The Importance of Implementing Antimicrobial Stewardship Programs

Presenter:
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Board Certified Pharmacotherapy Specialist
With Added Qualifications in Infectious Diseases
National Clinical Pharmacist Specialist – Infectious Diseases
Objectives

• Use current recommendations for eradicating the correlation between antimicrobial misuse and the emergence of antimicrobial resistant pathogens
• Incorporate information from the current antimicrobial stewardship programs to national practice
• Understand current and upcoming antimicrobial stewardship program requirements
WHY DO WE NEED ANTIMICROBIAL STEWARDSHIP?
Antimicrobial Resistance

- June 26, 1945 – “…the microbes are educated to resist penicillin and a host of penicillin-fast organisms is bread out….In such cases the thoughtless person playing with penicillin is morally responsible for the death of the man who finally succumbs to infection with the penicillin-resistant organisms. I hope this evil can be averted.”
  — Sir Alexander Fleming
Antimicrobial Resistance (cont.)

- ESKAPE (*E. faecium, S. aureus, K. pneumoniae, Acinetobacter baumannii, Pseudomonas aeruginosa, Enterobacter sp.*)
- MRSA/VISA aka GISA, hVISA, VRSA
- VRE
- Multidrug-resistant *S. pneumoniae*
- XDR-TB – resistant to INH & RIF + FQ & at least 1 of 3 second line drugs (capreomycin, kanamycin, or amikacin)
Antimicrobial Resistance (cont.)

- **MRSA**
- **hVISA**
  - MIC 2-4 mcg/mL
  - Questionable use of Vancomycin in MIC ≥2
  - Winnebago has increasing numbers of hVISA (89%)
- **VISA aka GISA**
  - MIC 8-16 mcg/mL (some consider 4-8 mcg/mL)
- **VRSA**
  - >16 mcg/mL (some suggest >32 mcg/mL)

Antimicrobial Resistance (cont.)

- Extended-spectrum $\beta$-lactamase-producing and carbapenemase-producing Enterobacteriaceae
- Carbapenem Resistant Enterobacteriaceae (CRE)
  - New Delhi metallo-$\beta$-lactamase (NDM)
  - Verona intergenon-encoded metallo-$\beta$-lactamase (VIM)
  - Imipenemase (IMP) metallo-$\beta$-lactamase
- *Clostridium difficile* NAP1 strain (resistant to fluoroquinolones – noted to produce several-fold more toxin in vitro)

Warny et al., Lancet 2005; 366:1079-84
Pan-Resistant *K. pneumoniae*

- New York City Isolates reported in CID in 2009
- Two pan-resistant *K. pneumoniae*
  - Patient 1 - asymptomatic bacteruria
  - Patient 2 - died

Winnebago Service Unit
CRE Isolate

- 50 y/o F
- Nursing home patient
- UCx
- Allergy to tetracyclines (doxycycline)
  - Asymptomatic bacteruria
Public Health Problem

- CDI associated with ABX use
- Can be spread via fomites
  - *to other patients not on ABX

- **Antimicrobials are the only medication that misuse affects multiple people**
Public Health Problem (cont.)

- 2010 – Health Care Providers Rx 258 million courses of ABX
- 833 Rx per 1000 persons

Public Health Problem (cont.)

• Decreasing development of new antimicrobials
  – Slow development due to difficult regulatory environment compared w/ more profitable markets
  – Predicted in 2004 w/ est. of IDSA’s Antibiotic Availability Task force & the “Bad Bugs, No Drugs” document
  – CDC & European Medicines Agency noted that the last new class of drugs active against gram-negative bacilli was trimethoprim the 1970’s

ECDC/EMEA report,
Accessed 5 Apr 2012.
WHAT IS AN ANTIMICROBIAL STEWARDSHIP PROGRAM?
Antimicrobial Stewardship Program (ASP)

• Slow development of microorganism resistance
• Optimize medication selection, dose, and duration
• Reduce adverse events
• Lower rates of morbidity/mortality
• Reduce hospital stay
• Drive down spending/cost

Septimus & Owens, Clinical Infectious Diseases 2011;53(S1):S8-S14.
ASP Key Players

• Physician
  – Best – Infectious Diseases Specialist
  – Physician interested in I.D.
• Pharmacist
  – Best – I.D. training
  – Pharmacist interested in I.D.
• Laboratory
  – Very helpful!
• Infection Control
  – Important to have involved with process
• I. T.
  – Order bundles, templates
• Administration
  – Need I say more?
ASP (cont.)

