Imperial County
Antimicrobial Resistance Prevention Collaborative
Kick-off
May 11, 2018
## Agenda

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INTRODUCTIONS
Partnership for Regional Antimicrobial Resistance Prevention

- Healthcare-Associated Infections Program, California Department of Public Health
- Imperial County Department of Public Health
- Local area hospitals, skilled nursing facilities, dialysis centers, outpatient clinics, urgent care, dental clinics
AR PREVENTION COLLABORATIVE
BACKGROUND AND OVERVIEW
Regional Model for Antibiotic Resistance Prevention Collaboratives

Facilities work together to protect patients.

Common Approach (Not enough)
- Patients can be transferred back and forth from facilities for treatment without all the communication and necessary infection control actions in place.

Independent Efforts (Still not enough)
- Some facilities work independently to enhance infection control but are not often alerted to antibiotic-resistant or C. difficile germs coming from other facilities or outbreaks in the area.
- Lack of shared information from other facilities means that necessary infection control actions are not always taken and germs are spread to other patients.

Coordinated Approach (Needed)
- Public health departments track and alert health care facilities to antibiotic-resistant or C. difficile germs coming from other facilities and outbreaks in the area.
- Facilities and public health authorities share information and implement shared infection control actions to stop spread of germs from facility to facility.
Framework for a Regional Approach to AR Prevention

- A network of healthcare facilities with a shared patient population will address AR prevention across the continuum of care, through:

1. Monitoring adherence to AR prevention practices in hospitals and long-term care facilities
   - Hand hygiene
   - Contact precautions
   - Interfacility communication

2. Enhancing an antimicrobial stewardship program

3. Evaluating and enhancing environmental cleaning and disinfection practices
Collaborative Structure

- Quarterly in-person learning and discussion sessions
- Onsite infection prevention assessment
- Assistance with developing a site-specific action plan
- Dissemination of guidance and tools
- Opportunities to discuss and share best practices
- End-of-collaborative self-assessment
Previous and Ongoing Regional *Clostridium difficile* Infection (CDI) Prevention Collaboratives

- Orange County 2015-2016
- Sacramento Metropolitan Area (El Dorado, Placer, Sacramento, San Joaquin, Solano, Yolo) 2016-2017
- Desert Valley Health Care District / Coachella, 2018-present
Hospital-Onset CDI Standardized Infection Ratio (SIR) by County, 2015-2016
Community-Onset CDI Prevalence per 1000 Hospital Admissions, 2016

Legend

CDI Prevalence

- 0.0
- 0.1 - 2.5
- 2.6 - 5.0
- 5.1 - 7.5
- 7.6 - 12.2
- No Data Available
- Potentially Unreliable Rate

Rates are unadjusted and do not account for testing method (e.g., PCR). A rate is considered potentially unreliable if the relative standard error was 23 percent or more of the rate estimate (a threshold recommended by the National Center for Health Statistics).
Community-Onset CDI Prevalence by Region, 2011-2016
Estimated CDI Burden Across the Continuum of Care, California, 2016

Sources: National Healthcare Safety Network (NHSN) and CDC Emerging Infections Program (EIP)

- Hospital-onset: 10,279 cases
- Community-onset with recent inpatient exposures: ~16,400 cases
- Nursing home-onset: ~13,700 cases
- Community-associated: ~34,600 cases
Multidrug-Resistant *E. coli* among HAI, 2014-2017
Carbapenem-Resistant Enterobacteriaceae (CRE) among HAI, 2014-2017
Regional AR Prevention Collaborative

Objectives

• Improve implementation of AR prevention strategies within local health care facilities across the continuum of care
  – Antimicrobial stewardship
  – Infection prevention

• Improve coordination of antimicrobial use and infection prevention measures when patients/residents transfer between facilities
Antimicrobial Stewardship

- Promote and measure appropriate antimicrobial use by optimizing antimicrobial selection, dosing, route, and duration of therapy
  - Improved patient care, increased cure rates, reduced treatment failures
  - Reductions in hospital rates of CDI and antimicrobial resistance
  - Decreased or controlled costs

Howell et al. Arch Intern Med 2010;170:784–90
Evans and Johnson. Clin Infect Dis. 2015;60(S2):S122-8
Centers for Disease Control & Prevention
Core Elements of Antimicrobial Stewardship Programs (ASP)

- **Leadership Commitment:** Dedicate necessary resources
- **Accountability:** Appoint a leader responsible for program outcomes
- **Drug Expertise:** Appoint pharmacist leader responsible for working to improve antimicrobial use
- **Action:** Implement at least one recommended action

