Imperial County Antimicrobial Resistance Prevention Collaborative Kick-off

May 11, 2018

Healthcare-Associated Infections Program
Center for Health Care Quality
California Department of Public Health

Agenda

10-10:15AM	Check-in, Welcome and Introductions
10:15-10:30AM	Overview of Regional Coordinated Approach to Antimicrobial Resistance
10:30-11:00AM	Antimicrobial Stewardship Across the Continuum of Care
11:00-11:45AM	Interactive – Developing a Project Plan for the Imperial County AR Prevention Collaborative
11:45-12:00PM	Wrap Up and Next Steps

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)*

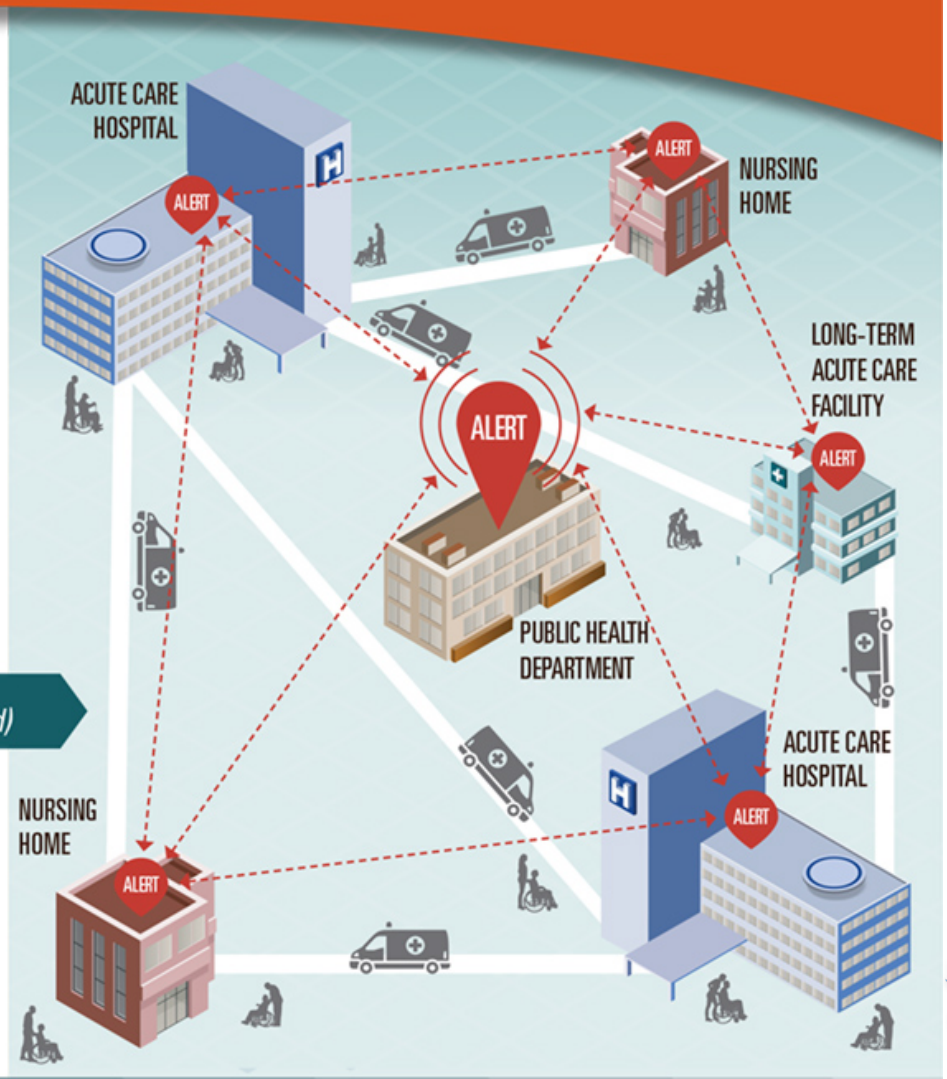
- Patients can be transferred back and forth from facilities for treatment without all the communication and necessary infection control actions in place.

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.



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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:

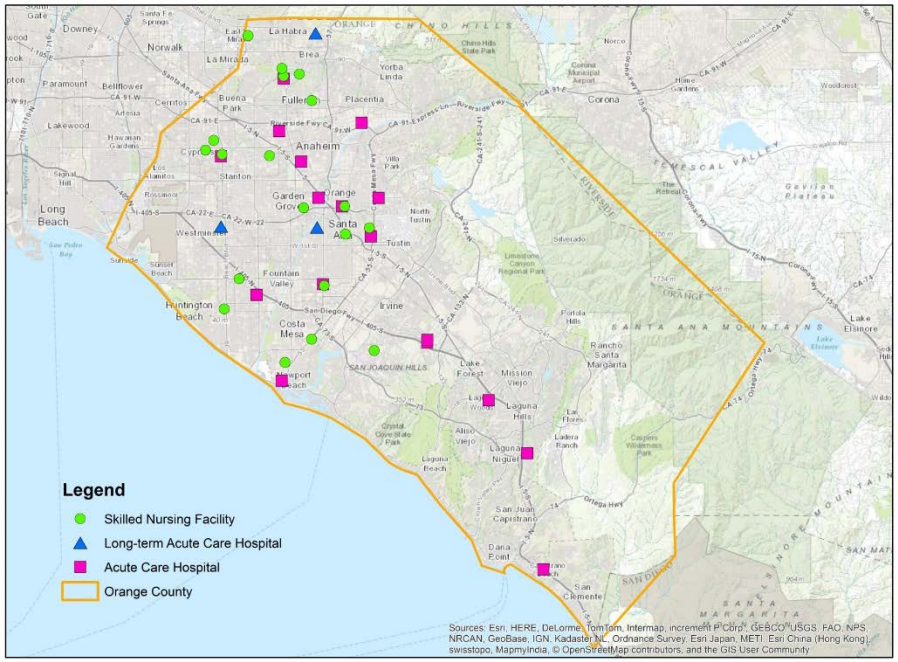
1. **Monitoring adherence** to AR prevention practices in hospitals and long-term care facilities
   - Hand hygiene
   - Contact precautions
   - Interfacility communication
2. Enhancing an **antimicrobial stewardship program**
3. Evaluating and enhancing **environmental cleaning and disinfection practices**