• Core strategies:
  – Prospective audit with direct intervention and feedback
  – Formulary restriction and preauthorization requirements

ASP (cont.)

• Supplemental Elements:
  – Education
  – Evidence-based guidelines and clinical pathways
  – Antimicrobial order forms
  – Streamlining or de-escalation of therapy
  – Dose optimization
  – Parenteral to oral conversion

• Computer programs are available to help monitor

• Antimicrobial conservation
  – Shortening treatment length (CAP, UTI)

HOW CAN ANTIMICROBIAL STEWARDSHIP BE IMPLEMENTED?
Antimicrobial Stewardship Program (ASP) Implementation

- Find physician and pharmacist champions
- Be assessable for I.D. questions (I.D. Pharmacotherapy Consult)
- Monitoring cultures
  - Able to track trends
  - Notice microbes resistant to empiric choices
  - Uses local resistance patterns for ABX recommendations
- Performing in-services
  - Specific topics aimed at problem prescribing
  - Ex. Ceftriaxone use, Vancomycin use, SSTI, URTI
ASP Implementation (cont.)

- Create guidelines (Ex. Guidebook for Great Plains Area and Winnebago)
  - SSTI guidelines – includes Vancomycin dosing
  - Pneumonia bundle
- Create Annual Antibiograms
  - Helpful to monitor trends at local service unit
- Created ASP Report
  - Highlights trends to medical staff and administration
  - Includes analysis and recommendations
    - Ex: Sulfamethoxazole/Trimethoprim – not good for UTI at Winnebago
Use available resources

- IDSA: Infectious Disease Society of America
- CDC & Get Smart: Know When Antibiotics Work
- Morbidity and Mortality Weekly Report
- The Society for Healthcare Epidemiology of America (SHEA)
- Locally (at your site, local university, IHS)
WHAT ARE SOME TOOLS?
Great Plains Area and Winnebago Service Unit Guidebook

• Describes ASP and rational
• Provides a quick reference for commonly seen infections
  – Guidelines for when to treat vs when not to treat
  – Antimicrobial recommendations for when treatment is necessary
• Guidelines are to help guide choices
  – Different regions have different resistance problems
  – Each Service Unit will need to tailor the antimicrobial recommendations
Guideline Examples:

Impetigo

Superficial skin infection involving fluid-filled vesicles

Yes: Oral Therapy

At Risk for MRSA?

Yes: Oral Therapy

Cover systemically for MRSA

Choose one:
- PO Clindamycin
- PO Bactrim DS
- PO Doxycycline
- IV Vancomycin* (hospital-acquired)

No: Topical Therapy

Cover topically for *S. aureus* and Group A Streptococcus

- Mupirocin

Poor Response after 7 days?

Yes: Oral Therapy

Systemic symptoms OR extensive lesions?

No: Topical Therapy

At Risk for MRSA?

Yes: Oral Therapy

Cover systemically for MRSA

Choose one:
- PO Clindamycin
- PO Bactrim DS
- PO Doxycycline
- IV Vancomycin* (hospital-acquired)

Risk Factors:
- IV drug abusers (+) MRSA nasal swab
- Children in daycare
- Homeless
- Athletically active adolescents
- Jail Patients

Immunoocompromised pts.

* requires renal dosing

MRSA: Methicillin-resistant Staphylococcus aureus

Antibiotic Dosage

<table>
<thead>
<tr>
<th>Antibiotic</th>
<th>Adult</th>
<th>Pediatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clindamycin</td>
<td>300-450 mg PO QID</td>
<td>20 mg/kg/d in 3 divided doses PO</td>
</tr>
<tr>
<td>Bactrim</td>
<td>1 double strength tablet PO BID</td>
<td>0-12 mg/kg (based on trimethoprim component) in either 4 divided doses IV or 2 divided doses PO</td>
</tr>
<tr>
<td>Doxycycline</td>
<td>100 mg PO BID</td>
<td>Not recommended for age &lt;8 yrs</td>
</tr>
<tr>
<td>Cephalxin</td>
<td>500 mg PO QID</td>
<td>25-50 mg/kg/d 4 divided doses PO</td>
</tr>
<tr>
<td>Dicloxacillin</td>
<td>250 mg PO QID</td>
<td>N/A</td>
</tr>
</tbody>
</table>
Guideline Examples:

