California Antimicrobial Stewardship Program Initiative & *Clostridium difficile* Infection (CDI) Project

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California Department of Public Health
Objectives

- Review California legislative requirements for hospital antimicrobial stewardship programs (ASP)
- Describe the ASP Collaborative
- Review “Spotlight on ASP” on CDPH website
- Discuss *Clostridium difficile* infections (CDI) in California
- Review CDI prevention project plans
California is a Leader in Antimicrobial Stewardship Legislation

• Senate Bill 739 – By January 1, 2008:
  • Hospitals required to develop process for monitoring judicious use of antibiotics, sharing results with quality improvement committee(s)

• California Senate Bill 1311 – By July 1, 2015:
  • Antimicrobial stewardship policy in accordance with federal/professional guidelines
  • Physician-supervised multidisciplinary committee
  • Physician or pharmacist with AS knowledge/training
  • Report to quality improvement committees
Antimicrobial Prescribing in US Hospitals is Suboptimal

- 30–50% of antimicrobial prescriptions are unnecessary or inappropriate
  - Treatment Indication
  - Choice of agent
  - Duration of therapy
Incorrect Antimicrobial Prescribing Places Patients and Public at Risk

- Adverse drug reactions and toxicity

- Clostridium difficile infections (CDI)
  - 250,000 illnesses and 14,000 deaths in US
  - 10,553 healthcare facility onset-CDI in CA in 2013

- Selection of antimicrobial resistant pathogens
  - >2 million illnesses and 23,000 deaths in US
  - 60,000 illnesses and nearly 3,000 deaths in CA

Potential for spread of resistant pathogens
Antimicrobial Stewardship Programs Improve Patient Safety

• Promote and measure appropriate antimicrobial use, by optimizing antimicrobial selection, dosing, route and duration of therapy

• Improve patient care – increased cure rates, reduced treatment failures

• Significant reductions in hospital rates of CDI and antimicrobial resistance

• Decreased or controlled costs
Defining California Hospital ASPs

- California HAI Advisory Committee developed hospital ASP definition in 2013
- 11 separate elements, defining 3 tiers of hospital ASPs
  - Basic Program (4 elements)
  - Intermediate Program (4 elements)
  - Advanced Program (3 elements)
## California HAI Advisory Committee
### Recommended ASP Definition – 11 Elements

<table>
<thead>
<tr>
<th>Basic</th>
<th>Intermediate</th>
<th>Advanced</th>
</tr>
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<tbody>
<tr>
<td>1. Antimicrobial stewardship policy/procedure</td>
<td>5. Annual antibiogram, with distribution &amp; education of medical staff</td>
<td>9. Antimicrobial formulary reviewed annually, changes based on antibiogram</td>
</tr>
<tr>
<td>3. Program support by physician or pharmacist with specific stewardship training</td>
<td>7. Monitoring antibiotic usage patterns using DDD or DOT</td>
<td>11. Formulary restriction with preauthorization</td>
</tr>
<tr>
<td>4. Reporting program activities to hospital quality improvement committees</td>
<td>8. Regular education to medical staff/committees about antimicrobial stewardship</td>
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California ASP Collaborative - Objectives

• Provide a forum to support California hospitals to develop or enhance ASPs
  • Promote patient safety
  • Decrease CDI and antimicrobial resistance

• Facilitate compliance with CA Senate Bill 1311
California ASP Collaborative – Hospital Participants

• >137 hospitals enrolled

• Bed capacity size: median 209, range: 18–625 beds

<table>
<thead>
<tr>
<th>Hospital Type</th>
<th>Hospital Participants, No. (%)</th>
</tr>
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<tbody>
<tr>
<td>Community</td>
<td>112 (82)</td>
</tr>
<tr>
<td>Major Teaching</td>
<td>5 (4)</td>
</tr>
<tr>
<td>Pediatrics</td>
<td>8 (6)</td>
</tr>
<tr>
<td>Long Term Acute Care</td>
<td>5 (4)</td>
</tr>
<tr>
<td>Critical Access</td>
<td>7 (5)</td>
</tr>
</tbody>
</table>
ASP Collaborative Participation by County

