CRE Detect and Protect: the Role of Local Health Departments

March 26, 2014

Illinois Department of PUBLIC HEALTH

Agenda

- Featured speaker: Dr. Mike Vernon

"Role of a Local Health Department in Investigating Outbreaks of CRE"

- XDRO registry overview
- LHD response to CRE calls
- CRE Detect and Protect Campaign

The opinions, viewpoints, and content presented in this webinar may not represent the position of the Illinois Department of Public Health

Role of a Local Health Department in Investigating Outbreaks of Carbapenem-Resistant Enterobacteriaceae (CRE)

Michael O. Vernon, DrPH
Director, Communicable Disease Control
Cook County Department of Public Health

COOK COUNTY HEALTH & HOSPITALS SYSTEM CCHHS

Cook County Department of Public Health
Promoting health. Preventing disease.
Protecting you.

Presentation Outline

- Background on antimicrobial resistance among Enterobacteriaceae
  - KPC versus NDM-producing organisms
- KPC outbreak investigation at a LTCF (2008)
- NDM outbreak investigation at an acute-care MC (2013)
  - Timeline
  - LHD activities in outbreak response
  - Relationships between outbreak site, other HC facilities, and local, state and federal partners

Antibiotic Resistance Threats in the U.S., 2013

Untreatable and hard-to-treat infections from carbapenem-resistant Enterobacteriaceae (CRE) bacteria are on the rise among patients in medical facilities. CRE have become resistant to all or nearly all the antibiotics we have today. Almost half of hospital patients who get bloodstream infections from CRE bacteria die from the infection.

RESISTANCE OF CONCERN

- Some Enterobacteriaceae are resistant to nearly all antibiotics, including carbapenems, which are often considered the antibiotics of last resort.
- More than 9,000 healthcare-associated infections are caused by CRE each year.
- CDC laboratories have confirmed at least one type of CRE in healthcare facilities in 44 states.
- About 4% of U.S. short-stay hospitals had at least one patient with a serious CRE infection during the first half of 2012. About 18% of long-term acute care hospitals had one.

PUBLIC HEALTH THREAT

An estimated 140,000 healthcare-associated Enterobacteriaceae infections occur in the United States each year; about 9,300 of these are caused by CRE. Up to half of all bloodstream infections caused by CRE result in death. Fortunately, bloodstream infections account for a minority of all healthcare-associated infections caused by Enterobacteriaceae. Each year, approximately 600 deaths result from infections caused by the two most common types of CRE, carbapenem-resistant *Klebsiella* spp. and carbapenem-resistant *E. coli*.

	Percentage of Enterobacteriaceae healthcare-associated infections resistant to carbapenems	Estimated number of infections	Estimated number of deaths attributed
Carbapenem-Resistant *Klebsiella* spp.	11%	7,900	520
Carbapenem-resistant *E. coli*	2%	1,400	90

For more information about data methods and references, please see technical appendix.

U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

sease.

CDC Report released: September 16, 2013

Background: Enterobacteriaceae

- Bacteria in the family Enterobacteriaceae are gram-negative rods
  - *E. coli* and *Klebsiella pneumoniae* are organisms in the Enterobacteriaceae family
  - Normal part of the gastrointestinal flora
  - Common cause of healthcare-associated infections

Background: Carbapenems

- β-lactam antibiotics have been used to treat infections caused by Enterobacteriaceae
- Carbapenems are a class of β-lactam antibiotics with a broad spectrum of antibacterial activity
  - Used as a last resort when other antibiotics are not available

Carbapenem-Resistant Enterobacteriaceae

- Resistance conferred by carbapenem-hydrolyzing β-lactamases
- Two primary classes:
  - **Class A**: Carbapenemases, e.g., *Klebsiella pneumoniae* carbapenemases (KPC)
  - **Class B**: Metallo-β-lactamases (MBL)
    - New Delhi metallo- β-lactamases (NDM)
- Production of KPCs is the major mechanism
- Gene encoding resistance is present on plasmids

Why is Carbapenem Resistance a Public Health Problem?

- Significantly limits treatment options for life-threatening infections
- No new drugs for gram-negative bacilli
- Emerging resistance mechanisms, carbapenemases are mobile
- Detection of carbapenemases and implementation of infection control practices are necessary to limit spread = “Detect & Protect”

COOK COUNTY HEALTH & HOSPITALS SYSTEM
CCHHS

Cook County Department of Public Health
Promoting health. Preventing disease.
Protecting you.

KPC versus NDM

- **KPC**
  - First reported in 2001 in NC; now in 47 states
  - First identified in IL in 2007
  - Common in Northern IL
  - Increasingly found in healthcare institutions
  - Long term care is a reservoir
- **NDM**
  - First reported in US 2009
  - First IL isolate in 2010
  - 45 patients with NDM identified in IL in 2013
  - 96 total cases in US
  - Most dangerous CRE
  - High mortality

Four Core Actions to Combat Spread of AR

1. Prevent infections from occurring and prevent AR bacteria from spreading
2. Track AR bacteria
3. Improve use of antibiotics
4. Promote development of new antibiotics and new diagnostic tests for AR bacteria

Outbreak #1:
KPC-producing CRE at a LTCF

- 11/6/2008 – CCDPH received a call from an astute IP at Hospital A that 3 residents admitted from the same LTCF had infections caused by CRE
  - All 3 cases had clinical CAUTIs
  - KPC was confirmed by the modified Hodge test
  - All cases were ventilator-dependent females with indwelling Foley catheters, multiple comorbidities and a history of long-term therapy with several antimicrobial agents

Outbreak Investigation Timeline

- 11/7/2008 – CCDPH called LTCF A to report culture results on the 3 residents admitted to Hospital A
- The DON at LTCF A confirmed that:
  - All 3 residents resided on the same floor at LTCF A reserved for ventilator-dependent pts
  - LTCF A staff had no knowledge of CRE or KPC
  - No isolation precautions in place
  - No IP on staff; no contract with an IP consulting agency