Cellulitis

- **Yes**
  - Purulent?
    - **Yes**
      - IV/Vancomycin
      - IV/PO Clindamycin
    - **No**
      - At Risk for Pseudomonas?
        - **Yes**
          - Cover for Pseudomonas
            - Add one:
              - IV Piperacillin/Tazobactam
              - IV Cefepime
              - IV Imipenem/Meropenem
        - **No**
          - At Risk for Pseudomonas?
            - **Yes**
              - Cover for MRSA
                - Choose one:
                  - IV Vancomycin
                  - PO Ertapenem
                  - PO Daptomycin/Methicillin
                - For severe infections:
                  - IV Vancomycin +
                    - IV Piperacillin/Tazobactam
                    - IV Cefepime
                    - IV Imipenem/Meropenem
            - **No**
              - IVDA or DM?
                - **Yes**
                  - Cover for Group A Strep
                    - Choose one:
                      - PO Cephalaxin
                      - PO Dicloxacillin
                      - PO Amoxicillin
                - **No**
                  - IVDA or DM?
                    - **Yes**
                      - Cover for Group A Strep
                        - Choose one:
                          - PO Cephalaxin
                          - PO Dicloxacillin
                          - PO Amoxicillin
                      - IVDA or DM?
                        - **No**
                          - Likely MRSA: IV Ceftriaxone or IV Piperacillin/Tazobactam
                          - Other Staph aureus: IV Cefazolin
                          - IVIM or VM:
                            - Choose one:
                              - PO Augmentin
                              - PO Ciprofloxacin +
                                - Metronidazole
                            - IVIM or VM:
                              - NDA
                            - DM
                            - Puncture Wounds

**Risk Factors for Pseudomonas aeruginosa**
- Exposure to hot tubs, swimming pools, or spas
- NDA
- DM
- Puncture Wounds

**NDA**
- IV drug abusers
- DM: Diabetes Mellitus (Type I or II)
- MRSA: Methicillin-resistant Staphylococcus aureus

*Requires renal dosing*
Guideline Examples:

Diabetic Foot Infection

[Flowchart showing decision-making process for Diabetic Foot Infection treatment, including criteria for choosing treatments based on infection severity and risk factors.]
# Checklist for Core Elements of Hospital Antibiotic Stewardship Programs

The following checklist is a companion to Core Elements of Hospital Antibiotic Stewardship Programs. This checklist should be used to systematically assess key elements and actions to ensure optimal antibiotic prescribing and limit overuse and misuse of antibiotics in hospitals. CDC recommends that all hospitals implement an Antibiotic Stewardship Program.

Facilities using this checklist should involve one or more knowledgeable staff to determine if the following principles and actions to improve antibiotic use are in place. The elements in this checklist have been shown in previous studies to be helpful in improving antibiotic use though not all of the elements might be feasible in all hospitals.

## Leadership Support

<table>
<thead>
<tr>
<th>LEADERSHIP SUPPORT</th>
<th>ESTABLISHED AT FACILITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Does your facility have a formal, written statement of support from leadership</td>
<td>□ Yes □ No</td>
</tr>
<tr>
<td>that supports efforts to improve antibiotic use (antibiotic stewardship)?</td>
<td></td>
</tr>
<tr>
<td>B. Does your facility receive any budgeted financial support for antibiotic</td>
<td>□ Yes □ No</td>
</tr>
<tr>
<td>stewardship activities (e.g., support for salary, training, or IT support)?</td>
<td></td>
</tr>
</tbody>
</table>

## Accountability

<table>
<thead>
<tr>
<th>ACCOUNTABILITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Is there a physician leader responsible for program outcomes of stewardship</td>
</tr>
<tr>
<td>activities at your facility?</td>
</tr>
</tbody>
</table>

## Drug Expertise

<table>
<thead>
<tr>
<th>DRUG EXPERTISE</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Is there a pharmacist leader responsible for working to improve antibiotic</td>
</tr>
<tr>
<td>use at your facility?</td>
</tr>
</tbody>
</table>