Number of Hospitals

- 0
- 1 - 2
- 3 - 5
- 6 - 8
- 9 - 11
- 12 - 28
Current Status of Collaborative Hospital ASPs

Based on self-assessment using the CA 11-element ASP definition

No Hospitals

No ASP

Basic ASP

Basic + Any Intermediate

Basic + Any Intermediate + Any Advanced

All 11 Elements

No. Hospitals

ASP Elements
Structure of the ASP Collaborative

Total of 12 monthly sessions in 2015, conducted via webinar

- 6 educational presentations by Faculty/Advisors, addressing ASP Topic Areas
  - Follow-up items – participants assess programs, identify challenges to guide Implementation discussion sessions
- 6 implementation discussion sessions
  - Share experience with follow-up items, receive feedback and suggestions from peers and Faculty/Advisors
### ASP Collaborative Syllabus, Jan-Dec 2015

<table>
<thead>
<tr>
<th>Month</th>
<th>Topic Area</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>Leadership Commitment and Support</td>
<td>Educational presentation</td>
</tr>
<tr>
<td>February</td>
<td></td>
<td>Implementation discussions</td>
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<tr>
<td>March</td>
<td>Program Development</td>
<td>Educational presentation</td>
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<tr>
<td>April</td>
<td></td>
<td>Implementation discussions</td>
</tr>
<tr>
<td>May</td>
<td>Actions to Optimize Antimicrobial Prescribing</td>
<td>Educational presentation</td>
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<tr>
<td>June</td>
<td></td>
<td>Implementation discussions</td>
</tr>
<tr>
<td>July</td>
<td>Interventions</td>
<td>Educational presentation</td>
</tr>
<tr>
<td>August</td>
<td></td>
<td>Implementation discussion</td>
</tr>
<tr>
<td>September</td>
<td>Tracking</td>
<td>Educational presentation</td>
</tr>
<tr>
<td>October</td>
<td></td>
<td>Implementation discussion</td>
</tr>
<tr>
<td>November</td>
<td>Reporting and Education</td>
<td>Educational presentation</td>
</tr>
<tr>
<td>December</td>
<td></td>
<td>Implementation discussion</td>
</tr>
</tbody>
</table>
What Hospital Participants Can Expect from the ASP Collaborative

• Receive feedback and make adjustments

• Facilitate meaningful discussion in large group setting
  • Participants prepare to discuss follow-up items
  • Balance solicited and spontaneous participation
  • Start and end on time
  • Items not addressed during session can be emailed to Coordinator, and/or entered into Discussion on SharePoint
What is Expected of Hospital Participants

- Recognize range of ASP elements already in place; some interests and needs will vary
  - Topic Area presentations address fundamentals
  - Share experience with practical aspects of successful implementation and sustainability
Expectations Post Collaborative

• Develop mentor–mentee relationships

• Become “Spotlight on ASP” members
CDPH ASP Collaborative Team

- Erin Epson, MD – Team Lead
- Mary Nennig, RN, BSN – Lead Coordinator
- Sue Chen, RN, MPH, CIC – Coordinator
- Erin Garcia, MPH – Coordinator
- Janice Kim, MD, MPH – Coordinator
- Lanette Corona – Webinar and Sharepoint
- Sam Horwich-Scholefield, MPH; Kyle Rizzo, MPH; Carmelita Yee – Data Management
CDPH ASP Resources

California Hospital ASP Toolkit

• Developed by the HAI Advisory Committee
• Contains several real-world examples of hospital implementation for each of the 11 elements
• Will be posted to the CDPH HAI Program webpage in March 2015
• Hospitals may use the tool to begin/enhance their own program