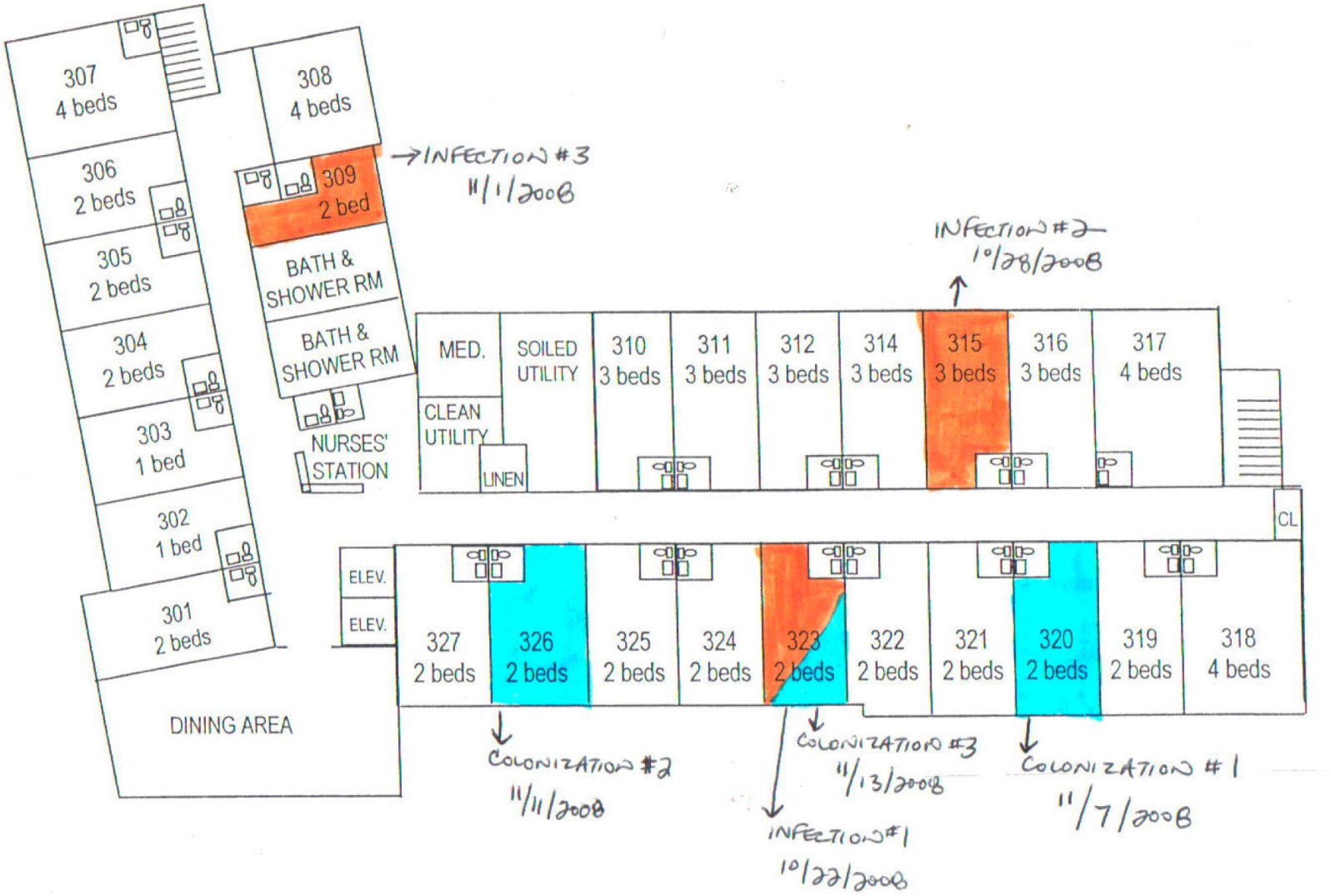
Outbreak Investigation Timeline

- 11/7/2008 – Hospital A started performing active surveillance cultures for CRE on all patients admitted from LTCF A
  - Perirectal cultures obtained on admission
  - 3 residents identified as CRE-colonized within 1 week
  - All 3 lived on the same floor at LTCF A that housed ventilator-dependent residents

Outbreak Investigation Timeline

- 11/12/2008 – CD staff from CCDPH visited LTCF A to perform a walk-through survey, observe infection control practices, and make IC recommendations
  - 245-bed facility
  - 3rd floor used for individuals requiring skilled care
  - Hemodialysis unit in the lower level
  - DON responsible for infection control adherence
  - Major renovation project underway

Floor Plan of 3rd Floor -- LTCF A



Immediate Public Health Recommendations

- Contact precautions for residents infected or colonized with CRE (indefinitely)
- Cohort residents with CRE
- Use dedicated staff and equipment
- Maintain daily log of infected and colonized residents
- Communicate with CCDPH IP specialist daily
- Communicate with IP at Hospital A regarding each patient transfer

Public Health Actions

- All-staff education sessions at LTCF A for all three shifts
- Emphasis on infection prevention including:
  - Hand hygiene
  - Isolation precautions
  - Signage
  - Skin cleansing of residents – 2% CHG
  - Environmental cleaning and disinfection

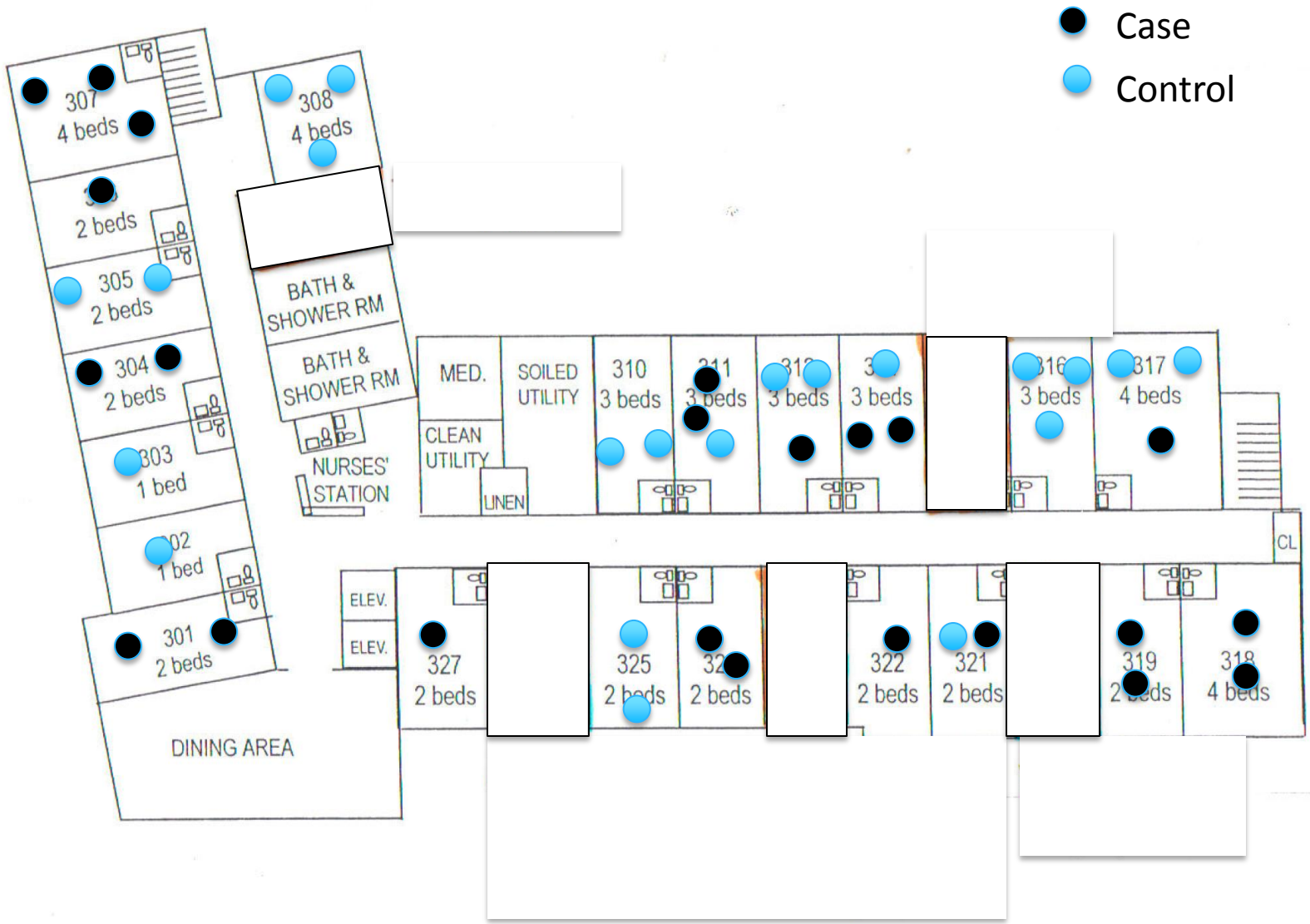
Outbreak Investigation Timeline

- 11/24/2008 – CDC Epi-Aid assistance requested by CCDPH and IDPH
- 12/3/2008 – Field investigation began (9 cases total)
- Objectives of CDC investigation:
  - Determine scope of the outbreak
  - Identify risk factors for infection and colonization with CRE
  - Identify possible sources of transmission
  - Recommend control measures to prevent additional cases

Components of Epi-Aid Investigation
12/4 – 12/16, 2008

- Active surveillance cultures at LTCF A to identify CRE-colonized patients
- Review charts for a case control study to examine risk factors among patients
- Observe infection control practices
- Record keeping & data analysis
- Daily group meetings to review findings and make plans for next steps