## Key Support for the Antibiotic Stewardship Program

**Does any of the staff below work with the stewardship leaders to improve antibiotic use?**

<table>
<thead>
<tr>
<th>KEY SUPPORT FOR THE ANTIBIOTIC STEWARDSHIP PROGRAM</th>
<th>ESTABLISHED AT FACILITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Clinicians</td>
<td>□ Yes □ No</td>
</tr>
<tr>
<td>B. Infection Prevention and Healthcare Epidemiology</td>
<td>□ Yes □ No</td>
</tr>
<tr>
<td>C. Quality Improvement</td>
<td>□ Yes □ No</td>
</tr>
<tr>
<td>D. Microbiology [laboratory]</td>
<td>□ Yes □ No</td>
</tr>
<tr>
<td>E. Information Technology [IT]</td>
<td>□ Yes □ No</td>
</tr>
<tr>
<td>F. Nursing</td>
<td>□ Yes □ No</td>
</tr>
</tbody>
</table>
# CDC ASP Guidance

## Actions to Support Optimal Antibiotic Use

<table>
<thead>
<tr>
<th>Policies</th>
<th>Policy Established</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Does your facility have a policy that requires prescribers to document in the medical record or during order entry a dose, duration, and indication for all antibiotic prescriptions?</td>
<td>Yes □ No □</td>
</tr>
<tr>
<td>B. Does your facility have facility-specific treatment recommendations, based on national guidelines and local susceptibility, to assist with antibiotic selection for common clinical conditions?</td>
<td>Yes □ No □</td>
</tr>
</tbody>
</table>

### Specific Interventions to Improve Antibiotic Use

**Are the following actions to improve antibiotic prescribing conducted in your facility?**

<table>
<thead>
<tr>
<th>Broad Interventions</th>
<th>Action Performed</th>
</tr>
</thead>
<tbody>
<tr>
<td>C. Is there a formal procedure for all clinicians to review the appropriateness of all antibiotics 48 hours after the initial orders (e.g., antibiotic time out)?</td>
<td>Yes □ No □</td>
</tr>
<tr>
<td>D. Do specified antibiotic agents need to be approved by a physician or pharmacist prior to dispensing (i.e., pre-authorization) at your facility?</td>
<td>Yes □ No □</td>
</tr>
<tr>
<td>E. Does a physician or pharmacist review courses of therapy for specified antibiotic agents (i.e., prospective audit with feedback) at your facility?</td>
<td>Yes □ No □</td>
</tr>
</tbody>
</table>

### Pharmacy-Driven Interventions

**Are the following actions implemented in your facility?**

<table>
<thead>
<tr>
<th>Action Performed</th>
</tr>
</thead>
<tbody>
<tr>
<td>F. Automatic changes from intravenous to oral antibiotic therapy in appropriate situations?</td>
</tr>
<tr>
<td>G. Dose adjustments in cases of organ dysfunction?</td>
</tr>
<tr>
<td>H. Dose optimization (pharmacokinetics/pharmacodynamics) to optimize the treatment of organisms with reduced susceptibility?</td>
</tr>
<tr>
<td>I. Automatic alerts in situations where therapy might be unnecessarily duplicative?</td>
</tr>
<tr>
<td>J. Time-sensitive automatic stop orders for specified antibiotic prescriptions?</td>
</tr>
</tbody>
</table>

### Diagnosis and Infections Specific Interventions

**Does your facility have specific interventions in place to ensure optimal use of antibiotics to treat the following common infections?**

<table>
<thead>
<tr>
<th>Action Performed</th>
</tr>
</thead>
<tbody>
<tr>
<td>K. Community-acquired pneumonia</td>
</tr>
<tr>
<td>L. Urinary tract infection</td>
</tr>
<tr>
<td>M. Skin and soft tissue infections</td>
</tr>
<tr>
<td>N. Surgical prophylaxis</td>
</tr>
<tr>
<td>O. Empetite treatment of Methicillin-resistant Staphylococcus aureus (MRSA)</td>
</tr>
</tbody>
</table>
CDC ASP Guidance