- **Tracking:** Monitor antibiotic prescribing and resistance patterns
- **Reporting:** Regularly report information on antibiotic use and resistance to doctors, nurses, and relevant staff
- **Education:** Educate clinicians about resistance and optimal prescribing
Antimicrobial Stewardship Strategies to Prevent Clostridium difficile Infections

Clostridium difficile is the most frequently reported healthcare-associated pathogen in hospitals [1]. Antimicrobial exposure is the most important modifiable risk factor for Clostridium difficile infection (CDI) when a patient is also exposed to the C. difficile bacterium or spores [2]. Antimicrobial stewardship programs (ASP) coordinate efforts to improve and measure appropriate antimicrobial use by optimizing selection, dose, duration and route of therapy [3]. The HAI Program recommends hospital infection preventionists (IP) and ASP leaders collaborate to implement CDI prevention strategies.

1. Establish CDI reduction goals for the ASP.

Reducing CDI should be a high priority when designing ASP interventions [3].

Recommendations:
- Prioritize ASP interventions by using CDI surveillance data to identify patient populations, hospital locations and service lines with highest CDI incidence.
- Track CDI incidence as a primary ASP outcome.
- Include the hospital infection preventionist as an active ASP participant.

2. Limit high CDI risk antimicrobial prescribing by promoting use of lower risk antimicrobials, minimizing the number of antimicrobials prescribed, and ensuring shortest effective duration of therapy.

Increased CDI risk is observed with increasing cumulative antimicrobial dose, number, duration, and spectrum of activity [4]. Broad spectrum antimicrobials, including fluoroquinolones (i.e., ciprofloxacin, levofloxacin, moxifloxacin) and cefepime (e.g., ceftriaxone, cefepime) are associated with higher risk of CDI [2]. Patients with reported allergies to beta-lactam antimicrobials (e.g., penicillin) frequently receive alternative antimicrobials and are at increased risk of CDI [5]. Hospital-based ASP interventions aimed at reducing use of broad spectrum antimicrobials have been shown to reduce hospital-onset CDI [6, 7]. The Infectious Diseases Society of America (IDSA) guidelines for ASP implementation [3] and CDI management [2] strongly recommend interventions designed to reduce the use of antimicrobials associated with high CDI risk.

Recommendations:
- Implement formulary restriction with preauthorization by requiring clinicians to obtain approval from the ASP or Infectious Diseases service before prescribing high-risk antimicrobials.
- Use electronic medical record for appropriate diagnostic testing, empiric therapy, and electronic medical record for all positive C. difficile test results of treatment, and provide feedback to clinicians if CDI patients with risk factors or recent history of CDI for ASP audits if possible or prescribe lower-risk antimicrobials.
- Use measures to improve accuracy of CDI diagnosis and surveillance, including patients with CDI, implementation of isolation therapy to improve patient outcomes. If used of CDI, tests are more likely to detect asymptomatic inappropriate CDI therapy and inaccurate surveillance data.

For more information on CDI testing of formed stool, proper use of CDI testing, and CDI testing in patients with risk factors. Prior to CDI testing of patients on laxatives, discontinue CDI testing.


Clostridium difficile infection in adults and children: 2017 IDSA and Society for Healthcare Epidemiology of America x1085.

CDC Core Elements of Antibiotic Stewardship in Nursing Homes

- **Leadership commitment**: Demonstrate support and commitment to safe and appropriate antibiotic use in your facility.
- **Accountability**: Identify physician, nursing and pharmacy leaders responsible for promoting and overseeing antibiotic stewardship activities in your facility.
- **Drug expertise**: Establish access to consultant pharmacists or other individuals with experience or training in antibiotic stewardship for your facility.
- **Action**: Implement at least one policy or practice to improve antibiotic use.
- **Tracking**: Monitor at least one process measure of antibiotic use and at least one outcome from antibiotic use in your facility.
- **Reporting**: Provide regular feedback on antibiotic use and resistance to prescribing clinicians, nursing staff and other relevant staff.
- **Education**: Provide resources to clinicians, nursing staff, residents and families about antibiotic resistance and opportunities for improving antibiotic use.
ASSOCIATED INFECTIONS PROGRAM

- Patient symptoms grouped by 4 basic categories of infection
- Communicate assessment findings using “SBAR” format
- Include subjective assessment of resident’s condition, in addition to vitals and symptoms

Example shared courtesy of Bridget Olson, Sharp Coronado Hospital
Algorithms to Guide Appropriate Use of Diagnostic Testing