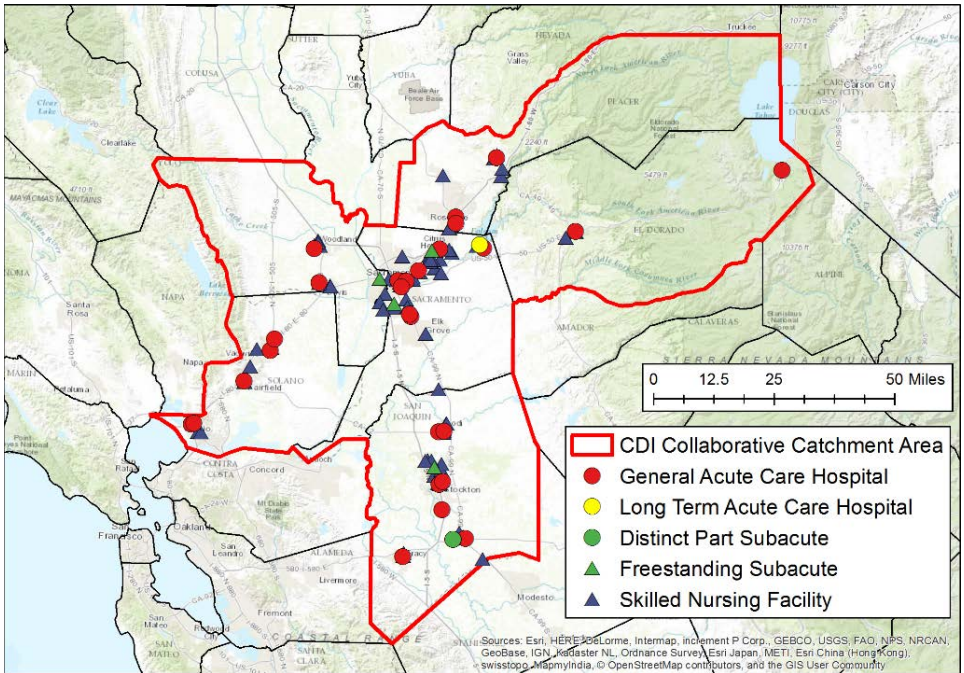
Collaborative Structure

- 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

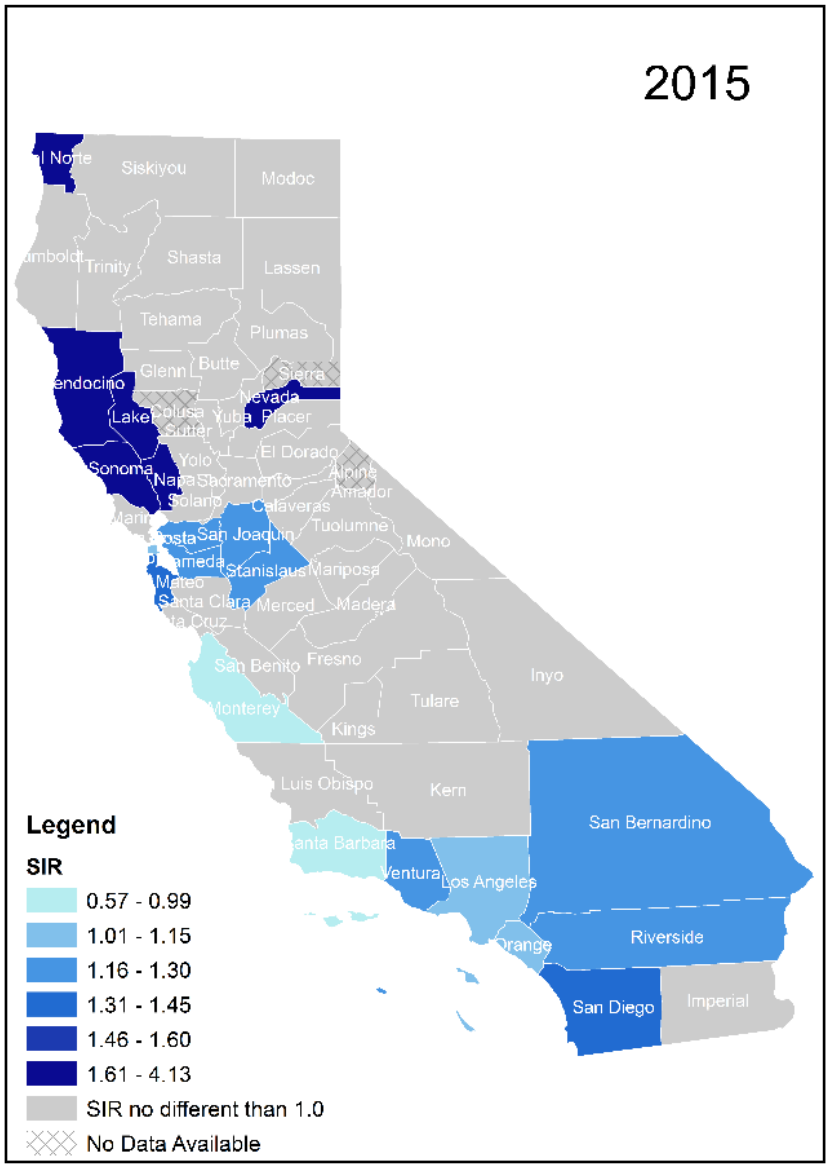
Previous and Ongoing Regional *Clostridium difficile* Infection (CDI) Prevention Collaboratives

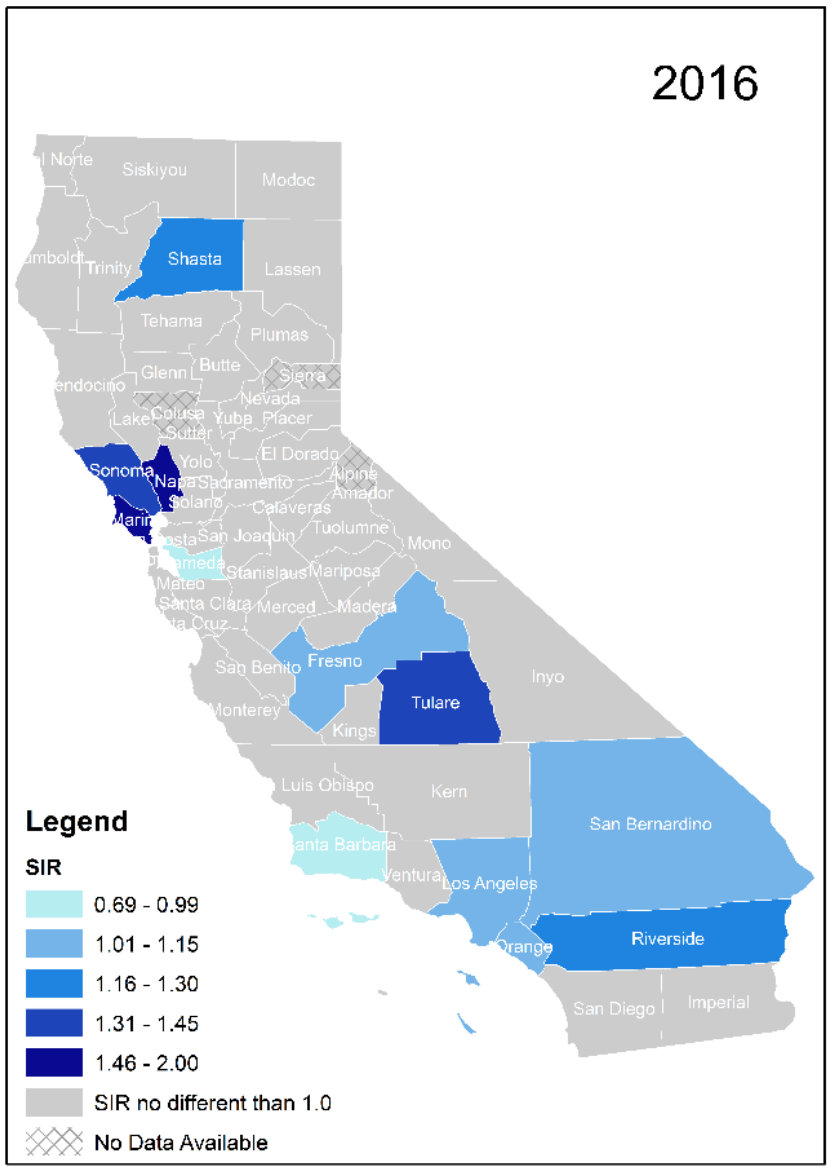
- Orange County 2015-2016
- Sacramento Metropolitan Area (El Dorado, Placer, Sacramento, San Joaquin, Solano, Yolo) 2016-2017
- Desert Valley Health Care District / Coachella, 2018-present