Spotlight on ASP Program

• A resource for hospitals with new ASP programs to engage in mentorship with hospitals with more established programs
Spotlight on ASP Project

www.cdph.ca.gov/programs/hai/Pages/AntimicrobialStewardshipProgramInitiative

“The Spotlight on Antimicrobial Stewardship Programs project helps define antimicrobial stewardship programs and activities, and spotlights volunteer hospitals that wish to highlight their programs and share their progress with others. The Spotlight on ASP Project Invitation 2014 remains open to allow additional hospitals to participate – Join today!”
The California Antimicrobial Stewardship Program Initiative

The use of antibiotics is the most important factor in the development of antimicrobial resistance. Antimicrobial stewardship programs aim to promote and measure use of the appropriate agent, dose, duration, and route of administration of antimicrobials, including toxicity, *Clostridium difficile* infections and the emergence of antimicrobial resistant organisms. Antimicrobial stewardship programs improve the quality of patient care and patient safety, and can also reduce excessive costs attributable to infections.

California is the first and remains the only state to enact antimicrobial stewardship legislation. Since 2008, California law required that general acute care hospitals develop a process for monitoring the judicious use of antibiotics and that the results are reported to the California Department of Public Health (CDPH). In 2014, Senate Bill 1311 was signed into law, further requiring hospitals to adopt and implement an antimicrobial stewardship policy in accordance with guidelines established by federal, state, and local government and professional organizations, and to establish a physician or pharmacist who has undergone specific training related to stewardship. Nationally, a presidential executive order - Combating Antibiotic-Resistant Bacteria, also issued in September 2014, requires federal agencies to review existing regulations that may impede robust stewardship programs that adhere to best practices; agencies will also be required to define, promulgate and implement stewardship programs in other settings such as long-term care facilities and outpatient settings.

The CDPH HAI Program California Antimicrobial Stewardship Program Initiative provides guidance and support for California hospitals and other healthcare facilities to implement these important local programs.

**California Antimicrobial Stewardship Program Initiative activities:**

- The HAI Program has launched a statewide Antimicrobial Stewardship Program (ASP) Collaborative, with the goal of ensuring that all California hospitals have a functional and robust ASP to promote patient safety and to decrease antimicrobial resistance.
- The Spotlight on Antimicrobial Stewardship Programs project, helps define antimicrobial stewardship programs and activities, and spotlights volunteer hospitals that wish to highlight their programs and share their progress with others. The project encourages hospitals to participate.
- Use results from a statewide assessment of antimicrobial stewardship programs conducted during May 2010-September 2011 (The State of Antimicrobial Stewardship in California) to provide evidence-based recommendations for implementing attributes and resources.
- Develop recommendations with the Antimicrobial Stewardship Subcommittee of the California HAI Advisory Committee.
- Define activities that comprise antimicrobial stewardship programs in California hospitals.
- CDPH HAI Program California Antimicrobial Project collected information on specific antimicrobial-organism combinations across California general acute care hospitals.

**Spotlight on Antimicrobial Stewardship Programs**

The following hospitals have agreed to share progress on the implementation of their Antimicrobial Stewardship Programs (ASP). Activities listed were defined by the California HAI Advisory Committee as those that comprise varying levels of Program implementation. An “x” indicates the hospital is currently performing the activity.

<table>
<thead>
<tr>
<th>Hospital Name</th>
<th>Type</th>
<th>ASP Committee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Children's Hospital &amp; Research Center</td>
<td>Oakland</td>
<td>Major Teaching, 190 beds</td>
</tr>
<tr>
<td>Major Teaching</td>
<td>MD Physician: Brian Lee, MD</td>
<td><a href="mailto:bla@gmail.com">bla@gmail.com</a></td>
</tr>
</tbody>
</table>
Antimicrobial Stewardship Resources:

Society for Healthcare Epidemiology of America (SHEA) / Infectious Disease Association of California (IDAC) Antimicrobial Stewardship Conference: http://www.shea-online.org/

American Hospital Association toolkit: http://www.ahaphysicianforum.org/resources/appropriate-use/antimicrobial/index.shtml

CDC’s Core Elements for Hospital Antibiotic Stewardship Programs and Checklist for Hospital Antibiotic Stewardship Programs.