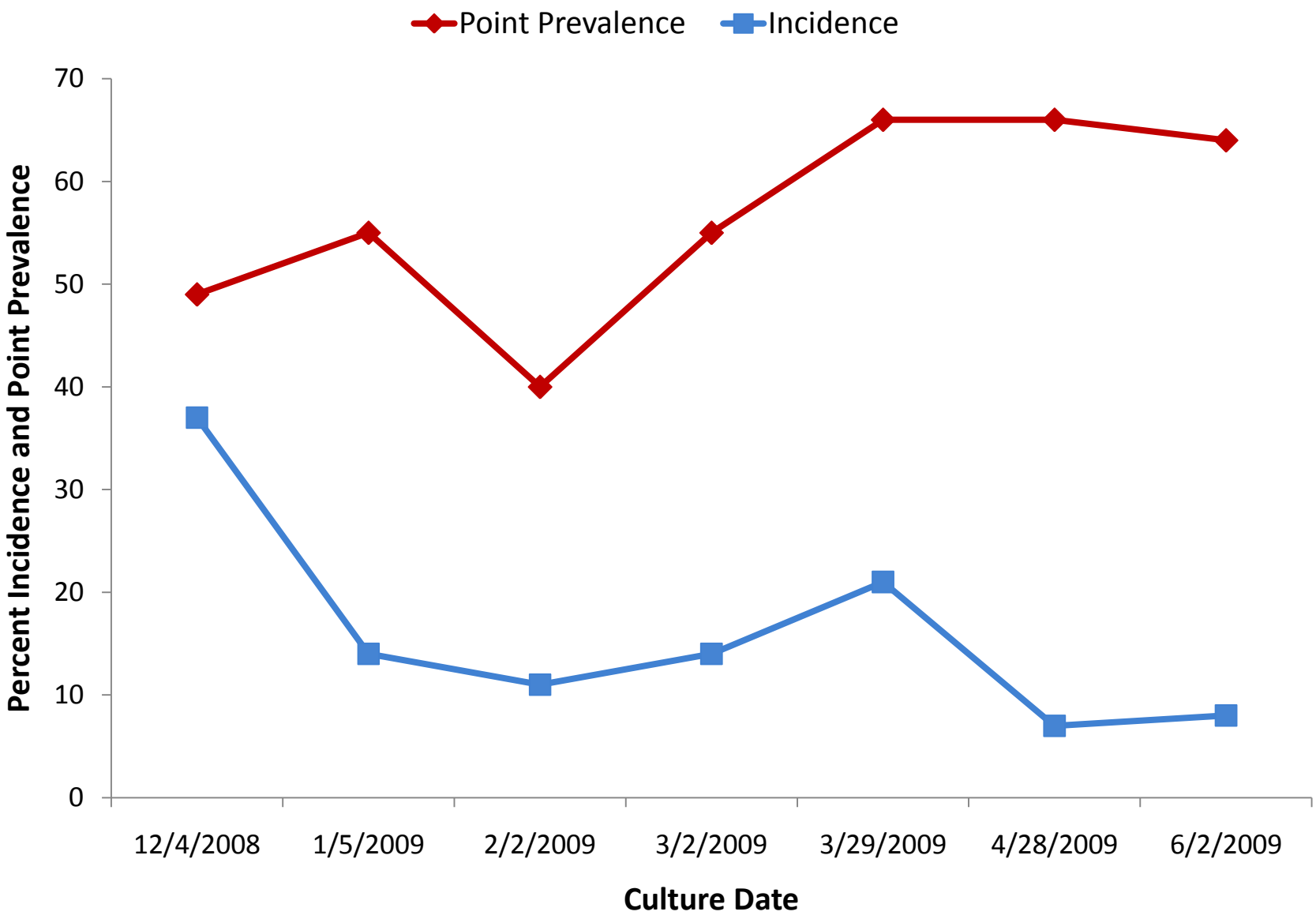
Spot Map of Resident Room Assignments and Case Status: Screening Cultures (12/4)



Case Control Study Findings

- Risk of CRE significantly increased by:
  - Having a urinary catheter: OR=21 (95% CI, 3.8-116)
- Receiving a carbapenem was more frequent among cases than control, but the difference was not statistically significant
  - OR=2.5 (95% CI, 0.7-9.0)

Summary of CRE-Positive Screening Culture Results

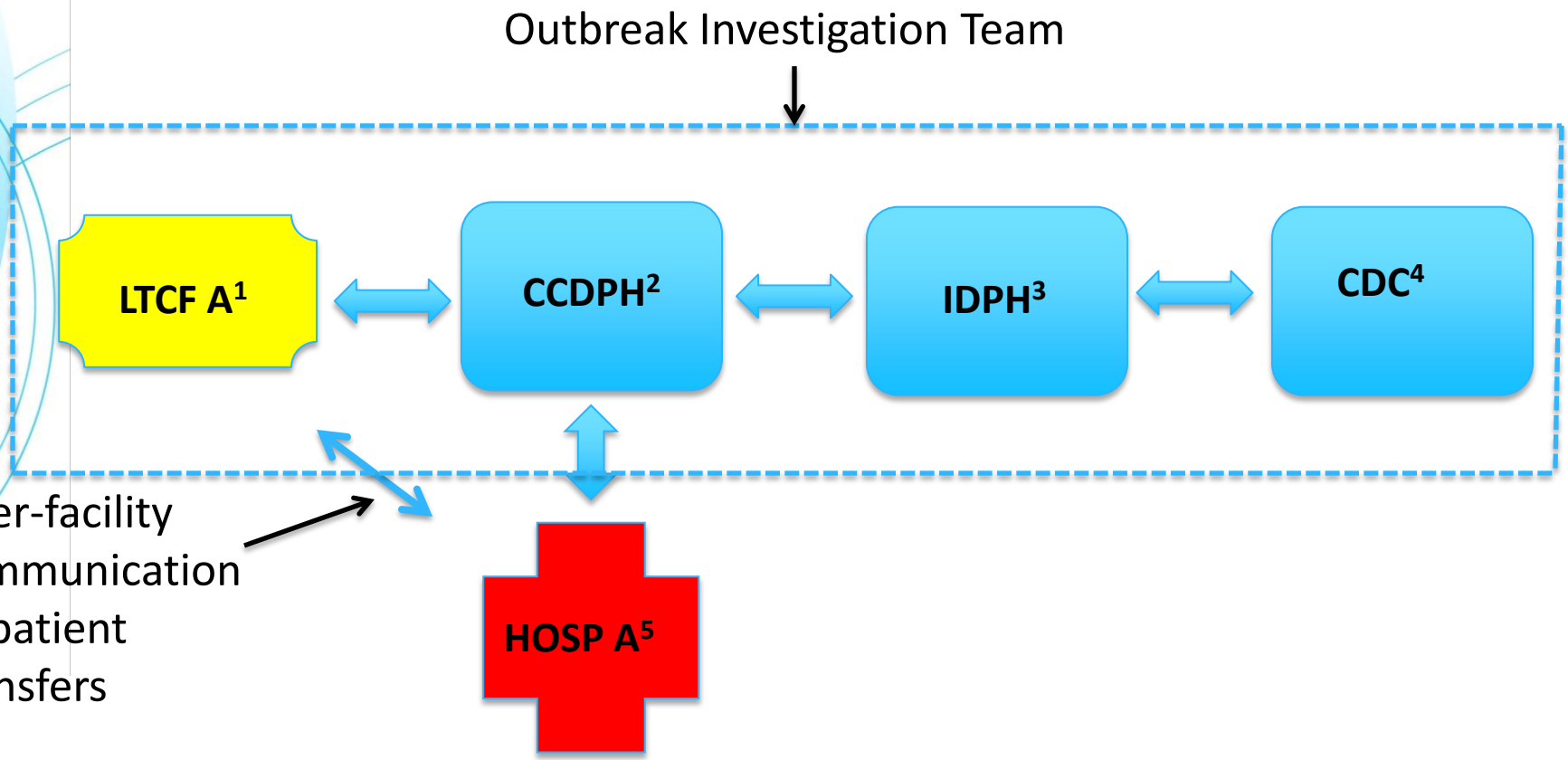


Responsibilities of CCDPH

- Guidance on CP for residents in a LTC setting
  - Conditions for participation in group activities
  - Incontinence care
  - Need to maintain CP for asymptomatic (colonized) residents
  - Explanation of barrier precautions to family members
- Recommendations for CP in rooms with multiple residents (screens; HH; dedicated staff & equipment)
- Coordination of specimen collection & testing
- Coordination of communication and outbreak control activities among state and federal HDs, LTCF A and Hospital A

Cook County Department of Public Health
Promoting health. Preventing disease.
Protecting you.