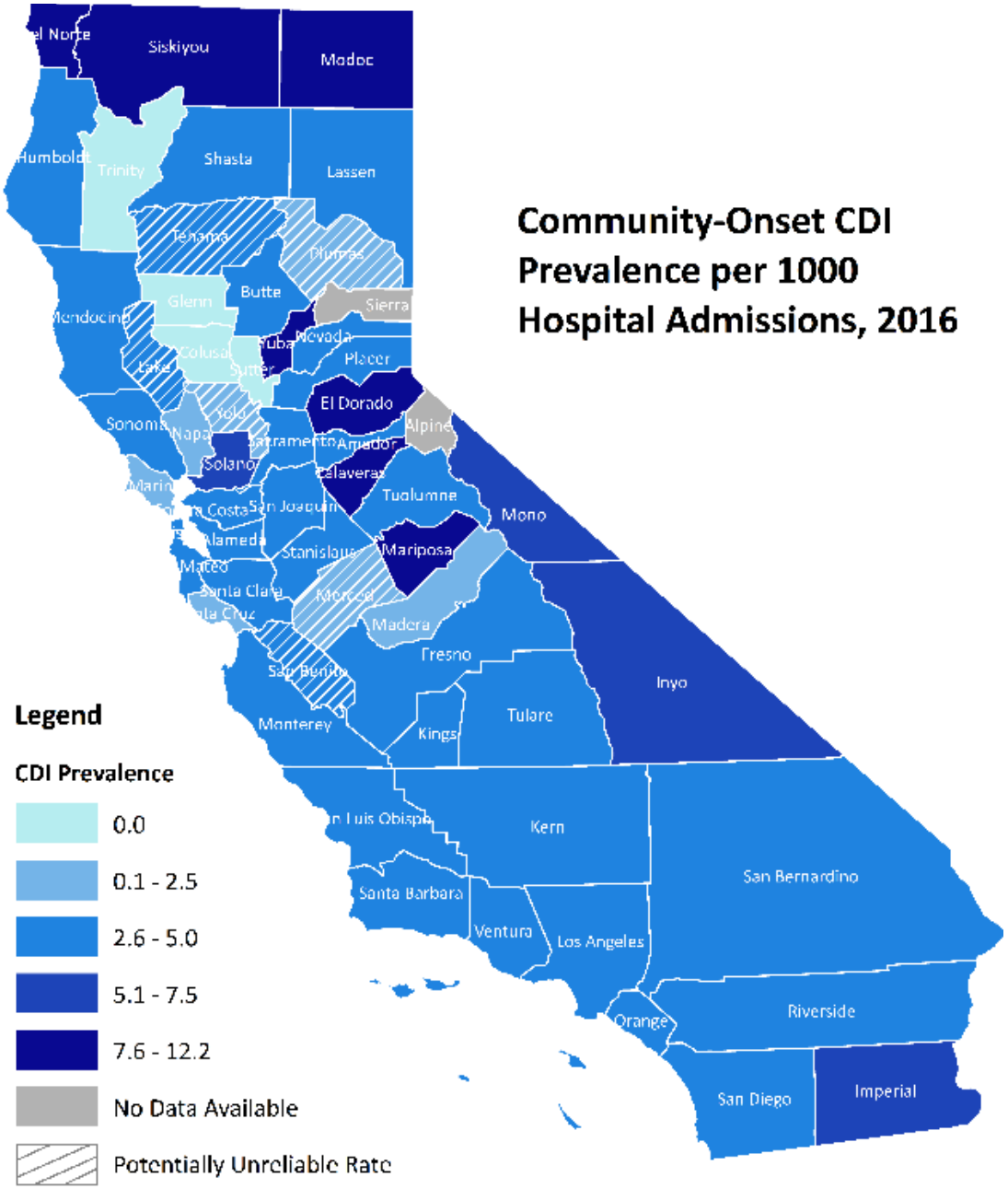


Hospital-Onset CDI Standardized Infection Ratio (SIR) by County, 2015-2016





Community-Onset CDI Prevalence per 1000 Hospital Admissions, 2016



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).

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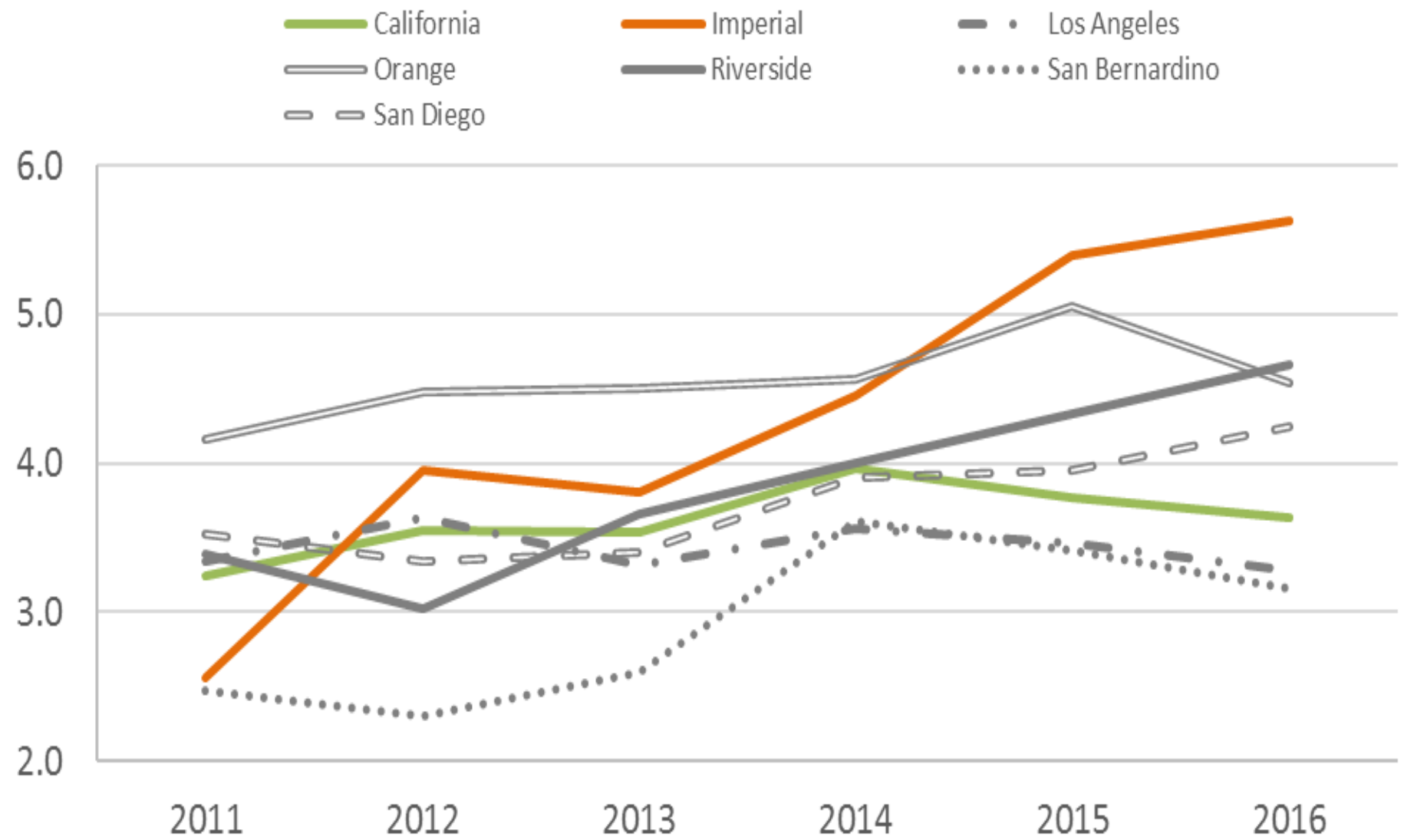
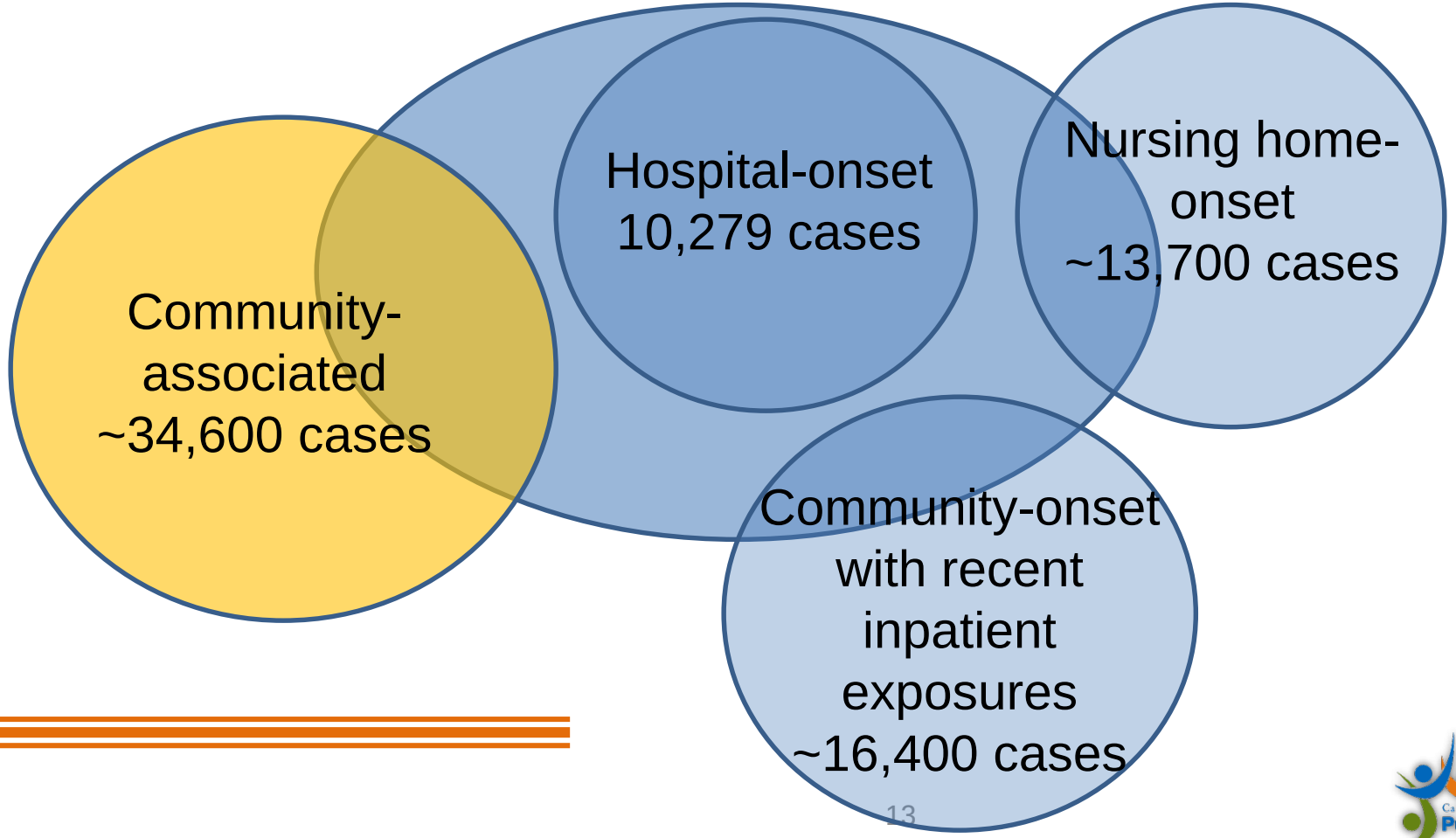
Community-Onset CDI Prevalence by Region, 2011-2016