Infectious Diseases Society of America (IDSA): http://www.idsociety.org/Antimicrobial_Agents/#Antimicrobial_Stewardship

SHEA: http://www.shea-online.org/PriorityTopics/AntimicrobialStewardship.aspx

Stanford School of Medicine: http://bugsanddrugs.stanford.edu/


Antimicrobial Stewardship References:


Resources

›› My Hospital 411 - Healthcare Associated Infections
  Interactive Map

›› HAI Program Home Page
Clostridium difficile Prevention
CDI Problem

- *Clostridium difficile* accounts for
  - 12.1% of all HAIs in the US.\(^1\)
  - 56% of HAIs reported by California hospitals, 2014
    - 10,553 CDI cases of the 18,780 total HAI reported
- Patients often cycle between multiple hospitals, long term acute care, and long term care facilities.
  - 26% of CDI patients are readmitted to another facility within 12 weeks of discharge\(^2\)

1. Magill et al., 2014
2. Huang et al., 2010
Regional CDI Prevention Collaborative - Launching in 2015

- HAI Program hired a full time CDI Coordinator
  - Currently reviewing 2013/2014 CDI data
- First collaborative will begin in Orange county
- Engaging participant facilities from the continuum of care
  - General acute care hospitals
  - Long term acute care hospitals
  - Long term care facilities
Regional CDI Prevention Collaborative - Objectives

• Improve CDI surveillance through rapid identification of patients

• Improve implementation of CDI prevention strategies within facilities

• Improve inter-facility communication and coordination of care among facilities to ensure appropriate infection control precautions are maintained
Regional CDI Prevention Collaborative - Strategy

- Assess hospital baseline adherence to own infection prevention policies
  - Transmission precautions
  - Hand hygiene
  - Environmental cleaning

- Implement/enhance antimicrobial stewardship program with particular attention to CDI

- Monitor inter-facility transfer to maintain CDI patients on precautions throughout continuum of care

  - Inter-facility Transfer Program
Regional CDI Prevention Collaborative - Sessions & Tools

- Online educational webinars, trainings, onsite visits and consultations

- Enable facilities to share tools to assess:
  - infection control protocols in individual facilities
  - implementation and evaluation strategies
  - ways to collect and use data for action

- Target and assist long-term care (LTC) facilities to increase NHSN CDI Module use
  - Provide assistance with NHSN enrollment & training
Regional CDI Prevention Collaborative - CDPH Team

- Erin Epson, MD – Team Lead
- Erin Garcia, MPH – CDI Coordinator
- Vicki Keller, RN, MSN, CIC – HAI Liaison Program Coordinator
- Teresa Nelson, RN, BSN, CIC – Liaison IP
- Idamae Kennedy MPH, BSN, CIC – Liaison IP
- Lanette Corona – Webinar
- Sam Horwich-Scholefield, MPH; Carmelita Yee – Data Management
Data for Action Outreach to Hospitals with High CDI Incidence

• Beginning March 2015, CDPH will also begin targeting 62 hospitals across the state with statistically high CDI incidence

• HAI Program Liaison IPs will reach out to hospitals in their assigned regions to ensure awareness of high SIRs

• Liaison IPs will offer support for local CDI prevention action plans, including
  • Onsite assessment of prevention practices
  • CDI prevention strategies toolkit
  • Follow up support
Summary

• The HAI Program is committed to reducing HAI in California
  • Targeting CDI prevention due to continued high incidence

• The 2015 outreach plan for CDI prevention includes
  • The Antimicrobial Stewardship Program Collaborative
  • Spotlight on Antimicrobial Stewardship Programs and ASP toolkit
  • Regional CDI Prevention Collaborative
  • Outreach to Hospitals with high CDI incidence
Questions?

Please contact: Vicki.Keller@cdph.ca.gov

Thank you