacia</em>, <em>Citrobacter freundii</em>, <em>Pseudomonas stutzeri</em>, <em>Enterococcus spp.</em>, and <em>Candida spp.</em></td>
<td>-20% (p=0.025)</td>
<td>1</td>
<td>Schuts et al 2016 (Singh et al 2000)</td>
</tr>
<tr>
<td>List of restricted antibiotics</td>
<td>Resistance rates for a wide range of bug-drug combinations</td>
<td>With a few exceptions, significantly decreased for restricted antibiotics. A few studies reported increased resistance rates for non-restricted antibiotics.</td>
<td>26</td>
<td>Schuts et al 2016</td>
</tr>
<tr>
<td>Formulary restriction and preauthorization</td>
<td>Carbapenem-resistant <em>P. aeruginosa</em> isolates; rates of carbapenem-resistant, ciprofloxacin-resistant, and cefepime-resistant <em>P. aeruginosa</em> infections per year</td>
<td>Significant decreases.</td>
<td>1</td>
<td>Wagner et al 2014 (Lewis 2012)</td>
</tr>
</tbody>
</table>
**Figure.** Changes in antibiotic resistance of (A) gram positive and (B) gram negative bacteria to antimicrobials from 2011 to 2013 in a Taiwan hospital. Resistance rate = number of susceptible bacteria to the antimicrobial / number of total tested bacteria.

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Outcome</th>
<th>Pooled effect of studies</th>
<th>Number of studies</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Substitution of ceftazidime with cefotaxime</td>
<td>Acinetobacter spp. cefotaxime resistant infections</td>
<td>Significant increase</td>
<td>1</td>
<td>Davey et al 2013 (Landmann 1999)</td>
</tr>
<tr>
<td>Audit and feedback</td>
<td>Gram-negative susceptibility to meropenem</td>
<td>5.2% decrease</td>
<td>1</td>
<td>Wagner et al 2014 (Ellingson 2012)</td>
</tr>
<tr>
<td>Culture-guided de-escalation of antibiotics</td>
<td>Antimicrobial resistance of gram-positive bacteria and gram-negative bacteria</td>
<td>Significant reduction</td>
<td>1</td>
<td>Wu et al 2015</td>
</tr>
<tr>
<td>Computerized decision support</td>
<td>Gentamicin or imipenem resistant P. aeruginosa susceptibility</td>
<td>11.6% and 18.4% mean percentage change per year</td>
<td>1</td>
<td>Wager et al 2014 (Yong 2010)</td>
</tr>
<tr>
<td>Autosubstitution of ertapenem for ampicillin-sulbactam</td>
<td>P. aeruginosa susceptibility to imipenem, levofloxacin, cefepime, and piperacillin-tazobactram</td>
<td>Increased susceptibility</td>
<td>1</td>
<td>Wagner et al 2014 (Goldstein 2009)</td>
</tr>
</tbody>
</table>
The take home message: mixed effects

- More consistent decrease for some drug-bug combinations (e.g., Pseudomonas aeruginosa, MRSA)
- Less consistent decrease for others (e.g., Klebsiella spp., E. coli)
- Possibility of decreasing resistance to restricted antibiotics but increasing resistance to other antibiotics that are substituted
## OUTCOME: ANTIBIOTIC PRESCRIBING

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Drug</th>
<th>Pooled effect of studies</th>
<th>Number of studies</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-specific ASP implementation</td>
<td>All antimicrobials</td>
<td>-19.1% consumption</td>
<td>26</td>
<td>Karanika et al 2016</td>
</tr>
<tr>
<td></td>
<td>- in medical wards</td>
<td>-12.1% consumption</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- in ICU</td>
<td>-39.5% consumption</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Restricted antimicrobials (mostly last-resort antibiotics)</td>
<td>-26.6% consumption</td>
<td>9</td>
<td>Karanika et al 2016</td>
</tr>
<tr>
<td></td>
<td>Broad spectrum antibiotics: carbapenems</td>
<td>-18.5% consumption (only sig. if not previously restricted)</td>
<td>11</td>
<td>Karanika et al 2016</td>
</tr>
<tr>
<td></td>
<td>Broad spectrum antibiotics: glycopeptides</td>
<td>-14.7% consumption (only sig. if not previously restricted)</td>
<td>10</td>
<td>Karanika et al 2016</td>
</tr>
</tbody>
</table>
## Outcome: Antibiotic Prescribing Continued

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Drug</th>
<th>Pooled effect of studies</th>
<th>Number of studies</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Persuasive interventions</td>
<td>All antibiotics</td>
<td>Median change in prescribing 3.5% to 42.3%, depending on study design*</td>
<td>&gt;20</td>
<td>Davey et al 2013</td>
</tr>
<tr>
<td>Restrictive interventions</td>
<td>All antibiotics</td>
<td>Median change in prescribing 17.1% to 40.5%, depending on study design*</td>
<td>&gt;20</td>
<td>Davey et al 2013</td>
</tr>
<tr>
<td>Structural interventions</td>
<td>All antibiotics</td>
<td>Median change in prescribing 13.3% to 23.6%, depending on study design*</td>
<td>8</td>
<td>Davey et al 2013</td>
</tr>
</tbody>
</table>
Figure. Forest plot of studies stratified by continent showing individual and combined change of total antimicrobial consumption after ASP implementation among studies conducted in hospital settings.

Figure. Forest plot of changes in consumption of restricted antimicrobials after ASP implementation.

Figure. Forest plot of changes of total antimicrobial consumption after ASP implementation in ICU and wards.

CRITIQUES RAISED BY SYSTEMATIC REVIEWS

- Largely high bias, low quality studies:
  - Not enough follow-up after ASP implementation (currently only 1 month to 3 years)
  - For time series, not enough time pre-ASP implementation (sometimes none or as little as 3 months)
  - Not enough studies include both antimicrobial prescribing/consumption and antimicrobial resistance outcomes
  - Many studies only evaluate a small number of pathogens and/or drugs
Primary Aims:

To evaluate the effect of implementation of hospital antimicrobial stewardship programs on the following outcomes in hospital inpatient populations:

1. The level and trend of antibiotic prescription rates;

2. The level and trend of the proportional incidence of antibiotic resistant isolates for pathogens that are the major causes of hospital infections in the U.S. (ESKAPE organisms) and/or that the CDC have identified as serious or urgent threats;

3. The level and trend of the proportional incidence of antibiotic resistant isolates with healthcare versus community origins.

Methods:

Interrupted time series analysis of at least 8 quarters before ASP implementation and at least 8 quarters after ASP implementation in UWMC, HMC, and SCH.
QUESTIONS, COMMENTS, FEEDBACK

- Email: mackenzie.fuller@doh.wa.gov
Get Smart Week Nov 14-20, 2016

• Annual one-week observance to raise awareness of the threat of antibiotic resistance and the importance of appropriate antibiotic prescribing and use.
Wrap up

• Next steps
• Action Items
• Next meeting