<table>
<thead>
<tr>
<th>PROCESS MEASURES</th>
<th>MEASURE PERFORMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Non-C. Difficile infection (CDI) antibiotics in new cases of CDI</td>
<td>Yes</td>
</tr>
<tr>
<td>B. Culture-proven invasive (e.g., bloodstream) infections</td>
<td>Yes</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TRACKING: MONITORING ANTIBIOTIC PRESCRIBING, USE, AND RESISTANCE</th>
<th>MEASURE PERFORMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Does your stewardship program monitor adherence to a documentation policy (dose, duration, and indication)?</td>
<td>Yes</td>
</tr>
<tr>
<td>B. Does your stewardship program monitor adherence to facility-specific treatment recommendations?</td>
<td>Yes</td>
</tr>
<tr>
<td>C. Does your stewardship program monitor compliance with one or more of the specific interventions in place?</td>
<td>Yes</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ANTIBiotic USE AND OUTCOME MEASURES</th>
<th>MEASURE PERFORMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>D. Does your facility track rates of C. difficile infection?</td>
<td>Yes</td>
</tr>
<tr>
<td>E. Does your facility produce an antibiogram (cumulative antibiotic susceptibility report)?</td>
<td>Yes</td>
</tr>
<tr>
<td>F. Does your facility monitor antibiotic use (consumption) at the unit and/or facility wide level by one of the following metrics:</td>
<td>Yes</td>
</tr>
<tr>
<td>G. By number of grams of antibiotics used (Defined Daily Dose, DDD)?</td>
<td>Yes</td>
</tr>
<tr>
<td>H. By direct expenditure for antibiotics (purchasing costs)?</td>
<td>Yes</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>REPORTING INFORMATION TO STAFF ON IMPROVING ANTIBIOTIC USE AND RESISTANCE</th>
<th>MEASURE PERFORMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Does your stewardship program share facility-specific reports on antibiotic use with prescribers?</td>
<td>Yes</td>
</tr>
<tr>
<td>B. Has a current antibiogram been distributed to prescribers at your facility?</td>
<td>Yes</td>
</tr>
<tr>
<td>C. Do prescribers ever receive direct, personalized communication about how they can improve their antibiotic prescribing?</td>
<td>Yes</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EDUCATION</th>
<th>MEASURE PERFORMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Does your stewardship program provide education to clinicians and other relevant staff on improving antibiotic prescribing?</td>
<td>Yes</td>
</tr>
</tbody>
</table>
VA Directive

ANTIMICROBIAL STEWARDSHIP PROGRAMS (ASP)

1. REASON FOR ISSUE: This Veterans Health Administration (VHA) Directive establishes a policy for the implementation and maintenance of Antimicrobial Stewardship Programs (ASP) at all VA medical facilities.

2. SUMMARY OF CONTENTS: This is a new VHA Directive for VA medical facilities to implement or augment ASPs.

3. RELATED ISSUES: None.

4. FOLLOW-UP RESPONSIBILITY: The Office of Patient Care Services is responsible for the contents of this Directive. Questions relating to the clinical aspects of this Directive and to ASPs may be referred to Specialty Care Services (10P4E), National Infectious Diseases Service at 513-246-0270. Questions regarding the pharmacy aspects of this Directive may be referred to the Pharmacy and Benefits Management Service (10P4P) at 708-786-7862.

5. REVISIONS: None.

6. RECERTIFICATION: This VHA Directive is scheduled for recertification on or before the last working day of January 2019.

Robert A. Petzel, M.D.
Under Secretary for Health

Antibiogram Development
Patient Outreach

You are Smart
You are careful about taking medicines — and giving medicines to children. But there is a problem. Many people take antibiotics when they do not need them. Antibiotics do not work for every illness.

What is An Antibiotic?
An antibiotic is a medicine that destroys bacteria. Antibiotics have many different names such as amoxicillin and azithromycin.

Lela had a cold two weeks ago. Lela’s grandmother did the right thing. She made sure the child received plenty of rest and fluids. Grandmother knew that giving the child antibiotics would not be smart.

For more information talk with your healthcare provider, call 1-800-CDC-INFO or go to www.cdc.gov/getsmart

BE SMART
Antibiotics Will Not Help a Cold or the Flu.
EXECUTIVE ORDER 13676: COMBATING ANTIBIOTIC RESISTANT BACTERIA AND CMS (COP)
CMS Pilot Survey Questions

DEPARTMENT OF HEALTH & HUMAN SERVICES
Centers for Medicare & Medicaid Services
7500 Security Boulevard, Mail Stop C2-21-16
Baltimore, Maryland  21244-1850

Office of Clinical Standards & Quality/Survey & Certification Group

DATE:  May 18, 2012
TO:  State Survey Agency Directors
FROM:  Director
Survey & Certification Group
SUBJECT:  Patient Safety Initiative Pilot Phase – Revised Draft Surveyor Worksheets

Memorandum Summary

Patient Safety Initiative:  The Centers for Medicare & Medicaid Services (CMS) is testing three revised surveyor worksheets for assessing compliance with three hospital Conditions of Participation (CoPs): Quality Assessment and Performance Improvement (QAPI), Infection Control, and Discharge Planning.  We are focusing on compliance with these CoPs as a means to reduce hospital-acquired conditions (HACs), including healthcare associated infections (HAIs), and preventable readmissions.