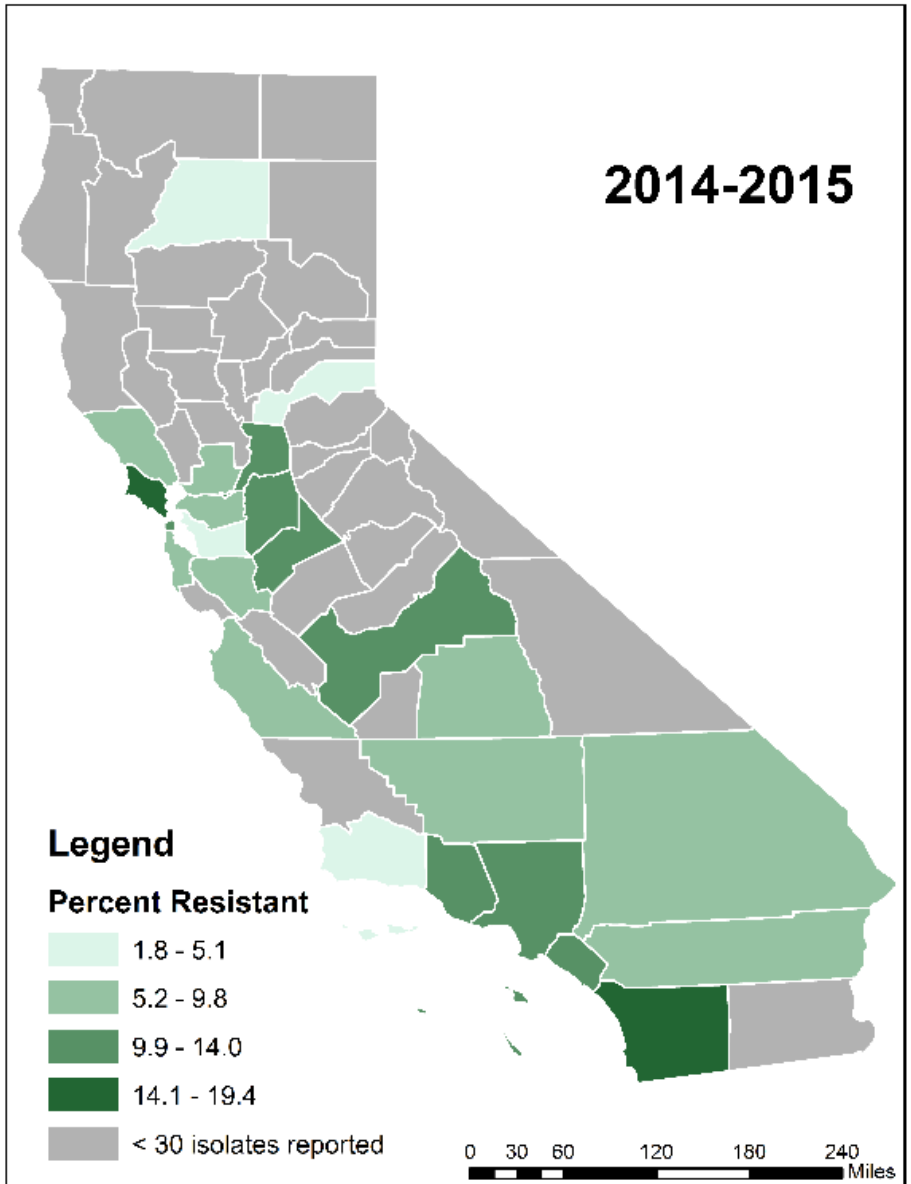


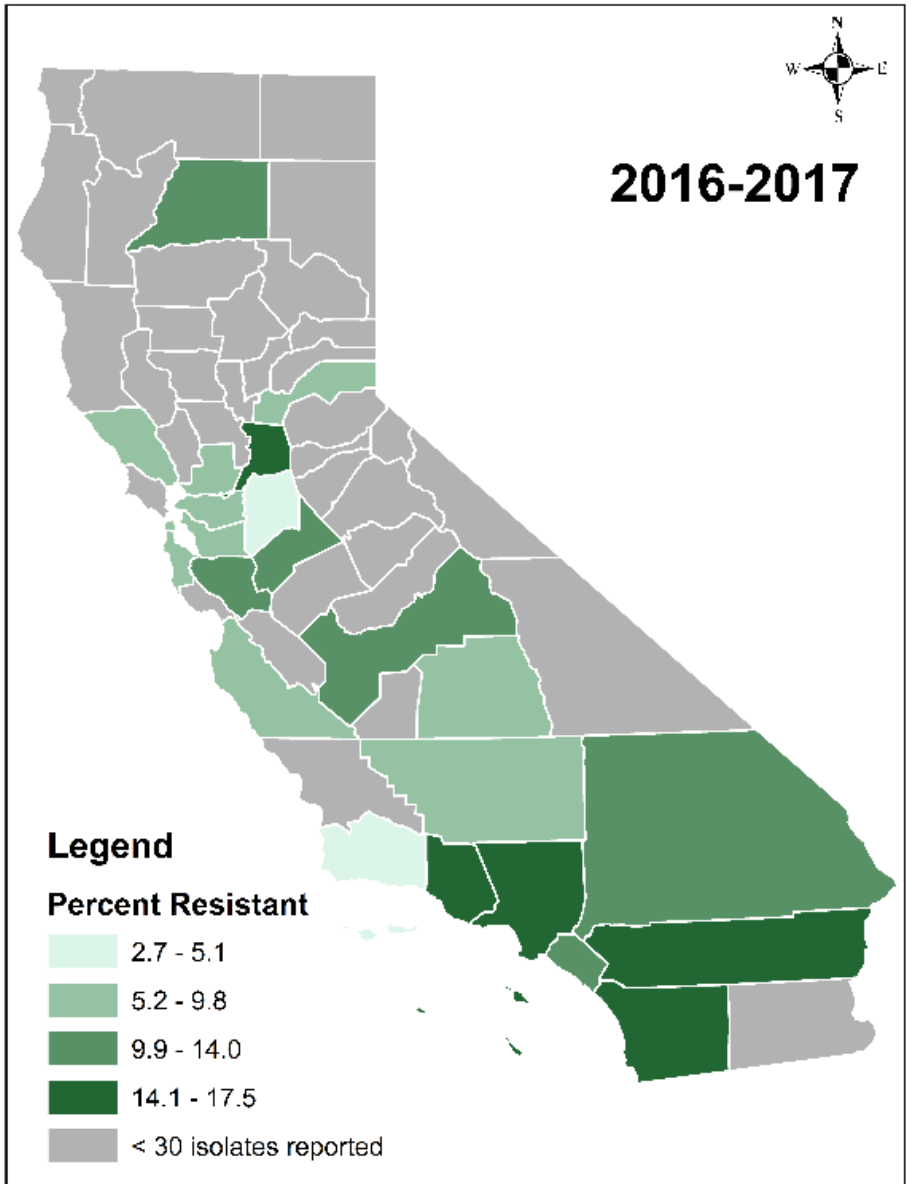
Estimated CDI Burden Across the Continuum of Care, California, 2016