- **Fever of >37.9°C (100°F) or 1.5°C (2.4°F) increase above baseline on at least two occasions over last 12 hours?**
  - Yes
  - 2 or more symptoms or signs of non-urinary tract infection?**
    - Yes
      - Do not order urine culture
    - No
      - Order urine culture for one or more of the following:
        - Dysuria
        - Urinary catheter
        - Urgency
        - Flank pain
        - Shaking chills
        - Urinary incontinence
        - Frequency
        - Gross haematuria
        - Suprapubic pain
  - No
    - Urinary catheter?
      - Yes
        - Order urine culture for one or more of the following:
          - New costovertebral tenderness
          - Rigors
          - New onset of delirium
      - No
        - Order urine culture for new onset burning urination or for two or more of the following:
          - Urgency
          - Flank pain
          - Shaking chills
          - Urinary incontinence
          - Frequency
          - Gross haematuria
          - Suprapubic pain

* Respiratory symptoms include increased shortness of breath, increased cough, increased sputum production, new pleuritic chest pain.
Gastrointestinal symptoms include nausea or vomiting, new abdominal pain, new onset of diarrhoea.
Skin and soft tissue symptoms include new redness, warmth, swelling, purulent drainage.

Loeb et al. BMJ 2005
McGeer Criteria for
Suspected Urinary Tract Infections (UTI)

**Catheter**
Or within 48 hours after discontinuing a catheter

One of the following:
- Fever, rigors, or new-onset hypotension, with no alternate site of infection
- Either acute change in mental status or acute functional decline, with no alternate diagnosis plus leukocytosis
- New-onset suprapubic pain or costovertebral angle pain or tenderness
- Purulent discharge from around the catheter

In Males:
Acute pain, swelling, or tenderness of the testes, epididymis, or prostate

If catheter >14 days—> Remove & replace prior to C/S

**No catheter**

Dysuria alone or Fever or leukocytosis plus one of the following:
- Acute costovertebral angle pain or tenderness
- Suprapubic pain
- Gross hematuria
- New or marked increase in incontinence, urgency, frequency

If no fever or leukocytosis, must have at least two of the following:
- Suprapubic pain
- Gross hematuria
- New or marked increase in incontinence, urgency, frequency

Example shared courtesy of Bridget Olson, Sharp Coronado Hospital
CDC Core Elements for Outpatient Antibiotic Stewardship
Antibiotic Prescribing in Outpatient Settings

• At least 30% of antibiotic courses are unnecessary
• Most unnecessary antibiotic use for acute respiratory conditions, e.g., acute bronchitis

Fleming-Dutra et al. JAMA 2016
Outpatient Antibiotic Stewardship Actions

• Educational methods — antibiotic prescribing decisions are based on knowledge
  – Guidelines
  – Clinical decision support

• Behavioral methods — antibiotic prescribing decisions are influenced by psychosocial factors
  – Communications training
  – Public commitments
AWARE

Background & History

The Alliance Working for Antibiotic Resistance Education (AWARE) was initiated by the CMA Foundation in 2000, as a long-term statewide effort to promote the appropriate use of antibiotics. Physician organizations, healthcare providers, health systems, health plans, public health agencies, consumer and community based organizations, federal, state and local government representatives and the pharmaceutical industry have all worked to achieve the mission and goals of this project.

PROJECT MISSION

Reduce the unnecessary use of antibiotics and reduce the prevalence of antibiotic resistant bacteria in California.

PROJECT GOALS

- Increase appropriate prescribing of antibiotics.
- Raise consumer awareness and understanding regarding the appropriate use of antibiotics.
- Mobilize the community to reduce the unnecessary use of antibiotics.
Antibiotics do nothing for viruses like:
- Colds and flu
- Most bronchitis
- Most sore throats and coughs
- Green or yellow runny nose

Antibiotics aren’t always the answer

Taking an antibiotic when you have a virus means a less effective antibiotic when you really need it.
FEEL BETTER SOON

WITHOUT ANTIBIOTICS!

Stay home from school and get plenty of rest.
Drink lots of fluids – like water and soup.
Talk to your doctor about what you can do at home to feel better.
Wash your hands often to prevent the spread of germs.

Antibiotics can lose their power to kill germs if we don’t use antibiotics correctly.

For more information, ask your doctor and visit www.aware.md
Do you know how long your cold and flu symptoms will last?

- Antibiotics DO NOT kill viruses like a cold, flu or most bronchitis infections.
- Take antibiotics only when your doctor prescribes antibiotics for YOU.
- Taking antibiotics when you don’t need them or not taking them as prescribed by your doctor puts you at INCREASED RISK of getting “superbugs” resistant to antibiotics.

