

Antimicrobial  
Stewardship/Antimicrobial  
Resistance Subcommittee Report

HAI-AC Meeting  
Oakland, California  
November 12, 2015

# Subcommittee Members

- Karen Anderson
- Mike Butera, MD
- Stan Deresinski, MD
- Olga DeTorres, PharmD, FASHP, BCPS-ID
- Brian Lee, MD
- Catherine Liu, MD
- Conan MacDougall, PharmD, MAS, BCPS
- Jeff Silvers, MD
- Samantha Tweeten, PhD, MPH
- Dan Uslan, MD
- Matthew Zahn, MD, MPH
- CDPH: Lanette Corona

# Previous HAI-AC Meeting

## 8/13/15

- Suggestion to expand role of AS subcommittee to include “Antimicrobial Resistance”
- Motion for AS subcommittee:  
“To begin to make a recommendation to CDPH to collect and report isolates and infections on the data of CRE as done with other HAIs”

# AS Subcommittee

## 9/14/15

- Subcommittee agreed:
  - To expand role to include antimicrobial resistance-related topics
  - To change name of subcommittee to the Antimicrobial Stewardship/Antimicrobial Resistance Subcommittee
  - To add 2 additional members:
    - Matthew Zahn, MD, MPH of California Association of Communicable Disease Controllers
    - Samantha Tweeten, PhD, MPH of the San Diego County of Public Health

# AS Subcommittee

## 9/14/15 & 10/14/15

- Began to discuss what recommendation(s) should be made to CDPH regarding the collection and reporting of CRE isolates and infections
  - Complexity/challenges of detecting CRE
  - Purpose of CRE reporting and review of what other states are doing, specifically Illinois
  - Motion for the HAI-AC to consider

# CRE: Complexity/Challenges

- Difficult to treat with reported mortality up to 50%
- Enterobacteriaceae includes >70 different types of genera and an even greater number of species
- Many different resistance mechanisms can lead to carbapenem resistance
  - Carbapenemase production (CP-CRE)
  - Other mechanisms (e.g., changes in membrane permeability)
- In contrast: MRSA represents single species with one resistance mechanism

# CRE: What is the definition?

- CDC Definition (2012):
  - **Nonsusceptible** to one of the following carbapenems: doripenem, meropenem, or imipenem AND
  - **Resistant** to all of the following third-generation cephalosporins that were tested: ceftriaxone, cefotaxime, and ceftazidime.
- CDC Definition (2015):
  - Resistant to imipenem, meropenem, doripenem, or ertapenem OR
  - Documentation that the isolate possess a carbapenemase (requires testing that is not routinely done)
- Problem: definition is nonspecific and captures both CP-CRE and nonCP-CRE

# CRE: What is “resistant”?

- Breakpoints for “susceptible”, “intermediate”, and “resistant” are set by both CLSI (Clinical & Laboratory Standards Institute) and FDA in US, using slightly different criteria
- Clinical laboratories can use either CLSI or FDA breakpoints
- Manufacturers of commercial antimicrobial susceptibility testing devices must use FDA breakpoints

# Changes in CLSI Breakpoints

Agent	Previous Breakpoints MIC (ug/mL)			Current Breakpoints (2010-2012) MIC (ug/mL)		
	S	I	R	S	I	R
Doripenem	-	-	-	≤ 1	2	≥ 4
Ertapenem	≤ 2	4	≥ 8	≤ 0.5	1	≥ 2
Imipenem	≤ 4	8	≥ 16	≤ 1	2	≥ 4
Meropenem	≤ 4	8	≥ 16	≤ 1	2	≥ 4

Problem: not all clinical laboratories have implemented the current CLSI breakpoints  
Therefore what is labeled “CRE” in one hospital may not be called “CRE” in another hospital!

# Why haven't all laboratories implemented current CLSI breakpoints?

- Clinical laboratories can use either CLSI or FDA breakpoints
- Because FDA has not approved all of the lower CLSI breakpoints, some automated susceptibility panels do not test down to the lower CLSI breakpoints
- If laboratories implement non-FDA-approved CLSI breakpoints, a verification/validation must be performed

# CRE: What would be the purpose of reporting?

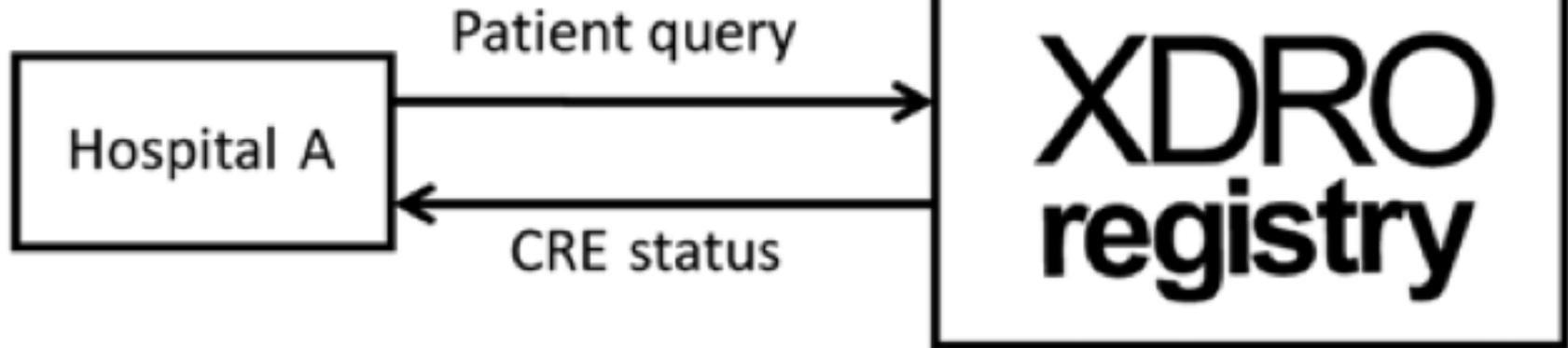
- CDC recommends “Detect and Protect” strategy: detect CRE patients through systematic surveillance and protect patients by preventing transmission of CRE through appropriate application of appropriate infection control precautions when such patients enter a health care facility
- AS/AR Subcommittee agreed that primary purpose should be to protect patients

# Electronic Public Health Registry of Extensively Drug-Resistant Organisms, Illinois, USA

- Illinois Department of Public Health launched a web-based, public health informatics tool called XDRO registry in Nov 2013
- Designed to facilitate information exchange throughout health care facilities in Illinois

Mandatory CRE reporting

All Illinois facilities



CRE information exchange  
(interfacility communication)

# Action Item

“The Antimicrobial Stewardship/Antimicrobial Resistance subcommittee recommends that CDPH look into creating a public health registry to enable identification of CRE patients **for healthcare facilities to use**. Due to the difficulties in gathering accurate data, we do not recommend pursuing public reporting of CRE at this time.”