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

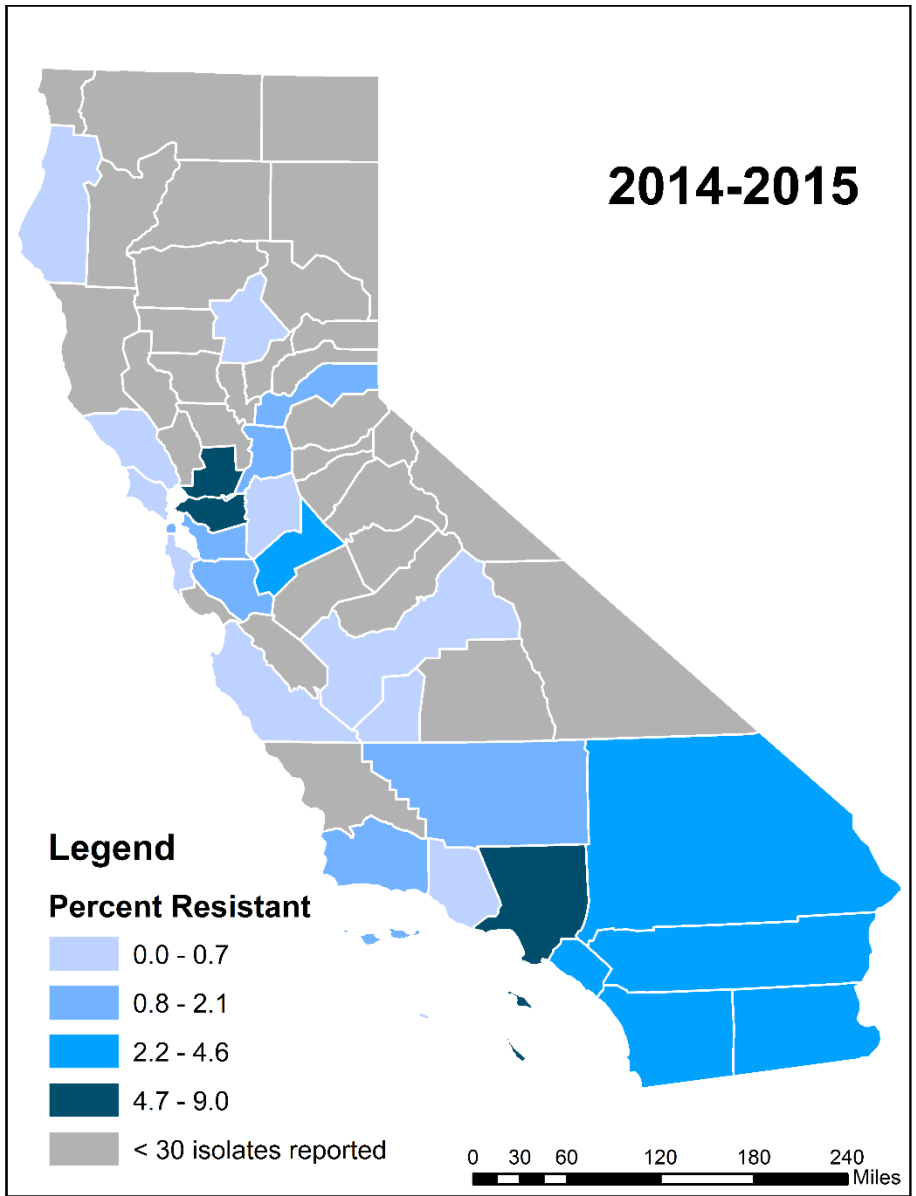


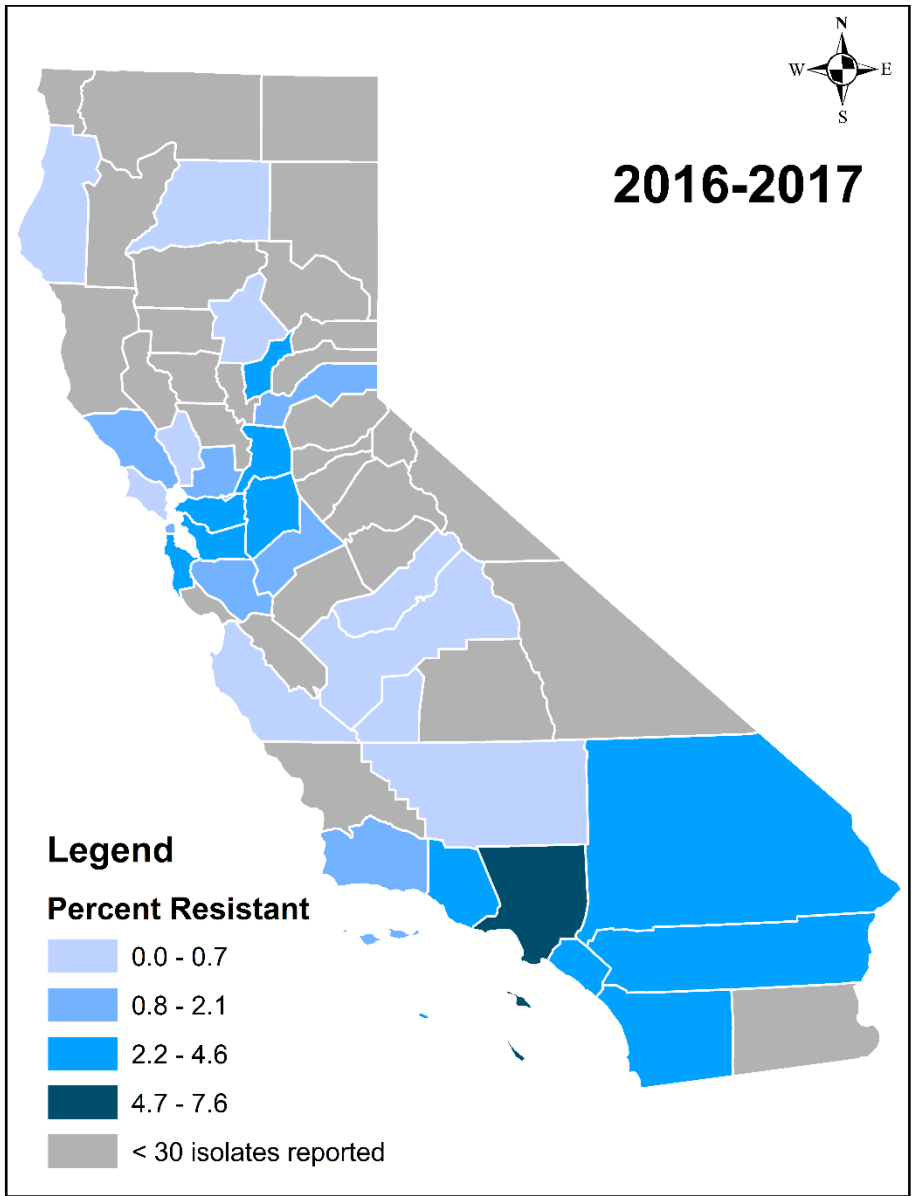
Multidrug-Resistant *E coli* among HAI, 2014-2017





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

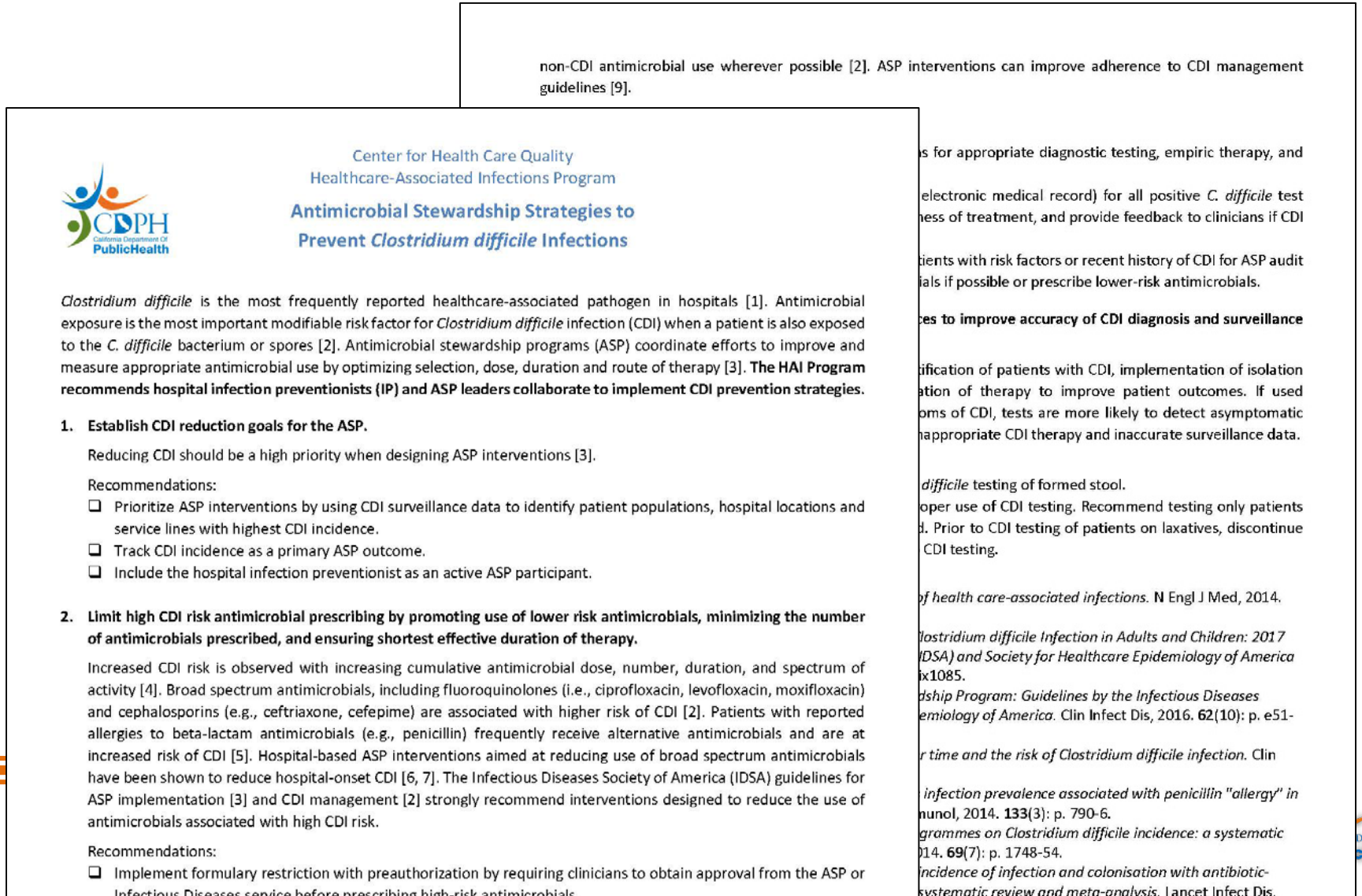
- **Promote and measure appropriate antimicrobial use** by optimizing antimicrobial selection, dosing, route, and duration of therapy
  - Improved patient care, increased cure rates, reduced treatment failures
  - Reductions in hospital rates of CDI and antimicrobial resistance
  - Decreased or controlled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



non-CDI antimicrobial use wherever possible [2]. ASP interventions can improve adherence to CDI management guidelines [9].