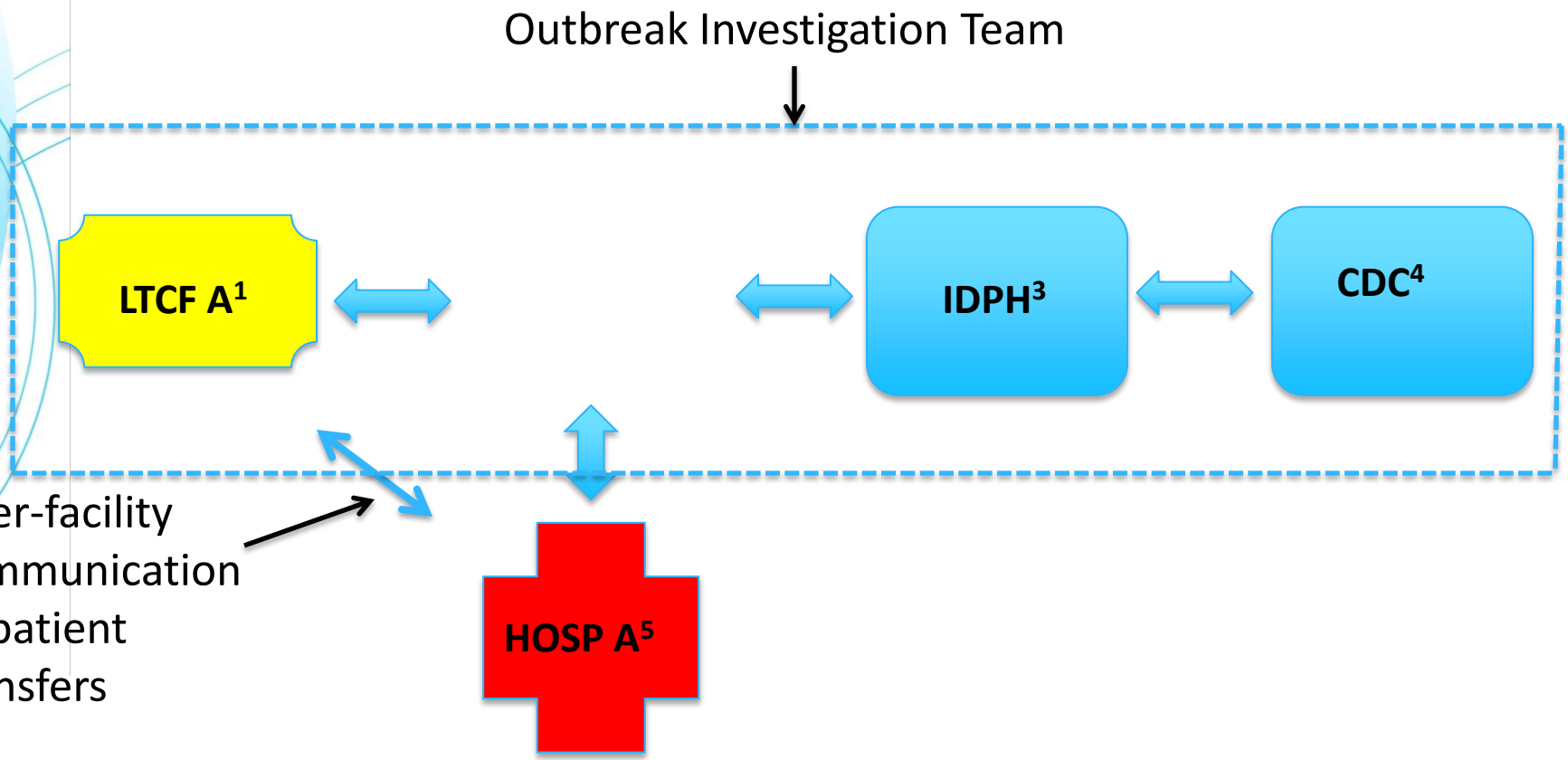
Communication & Coordination Network: KPC Outbreak Investigation



[1]DON, CMO, LTCF Mgr, Quality Mgr (4)
[2]Med Epi; CD Director; Epi (3)
[3]CSTE Fellow; State Epi (2)
[4]2 EIS Officers; DHQP Supv (3)
[5]IP (1)

Cook County Department of Public Health
Promoting health. Preventing disease.
Protecting you.

Communication & Coordination Network: KPC Outbreak Investigation



[1]DON, CMO, LTCF Mgr, Quality Mgr (4)

[3]CSTE Fellow; State Epi (2)
[4]2 EIS Officers; DHQP Supv (3)
[5]IP (1)

COOK COUNTY PHAB ACCREDITATION
COOK COUNTY HEALTH & HOSPITALS SYSTEM CCHHS
Cook County Department of Public Health
Promoting health. Preventing disease.
Protecting you.