For more information ask your doctor and visit www.aware.md.
**Symptom Relief for Viral Illnesses**

### 1. DIAGNOSIS
- Cold or cough
- Middle ear fluid (Otitis Media with Effusion, OME)
- Flu
- Viral sore throat
- Bronchitis
- Other:

You have been diagnosed with an illness caused by a virus. Antibiotics do not work on viruses. When antibiotics aren’t needed, they won’t help you, and the side effects could still hurt you. The treatments prescribed below will help you feel better while your body fights off the virus.

### 2. GENERAL INSTRUCTIONS
- Drink extra water and fluids.
- Use a cool mist vaporizer or saline nasal spray to relieve congestion.
- For sore throats in older children and adults, use ice chips, sore throat spray, or lozenges.
- Use honey to relieve cough. Do not give honey to an infant younger than 1.

### 3. SPECIFIC MEDICINES
- Fever or aches:
- Ear pain:
- Sore throat and congestion:

Use medicines according to the package instructions or as directed by your healthcare professional. Stop the medication when the symptoms get better.

### 4. FOLLOW UP
- If not improved in ___ days/hours, if new symptoms occur, or if you have other concerns, please call or return to the office for a recheck.

- **Phone:**
- **Other:**

Signed:

To learn more about antibiotic prescribing and use, visit [www.cdc.gov/antibiotic-use](http://www.cdc.gov/antibiotic-use).
A Commitment to Our Patients About Antibiotics

Antibiotics only fight infections caused by bacteria. Like all drugs, they can be harmful and should only be used when necessary. Taking antibiotics when you have a virus can do more harm than good: you will still feel sick and the antibiotic could give you a skin rash, diarrhea, a yeast infection, or worse.

Antibiotics also give bacteria a chance to become more resistant to them. This can make future infections harder to treat. It means that antibiotics might not work when you really do need them. Because of this, it is important that you only use an antibiotic when it is necessary to treat your illness.

How can you help? When you have a cough, sore throat, or other illness, tell your doctor you only want an antibiotic if it is really necessary. If you are not prescribed an antibiotic, ask what you can do to feel better and get relief from your symptoms.

Your health is important to us. As your healthcare providers, we promise to provide the best possible treatment for your condition. If an antibiotic is not needed, we will explain this to you and will offer a treatment plan that will help. We are dedicated to prescribing antibiotics only when they are needed, and we will avoid giving you antibiotics when they might do more harm than good.

If you have any questions, please feel free to ask us.

Sincerely,
Behavioral Clinical Decision Support: Accountable Justification

• “Antibiotic justification note” in medical record
  – Prompted free text note if antibiotics prescribed for
diagnosis for which antibiotics are not indicated
  – If no text entered: “No justification given” appeared
in medical record
  – Note disappeared if antibiotic prescription deleted
• Idea: Clinicians want to preserve their reputation
• Reduced inappropriate antibiotic prescribing from
23.2% to 5.2% pre and post-intervention (-7.0%
difference in differences)

DEVELOPING A PROJECT PLAN FOR THE IMPERIAL COUNTY AR PREVENTION COLLABORATIVE
Discussion Groups

1. List local antimicrobial stewardship resources
   • Who are your antimicrobial stewardship leaders in your facility and community?
   • What initiatives are already in place / on-going?

2. What are barriers to appropriate antimicrobial use in your facility and community?

3. What antimicrobial stewardship projects would be most useful, feasible, or applicable to your facility and community?
COLLABORATIVE
NEXT STEPS
Prevention Assessment: What to Expect

• **Introduction and group interview** with key staff
• **Individual interview sessions**, potentially including:

Hospitals:
- Chief Medical Officer and/or Chief Nursing Officer
- Infection Preventionist
- Microbiologist
- Pharmacist
- Environmental Services Supervisor
- Clinician(s)

Nursing Homes:
- Administrator and/or Medical Director
- Director of Nursing and/or Director of Staff Development
- Pharmacy Consultant
- Environmental Services Supervisor
- Clinician(s)
Prevention Assessment: What to Expect

• **Observations**
  – Hand hygiene, Contact Precautions, Environmental Services

• **Summary and Feedback** meeting, including key staff
  – Review CDC Core and Supplemental CDI Prevention Strategies
  – Development of facility-tailored CDI processes for improvement

• Facilities will be asked to provide periodic updates on process improvement items being addressed

• SNF that previously received infection control assessments will receive targeted follow-up visits