Draft Worksheets Made Public:  Via this memorandum we are making these revised draft worksheets publicly available.  We emphasize there may be additional revisions based on information gathered during the pilot test phase, which will end sometime in FY 2013.
CMS Pilot Survey Questions

### Section 1. C. Systems to prevent transmission of MDROs and promote antibiotic stewardship, Surveillance

<table>
<thead>
<tr>
<th>Elements to be assessed</th>
<th>Manner of Assessment Code (check all that apply) &amp; Surveyor Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. C.1 The hospital has policies and procedures to minimize the risk of transmission of multidrug-resistant organisms (MDROs) within the hospital (between or amongst patients and health care personnel).</td>
<td>☐ Yes ☐ No ☐ N/A ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5</td>
</tr>
<tr>
<td></td>
<td>No citation</td>
</tr>
<tr>
<td>1. C.2 The primary interview participants can provide evidence that the hospital identifies patients with MDROs and has implemented policies and procedures aimed at preventing the development and transmission of MDROs.</td>
<td>☐ Yes ☐ No ☐ N/A ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5</td>
</tr>
<tr>
<td></td>
<td>No citation</td>
</tr>
<tr>
<td>1. C.3.a Facility has a multidisciplinary process in place to review antimicrobial utilization, local susceptibility patterns, and antimicrobial agents in the formulary <em>and</em> there is evidence that the process is followed.</td>
<td>☐ Yes ☐ No ☐ N/A ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5</td>
</tr>
<tr>
<td>Question</td>
<td>Option 1</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
<td>----------</td>
</tr>
<tr>
<td>1. C.3.b Systems are in place to prompt clinicians to use appropriate</td>
<td>Yes</td>
</tr>
<tr>
<td>antimicrobial agents (e.g., computerized physician order entry,</td>
<td></td>
</tr>
<tr>
<td>comments in microbiology susceptibility reports, notifications</td>
<td></td>
</tr>
<tr>
<td>from clinical pharmacist, formulary restrictions, evidenced based</td>
<td></td>
</tr>
<tr>
<td>guidelines and recommendations).</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>1. C.3.c Antibiotic orders include an indication for use.</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>1. C.3.d There is a mechanism in place to prompt clinicians to review</td>
<td>Yes</td>
</tr>
<tr>
<td>antibiotic courses of therapy after 72 hours of treatment.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>1. C.3.e The facility has a system in place to identify patients</td>
<td>Yes</td>
</tr>
<tr>
<td>currently receiving intravenous antibiotics who might be eligible</td>
<td></td>
</tr>
<tr>
<td>to receive oral antibiotic treatment.</td>
<td></td>
</tr>
</tbody>
</table>
REPORT TO THE PRESIDENT ON
COMBATING ANTIBIOTIC RESISTANCE

Executive Office of the President
President’s Council of Advisors on
Science and Technology

September 2014
Recommendation 6. Improving Stewardship of Existing Antibiotics in Health Care

(1) *Centers for Medicare and Medicaid Services (CMS) should use reimbursement incentives to drive antibiotic stewardship.*

(1) Stewardship programs in hospitals and long-term care facilities. By the end of 2017, CMS should have Federal regulations (Conditions of Participation) in place that will require U.S. hospitals, critical access hospitals, and long-term care and nursing home facilities to develop and implement robust antibiotic stewardship programs that adhere to best practices. Similar requirements should be phased in rapidly for other settings including long-term acute care hospitals, other post-acute facilities, ambulatory surgery centers, and dialysis centers.
Executive Order 13676

- National Action Plan for Combating Antibiotic-Resistant Bacteria was developed in response to Executive Order 13676 issued by President Barack Obama on September 18, 2014
• IHS will follow the National Action Plan for Combating Antimicrobial Resistant Bacteria

• Including reporting desired information to appropriate data repositories
**TABLE 2: GOALS AND OBJECTIVES: Combating Antibiotic-Resistant Bacteria**