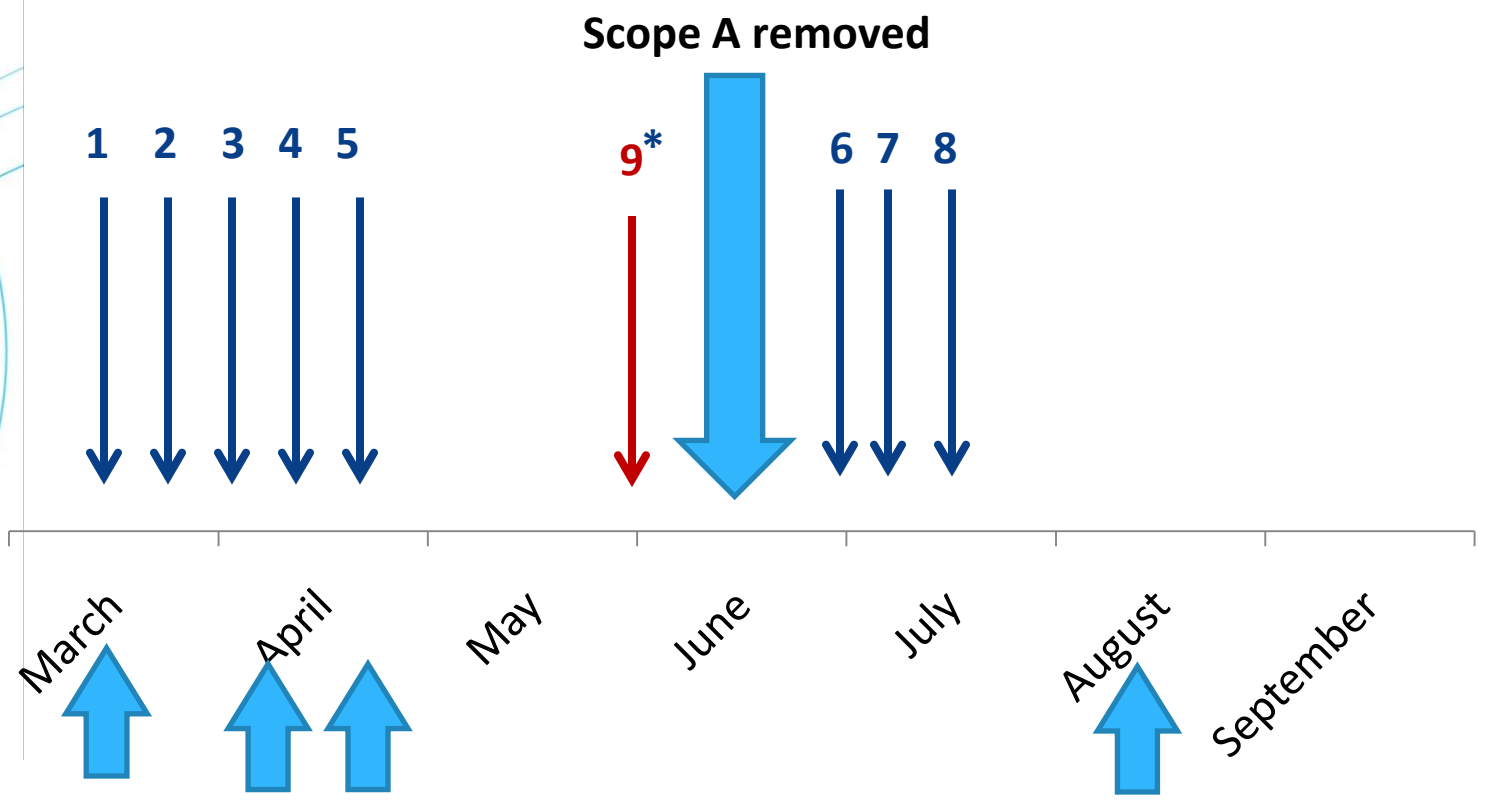
Final Public Health Recommendations

- Designate an Infection Preventionist
- Staff education
- MDRO surveillance
- Antibiotic stewardship
- Limit device use
- Patient skin cleansing
- Environmental cleaning
- Report to CCDPH – as often as necessary

Outbreak #2:
NDM-producing E. coli at an Acute Care Hospital

- CCDPH notified of 1st case in March 2013
- 5 cases identified through April 2013
- 1 case with matching PFGE from a Chicago hospital in May
- 3 more cases identified through July 2013
- Duodenoscope implicated and removed from service in June
- CDC Epi-Aid requested in August 2013

Timeline of Events



*Patient from Chicago hospital with matching PFGE

Cook County Department of Public Health
Promoting health. Preventing disease.
Protecting you.

Outbreak Response Activities by Hospital A

- Timely notification
- Highly qualified & experienced IP team
- Lab capacity
- Internal measures:
  - Assessments
  - Screening
  - Interventions
  - Possible source identification

Objectives of the Epi-Aid Investigation

- Describe healthcare exposures of cases
- Identify sites of and risk factors for transmission
- Review IC practices
- Identify possible routes of transmission
- Investigate possible association between cases and procedures
- Conduct full and thorough epidemiologic analyses
- Recommend measures to prevent additional transmission

Activities Associated with the Epi-Aid Investigation

- Team of 3 EIS officers & 1 CSTE Fellow
- Information gathering -- chart abstractions, observations, HCP interviews
- Sampling (persons, environment) for lab analyses
- Shipment of specimens to CDC for molecular typing
- Epidemiologic studies
  - Case control
  - Cohort
- Daily communication among outbreak investigation team

COOK COUNTY HEALTH & HOSPITALS SYSTEM CCHHS

Cook County Department of Public Health
Promoting health. Preventing disease.
Protecting you.

Case-Control Study

- Identify exposures that may contribute to NDM transmission by comparing confirmed cases (patients with NDM) with controls (patients without NDM)
- Controls were randomly selected from a list of individuals who were screened on Rehab Unit at Hospital A between 5/1 – 6/1
- 9 cases; 27 controls

Case-Control Study Results

Procedure	% Cases (N=9)	% Controls (N=27)	Odds Ratio	p-value
Duodenoscopy*	67	4	52.0	0.001
GI Suite	67	11	16.0	0.003
Antibiotics	89	56	6.4	0.10
Anesthesia	79	44	4.4	0.10
Endoscopy	22	11	2.3	0.41
Operating Room	56	41	1.8	0.44
CT	79	74	1.2	0.82
MRI	56	52	1.2	0.85
Interventional radiology	22	30	0.7	0.67

*Past 6 months

COOK COUNTY HEALTH & HOSPITALS SYSTEM CCHHS

Cook County Department of Public Health
Promoting health. Preventing disease.
Protecting you.

Surveillance Screening Cultures on Epi-linked Patients: March-July, 2013

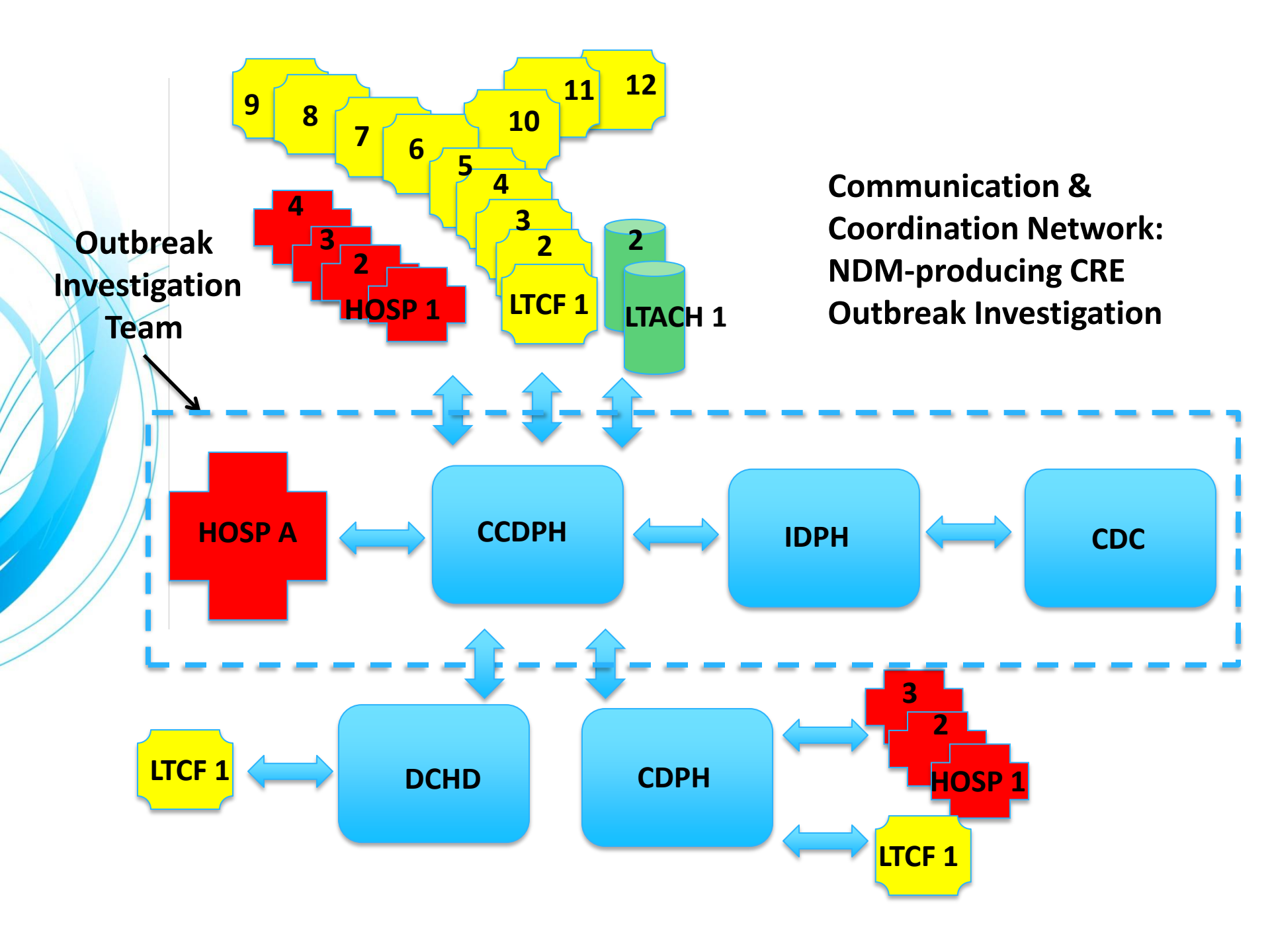
Facility Type	# Screened
Hospital A	131
Other ACHs*	25
LTACH*	55
LTCF*	118
Total	329