s for appropriate diagnostic testing, empiric therapy, and

electronic medical record) for all positive *C. difficile* test
ness of treatment, and provide feedback to clinicians if CDI

tients with risk factors or recent history of CDI for ASP audit
ials if possible or prescribe lower-risk antimicrobials.

ces to improve accuracy of CDI diagnosis and surveillance

tification of patients with CDI, implementation of isolation
ation of therapy to improve patient outcomes. If used
oms of CDI, tests are more likely to detect asymptomatic
appropriate CDI therapy and inaccurate surveillance data.

difficile testing of formed stool.
oper use of CDI testing. Recommend testing only patients
d. Prior to CDI testing of patients on laxatives, discontinue
CDI testing.

of health care-associated infections. N Engl J Med, 2014.

lostridium difficile Infection in Adults and Children: 2017
IDSA) and Society for Healthcare Epidemiology of America
ix1085.
dship Program: Guidelines by the Infectious Diseases
emiology of America. Clin Infect Dis, 2016. **62**(10): p. e51-

r time and the risk of Clostridium difficile infection. Clin

infection prevalence associated with penicillin "allergy" in
nunol, 2014. **133**(3): p. 790-6.
grammes on Clostridium difficile incidence: a systematic
014. **69**(7): p. 1748-54.
incidence of infection and colonisation with antibiotic-
systematic review and meta-analysis. Lancet Infect Dis.

Center for Health Care Quality
Healthcare-Associated Infections Program

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 cephalosporins (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

CDC Core Elements of Antibiotic Stewardship in Nursing Homes

Sharp Coronado Hospital
Long Term Care Fever/Suspected Infection ASSESSMENT

RN to complete prior to calling Pharmacist/Physician for fever or suspected infection

Patient Name: Unit Rm:
Attending Physician: ID Consultant? On-call MD:
Current Isolation Status: Code Status:
Admitting Diagnosis (please list):
Allergies:
IV Lines: yes ___ no ___ If yes, what type(s)? _____
Feeding tube: yes __ or no ___ (type):_____
Current Antibiotics: _____(please include dates)
Recent Antibiotic use (within the last month):_____(please include dates)
History of resistant organisms:_____(please include dates)

Vitals: (last 24 hours)
HR
RR_____
BP_____
O2 Sat
WBC SCr
Last 2 Temp.: _____ _____ (site:_____) Re-check after 1 hour if >100.4 (38.0)
Immunosuppressed? (i.e. on steroids or post-chemo) Y or N

Report symptoms and fevers to pharmacist/MD

Patient Status/symptoms→Please check all that apply & report to Pharmacist/MD/NP:

Suspected Respiratory Infection
- ☐ History of COPD or CHF (circle one)
- ☐ Ventilator/trach/blowby (circle one)
- ☐ Rigors (shaking chills)
- ☐ Cough, new or increased
- ☐ Purulent sputum production, new or increased
- ☐ New infiltrates on chest xray (dated:)
- ☐ RR > 25 bpm
- ☐ Pleuritic chest pain
- ☐ O2 sat <94% or decreased >3% from baseline
- ☐ Acute change in mental status or functional decline

Suspected UTI
- ☐ Catheter (type:_____date changed_____)
- ☐ Acute dysuria
- ☐ Acute pain/swelling of testes/epididymis or prostate
- ☐ Gross hematuria
- ☐ Acute costovertebral angle tenderness or pain
- ☐ New or worsening urinary urgency, frequency or suprapubic pain or incontinence
- ☐ Rigors (shaking chills)
- ☐ Acute change in mental status or functional decline
- ☐ Purulent discharge from around catheter

Suspected skin/soft tissue infection
- ☐ New or increasing purulent drainage at site
- ☐ Redness at site
- ☐ Tenderness or warmth at site
- ☐ Swelling that is new or increasing at wound or soft tissue site

Fever of Unknown Origin
- ☐ New onset of delirium
- ☐ Rigors (shaking chills)
- ☐ Diarrhea

☐ Satisfies LTC Fever/Suspected Infection Protocol for Cerner Powerplan initiation for CBC, CMP, chest xray (T>100.4 x 2, at least 1 hour apart, or HR >120, RR>25, sys BP <90 after suctioning/re-positioning)
☐ Labs & symptoms reviewed with Pharmacist to help determine origin of infection

SBAR for MD call: (If 2200-0630, as per on-call Pharmacist recommendation)
Situation: Report imminent patient status: abnormal vitals, pain, physical symptoms, fever or acute mental status or vital sign changes, CBC, CMP, & chest xray results.
Background: Give patient history, status: diagnosis, presence of catheter, wounds, etc.
Assessment: Report if McGeer Criteria met & if patient qualifies for initiation of antibiotics per on-call RPh
Recommendation: Initiate cultures/empiric antibiotic therapy per Cerner powerplan/as recommended by RPh

FAX this page to Pharmacy when completed; Call Pharmacist to review

RN completing assessment:_____ Date:_____ Form Updated 7/2015

- 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

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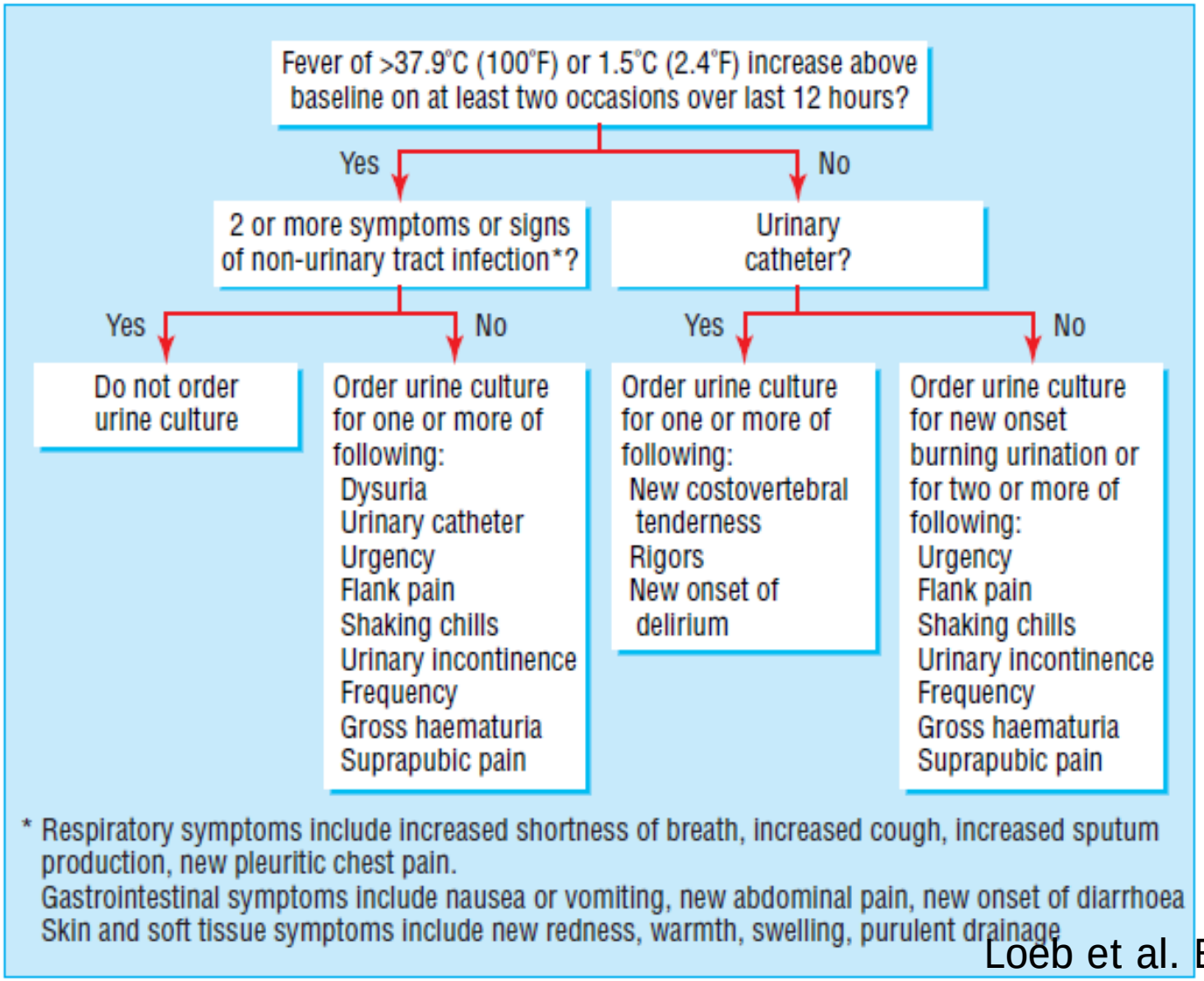
Algorithms to Guide Appropriate Use of Diagnostic Testing