**GOAL 5: Improve international collaboration and capacities for prevention, surveillance and antibiotic research and development**

<table>
<thead>
<tr>
<th>Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Surveillance</strong></td>
</tr>
<tr>
<td>5.1 Promote laboratory capability to identify at least 3 of the 7 WHO priority antimicrobial resistant (AMR) pathogens(^2) using standardized, reliable detection assays.</td>
</tr>
<tr>
<td>5.2 Collaborate with WHO, OIE, and other international efforts focused on the development of integrated, laboratory-based surveillance to detect and monitor antibiotic-resistance in relevant animal and human foodborne pathogens.</td>
</tr>
<tr>
<td>5.3 Develop a mechanism for international communication of critical events that may signify new resistance trends with global public and animal health implications.</td>
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<tr>
<td>5.4 Promote the generation and dissemination of information needed to effectively address antibiotic-resistance.</td>
</tr>
<tr>
<td><strong>Research and Development</strong></td>
</tr>
<tr>
<td>5.5 Establish and promote international collaboration and public-private partnerships to incentivize development of new therapeutics to counter antibiotic-resistance including new, next-generation, and other alternatives to antibiotics, vaccines, and affordable, rapidly deployable, point-of-need diagnostics.</td>
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<tr>
<td><strong>Prevention and Control</strong></td>
</tr>
<tr>
<td>5.6 Support countries to develop and implement national plans to combat antibiotic-resistance and strategies to enhance antimicrobial stewardship.</td>
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<tr>
<td>5.7 Partner with other nations to promote quality, safety, and efficacy of antibiotics and strengthen their pharmaceutical supply chains.</td>
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<tr>
<td>5.8 Coordinate regulatory approaches by collaborating with international organizations such as FAO and OIE to harmonize international data submission requirements and risk assessment.</td>
</tr>
</tbody>
</table>

\(^2\) The WHO priority AMR pathogens are a subset of the pathogens identified as urgent and serious threats in Table 3.
All these pathogens have been found at IHS facilities.
WINNEBAGO OUTCOMES AND GREAT PLAINS AREA INITIATIVES
Percent MRSA at Winnebago

<table>
<thead>
<tr>
<th>Year</th>
<th>Total S.A.</th>
<th>MRSA %</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>102</td>
<td>70</td>
</tr>
<tr>
<td>2009</td>
<td>156</td>
<td>68</td>
</tr>
<tr>
<td>2010</td>
<td>189</td>
<td>67</td>
</tr>
<tr>
<td>2011</td>
<td>140</td>
<td>54</td>
</tr>
<tr>
<td>2012</td>
<td>170</td>
<td>59</td>
</tr>
<tr>
<td>2013</td>
<td>155</td>
<td>55</td>
</tr>
<tr>
<td>2014</td>
<td>104</td>
<td>55</td>
</tr>
</tbody>
</table>
Winnebago Percent of Patients Receiving Antimicrobials

<table>
<thead>
<tr>
<th>Year</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>23.5</td>
</tr>
<tr>
<td>2009</td>
<td>19.1</td>
</tr>
<tr>
<td>2010</td>
<td>18.9</td>
</tr>
<tr>
<td>2011</td>
<td>19.8</td>
</tr>
<tr>
<td>2012</td>
<td>18.2</td>
</tr>
<tr>
<td>2013</td>
<td>17.4</td>
</tr>
<tr>
<td>2014</td>
<td>17.3</td>
</tr>
</tbody>
</table>
Great Plains Area Initiatives

• Assigned 2 I.D. Pharmacists as Area consultants
• Backed by Area Governing Body, CMO, and CPO
• Each Service Unit has identified a physician and pharmacist champion
• Area-wide Guidelines have been developed and distributed
• Service Unit CMO’s report ASP progress to Area CMO
• CDC has backed and is supporting program
• South Dakota Dept. of Health also active supporter
IHS-Wide Initiatives

• ASP Workgroup
• Provided recommendations for Indian Health Service ASP implementation
• Provided examples of guidelines
• Recommended development of IHS ASP group to help individual SU with questions
• Follow the National Action Plan for Combating Antimicrobial Resistant Bacteria
Pssst! Hey kid! Wanna be a Superbug...? Stick some of this into your genome... Even penicillin won't be able to harm you...!

It was on a short-cut through the hospital kitchens that Albert was first approached by a member of the Antibiotic Resistance.