PP surveys and screenings of epi-linked patients conducted at 8 ACHs, 14 LTCFs, and 2 LTACHs
*CCDPH coordinated sample collection and testing

COOK COUNTY
PHAB ACCREDITATION

COOK COUNTY HEALTH & HOSPITALS SYSTEM
CCHHS

Cook County Department of Public Health
Promoting health. Preventing disease.
Protecting you.


Communication & Coordination Network: NDM-producing CRE Outbreak Investigation
Outbreak Investigation Team
9
8
7
6
5
4
3
2
10
11
12
4
3
2
HOSP 1
2
LTCF 1
2
LTACH 1
HOSP A
CCDPH
IDPH
CDC
LTCF 1
DCHD
CDPH
3
2
HOSP 1
LTCF 1

Conclusions

- Largest known cluster of NDM-producing *E. coli* in the US (still ongoing; March 2013-present)
  - Lab detection key component of investigation
  - No Hx of hospitalization outside of the US
  - Cases highly related by PFGE, suggesting local transmission
- Biologic plausibility
  - NDM-producing E. coli and KPC cultured from the elevator channel of the implicated endoscope after reprocessing

Summary of CCDPHs Involvement

- Consultation with outbreak facility
- IC guidance & education to staff (primarily LTCFs)
- Coordination of communication linkages between STACHs, LTACHs, LTCFs, LHDs, IDPH, CDC
- Notification to State HD
- Request for Epi-Aid assistance (if necessary)
- Participation in epidemiologic and environmental investigation
- Coordination of specimen collection & testing
- Co-authorship on publication

COOK COUNTY HEALTH & HOSPITALS SYSTEM CCHHS

Cook County Department of Public Health

Promoting health. Preventing disease.

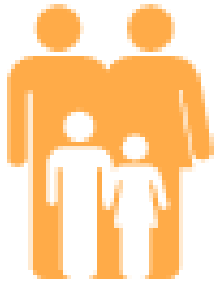
Protecting you.

CRE Control: What LTCFs can do

- Enforce CP for residents with draining wounds, diarrhea, indwelling devices, etc.)
- Closely monitor residents with incontinence and dementia
- Require use of gown, gloves, and performance of HH by visitors and family members when closely interacting with residents and their environment
- Educate ambulatory residents (w/o devices or draining wounds) about HH and allow participation in group activities

CRE Control: What Acute Care Hospitals can do

- Ask if patients have received medical care overseas
- Follow IC recommendations with every patient, using CP for patients with CRE
- Dedicate room, equipment, and staff to CRE patients
- Prescribe antibiotics wisely
- Remove temporary medical devices ASAP
- Assure manufacturer's recommendations are followed for cleaning & reprocessing of reusable devices … e.g., endoscopes
- Consider ASC and empiric CP when necessary



COOK COUNTY HEALTH & HOSPITALS SYSTEM CCHHS

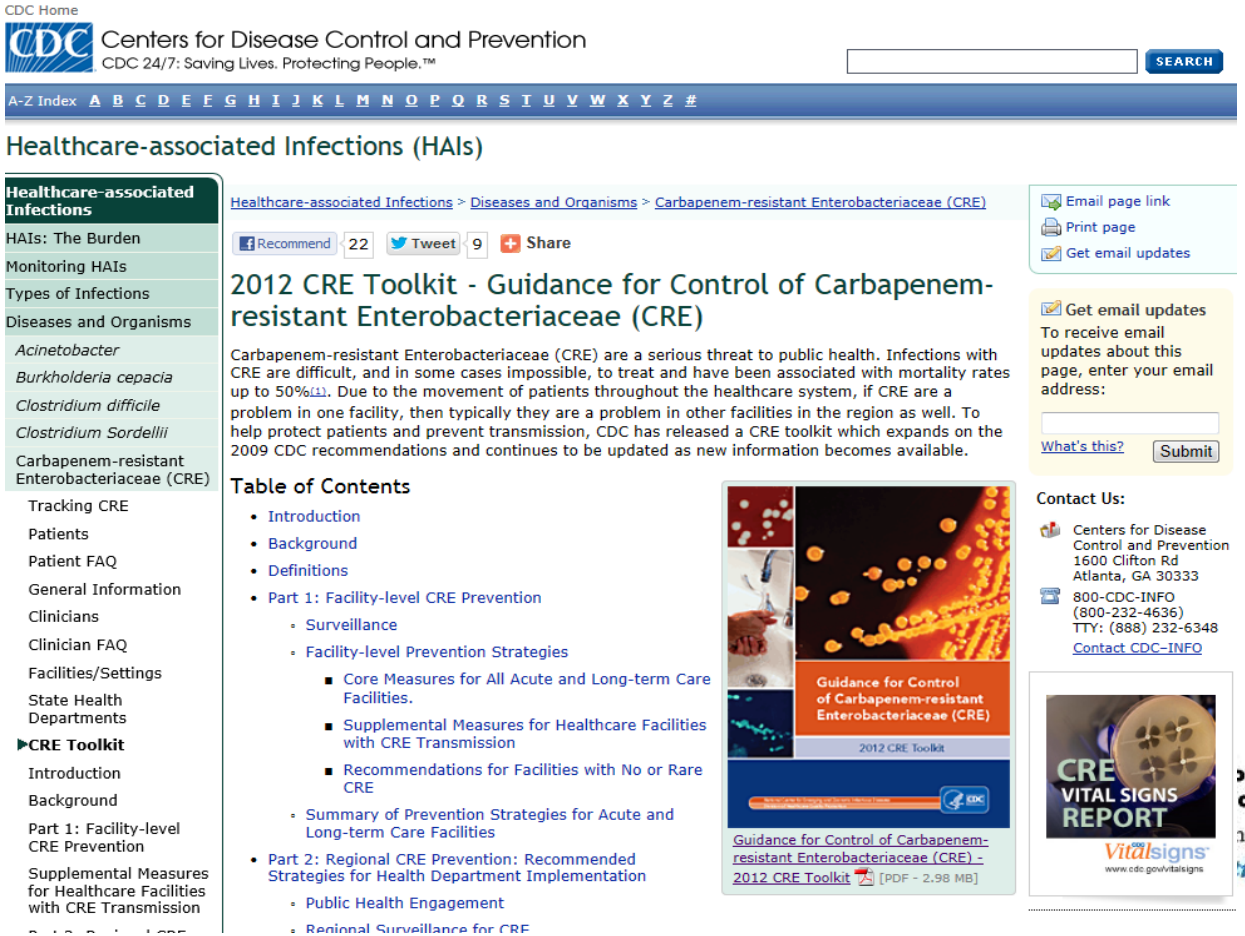
Cook County Department of Public Health
Promoting health. Preventing disease.
Protecting you.