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

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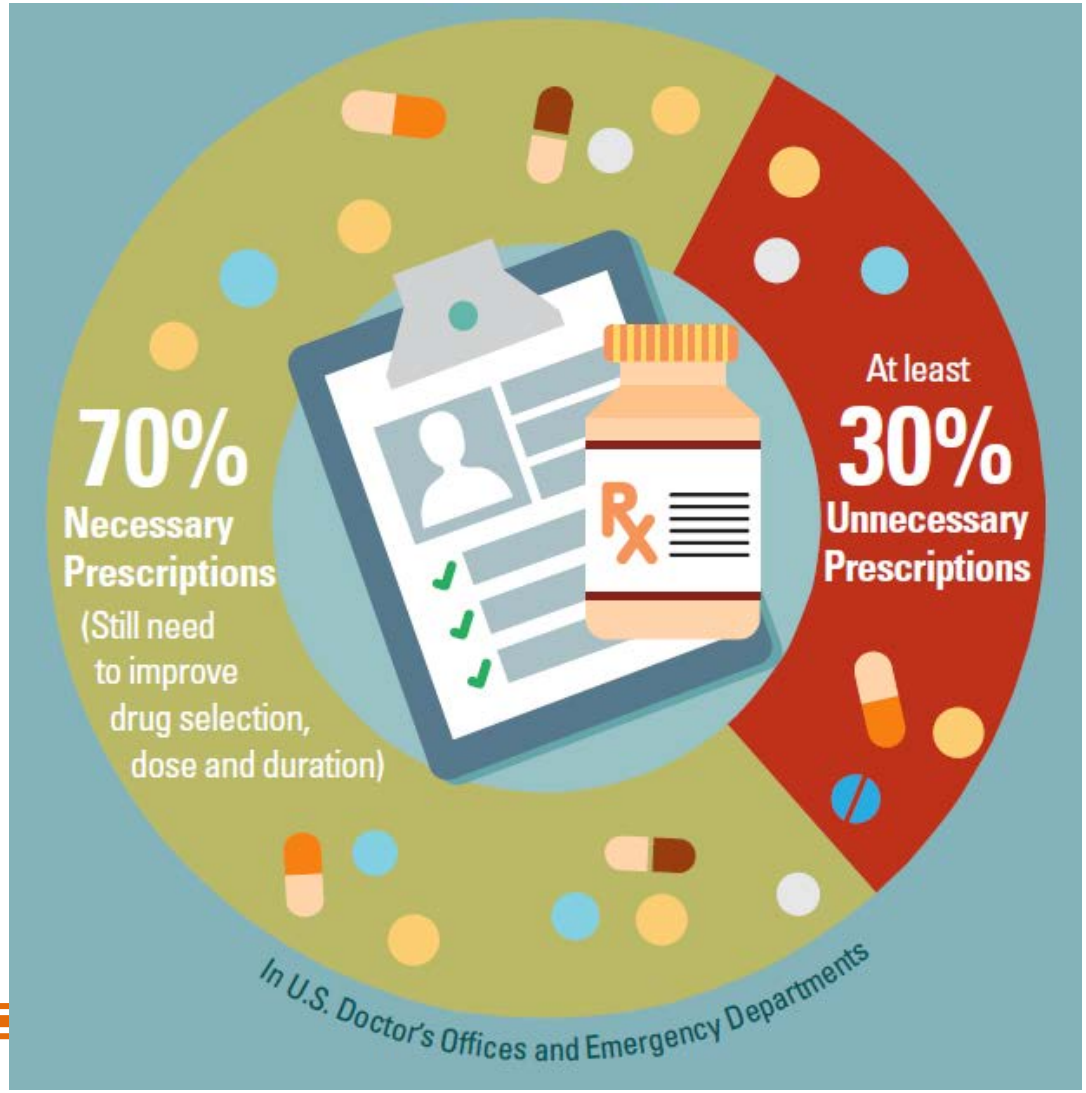
CDC Core Elements for Outpatient Antibiotic Stewardship

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

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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

CMAF California Medical Association FOUNDATION
Improving Public Health Since 1963

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Programs / AWARE

AWARE

Acute Respiratory Tract Infection Guideline Summary - Adult

Acute Respiratory Tract Infection Guideline Summary - Pediatric

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

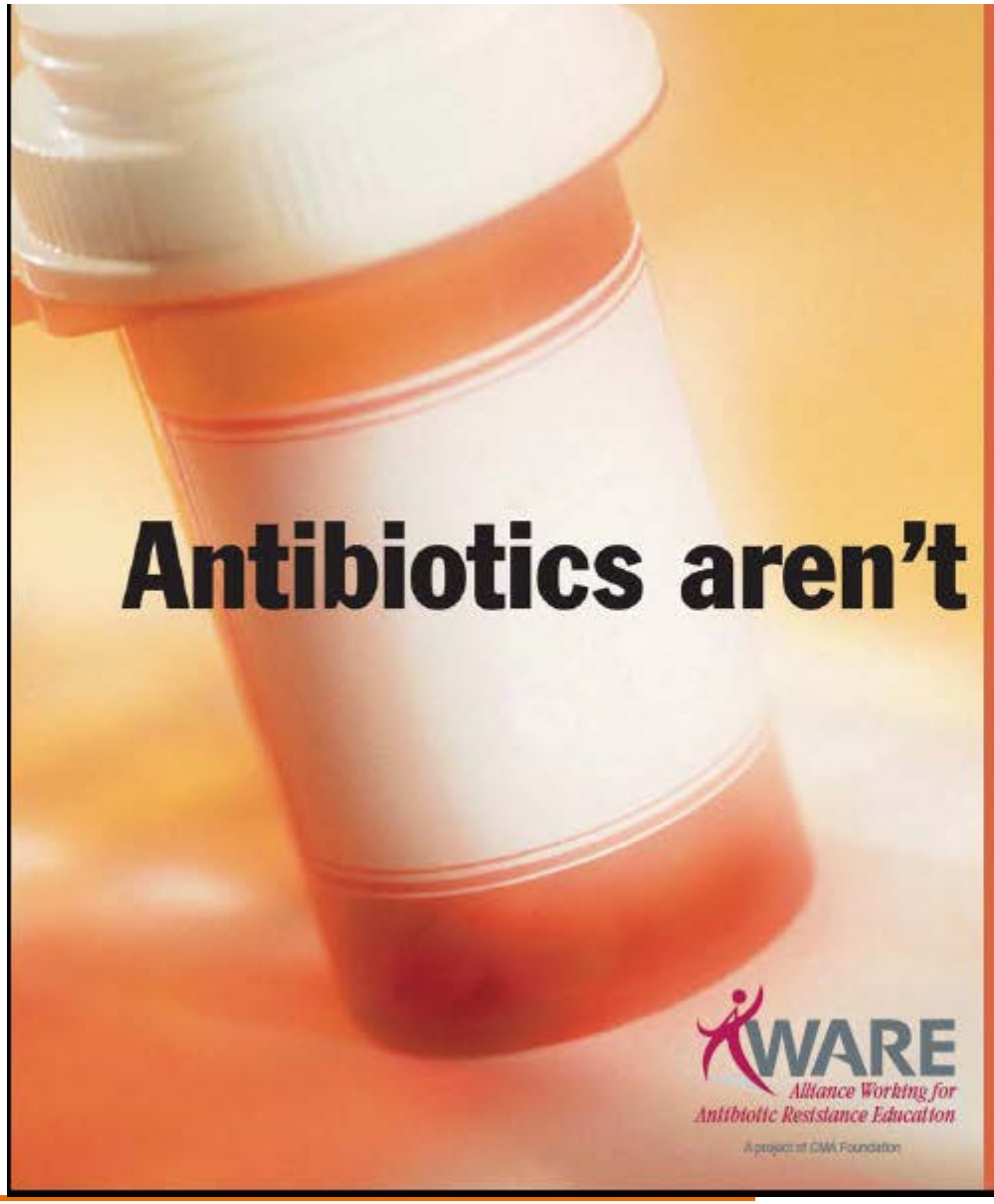
CMA FOUNDATION AWARE Alliance Working for Antibiotic Resistance Education

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.