Statewide Public Health Initiatives

- **XDRO Registry:** Effective Nov 1, 2013 all HC facilities and Labs in IL required to report CRE via the IDPH web portal
- **CRE Task Force:** Aim is to identify and develop actionable public health interventions
- **Meeting Forums:** TAG, NIPHC, HAI Advisory Council, LTC roundtable with representation by IP, ID, and micro lab directors

General CRE Recommendations

- Utilize XDRO state registry to identify patients
- Refer to CDC CRE toolkit online for more information



Acknowledgements

- Centers for Disease Control & Prevention (CDC)
  - Division of Healthcare Quality Promotion (DHQP)
- Illinois Department of Public Health (IDPH)
  - Office of Local Health Protection
- Chicago Department of Public Health (CDPH)
  - Communicable Disease Control
- DuPage County Health Department (DCHD)
  - Communicable Disease Control
- Staff affiliated with STACHs, LTACHs, and LTCFs involved in the outbreak investigations

COOK COUNTY HEALTH & HOSPITALS SYSTEM
CCHHS

Cook County Department of Public Health
Promoting health. Preventing disease.
Protecting you.

XDRO Registry

Mandatory reporting to the

e**X**tensively

Drug

Resistant

Organism

registry

www.xdro.org

began November 1, 2013

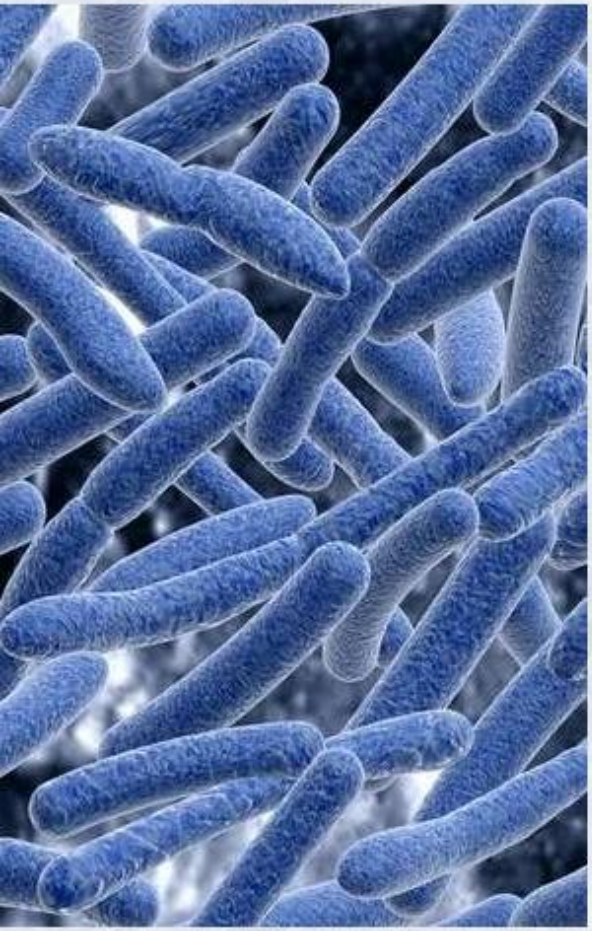
Amendment to the Control of Communicable Diseases Code (77 Ill. Adm. Code 690) Rules

https://www.xdro.org/img/MEMO_XDRO%20Registry_090413_Final.pdf

Extensively drug resistant organism

www.xdro.org

Help Login



Carbapenem-resistant Enterobacteriaceae (CRE) are extremely drug resista organisms (XDROs) that have few treatment options and high mortality rates. CRE a creasingly detected among patients in Illin

DPH.XDROregistry@illinois.gov

In response to the CRE public health threat, the Illinois Department of Public Health (IDPH) has guided development an infection control tool called the XDRO registry. The purpose of the XDRO registry is two-fold:

1. **Improve CRE surveillance:** The first CRE-positive culture per patient stay must be reported to the XDRO registry.
2. **Improve inter-facility communication:** Healthcare facilities can query the XDRO registry to see whether a patient has been previously reported as CRE-positive.

The XDRO registry is a product of collaboration between IDPH, Medical Research Analytics and Informatics Alliance (MRAIA), and the Chicago CDC Prevention Epicenter.

UPDATES

CRE are reportable to IDPH via the XDRO registry. Links: [IDPH letter to facilities, September 2013][Reporting rule]

To report CRE, you need a log-in to the IDPH portal
Existing INEDSS users: Your existing IDPH log-in will automatically give you access to XDRO registry
New users: Go to the IDPH log-in page and sign up for INEDSS, which will give you access to the XDRO registry

XDRO registry orientation webinar [Slides][Recording]

CDC guidance on control of CRE: [The 2012 Toolkit]

As of November 1, 2013, the XDRO registry is open for CRE submissions and queries.

XDRO Registry

Why?

The XDRO registry addresses 2 critical gaps

Gap	XDRO registry
1. Need improved inter-facility communication	Allows for CRE information exchange
2. Need improved detection	Stores CRE surveillance data

XDRO Registry

Who?

XDRO registry: intended participants

All Illinois hospitals (including LTACHs)

All Illinois intermediate and long-term care

All Illinois laboratories

* Registration through IDPH web portal, request I-NEDSS/ XDRO application

https://wpur.dph.illinois.gov/WPUR

XDRO Registry

When?

XDRO Registry- When does it gets reported?

Report 1st CRE event per patient per encounter

within 7 days of lab confirmation

XDRO Registry

What?

XDRO Registry- What gets reported? (CRE surveillance definition)

Reporting facilities shall report CRE based on laboratory test results:

1. Molecular test (e.g., PCR) specific for carbapenemase

OR

2. Phenotypic test (e.g., Modified Hodge) specific for carbapenemase production

OR

3. Susceptibility test (for ***E. coli* and *Klebsiella*** species only): non-susceptible to ONE of the carbapenems (doripenem, meropenem, or imipenem) AND resistant to ALL third generation cephalosporins tested (ceftriaxone, cefotaxime, and ceftazidime).

What NOT to report to XDRO

- *Pseudomonas species*

-- NOT an enterobacteriaceae

- *Acinetobacter species*

-- NOT an enterobacteriaceae

- *E. coli* and *Klebsiella species* that are only resistant to ertapenem
- -- Isolates that are non-susceptible to ertapenem are likely not carbapenemase producers

What NOT to report to XDRO

- *Pseudomo*
-- NOT a acteriacea
- *Acin cies*
-- NO nteroba ae
- *E. c* d *Klebsie ie* t are only resis ertapenem
- -- Isolate e to ertapenem are likely no producers

Report Carbapenem-Resistant Enterobacteriaceae (CRE) isolates to XDRO registry at xdro.org

DO NOT REPORT TO REGISTRY: ESBL, VRE, MRSA, other non-CRE isolates

1) Is isolate in the Enterobacteriaceae family? (e.g. *Escherichia coli, Klebsiella, Enterobacter, Serratia, Proteus,* others)

DO NOT REPORT: *Pseudomonas, Acinetobacter,* other non-Enterobacteriaceae

YES

2) Is isolate non-susceptible (INTERMEDIATE or RESISTANT) to imipenem, meropenem, and/or doripenem?

DO NOT REPORT: Isolates that are non-susceptible ONLY to ertapenem

YES

3) Is isolate RESISTANT to all tested third-generation cephalosporins? (e.g. ceftriaxone, cefotaxime, ceftazidime, others)

DO NOT REPORT: Isolates that are sensitive (or intermediate) to any third-gen cephalosporin

YES

4) Is isolate *E. Coli* or *Klebsiella sp.*?

YES: Report resistance pattern to registry, even if no further lab testing done. Reporting further lab results encouraged.