AWARE
Alliance Working for Antibiotic Resistance Education
A project of CMA Foundation

FEEL BETTER SOON

WITHOUT ANTIBIOTICS!

Stay home from school and get plenty of rest.

Drink lots of fluids – like water and soup.

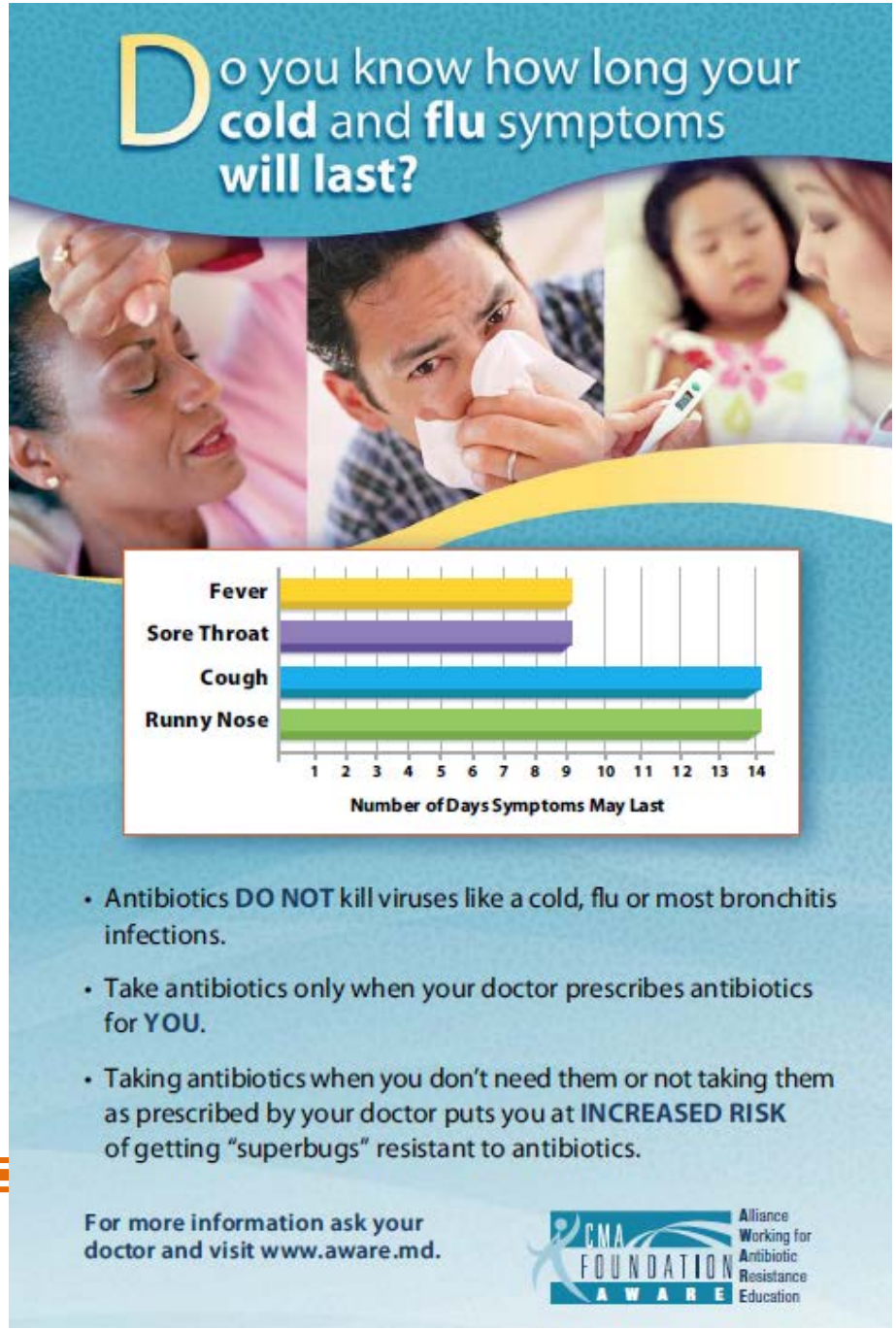
Talk to your doctor about what you can do at home to feel better.

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.

CMA FOUNDATION AWARE Alliance Working for Antibiotic Resistance Education

For more information, ask your doctor and visit www.aware.md



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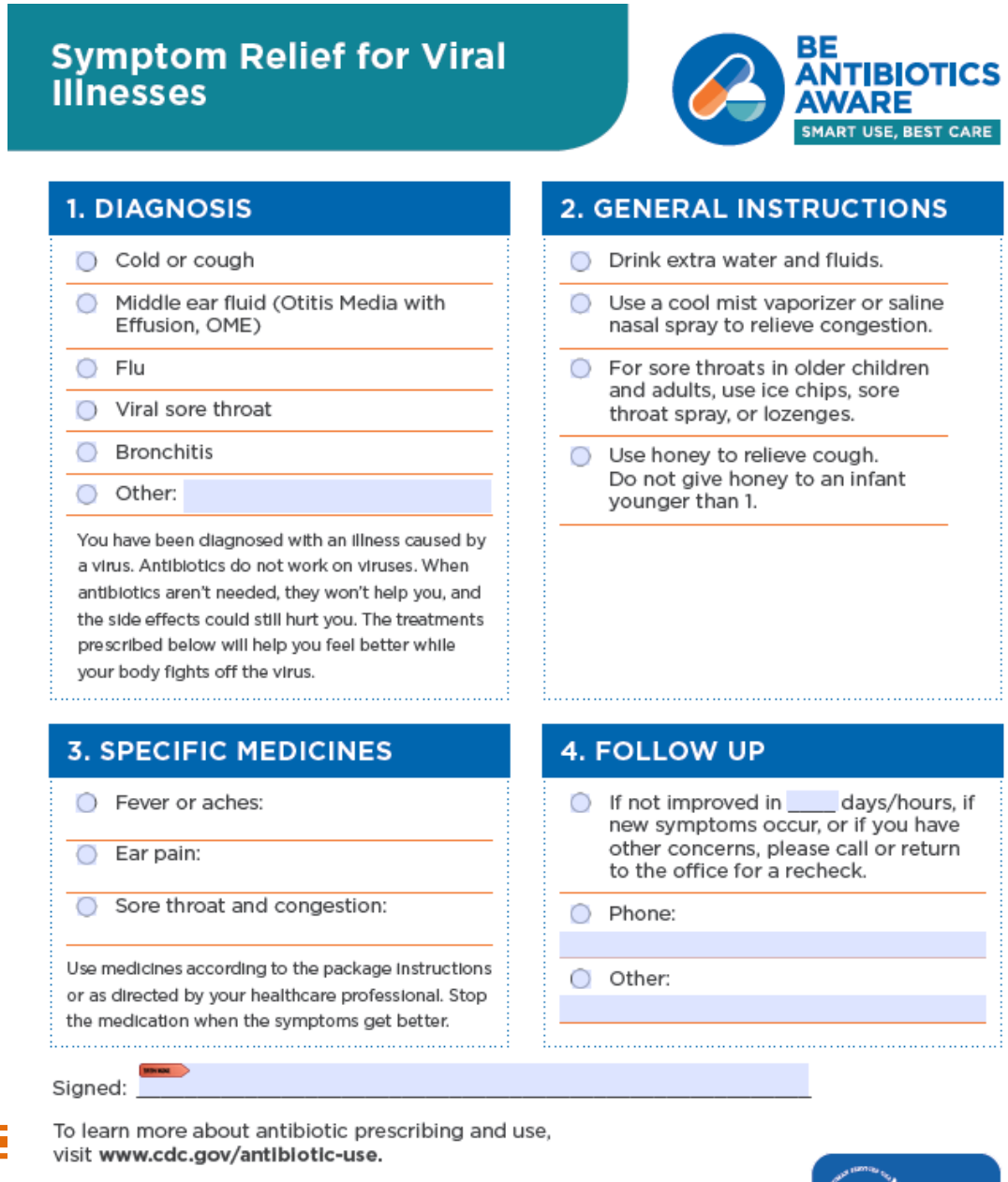
Viral Illness Prescription Pad



Symptom Relief for Viral Illnesses

BE ANTIBIOTICS AWARE
SMART USE, BEST CARE

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.**

CDC

California Department of PublicHealth

Commitment Poster

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,

To learn more about antibiotic prescribing and use, visit www.cdc.gov/antibiotic-use.

BE ANTIBIOTICS AWARE
SMART USE, BEST CARE

CDC

California Department of PublicHealth

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)**

Meeker, Linder, et al. *JAMA* 2016;315(6): 562-570.

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