NO: Report isolate only if further lab testing (below) suggests carbapenemase enzyme (e.g. KPC, NDM, VIM, IMP)

DO NOT REPORT: CRE isolates other than *E. coli* or *Klebsiella sp.,* unless below lab testing is positive

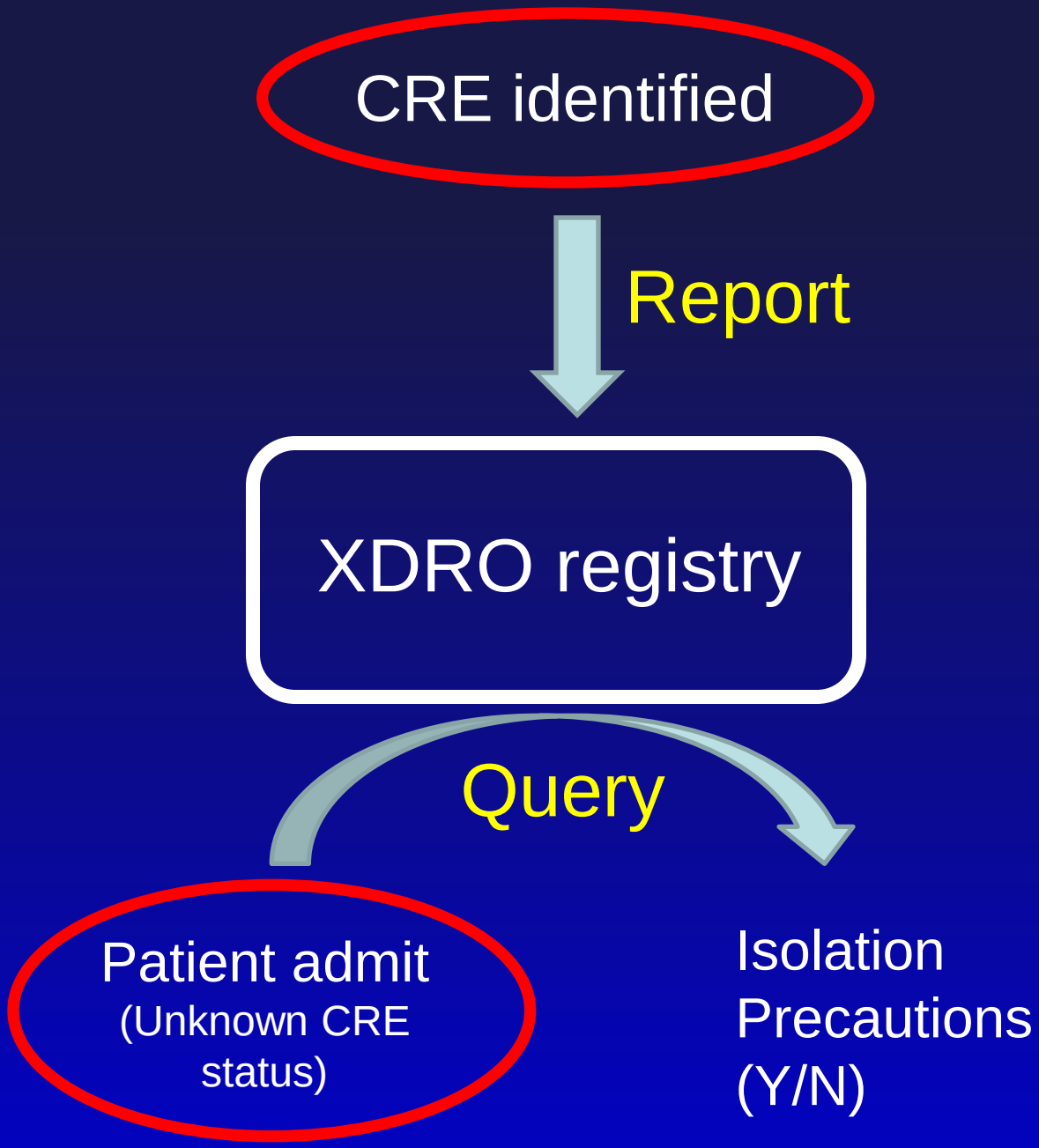
5) Report CRE laboratory results suggesting carbapenemase production (e.g. likely KPC, NDM, VIM, IMP)

a) Positive genotypic (PCR) results AND/OR

b) Positive phenotypic (e.g. Modified Hodge with MBL E-Test) results

XDRO Registry

How is XDRO different from I-NEDSS?


CRE identified
Report
XDRO registry
Query
Patient admit
(Unknown CRE status)
Isolation Precautions (Y/N)

Comparison to I-NEDSS

I-NEDSS

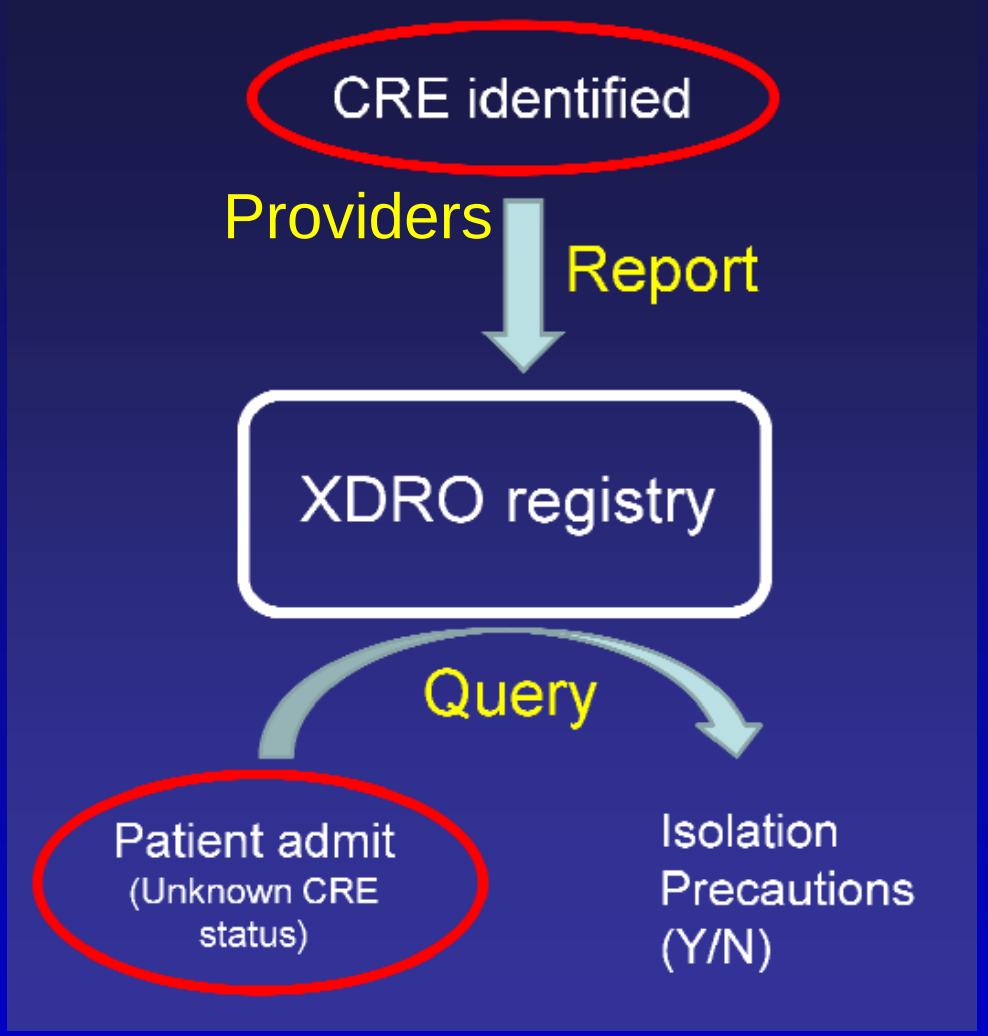
*ELR: Electronic Laboratory Reporting

Comparison to I-NEDSS

I-NEDSS

*ELR: Electronic Laboratory Reporting

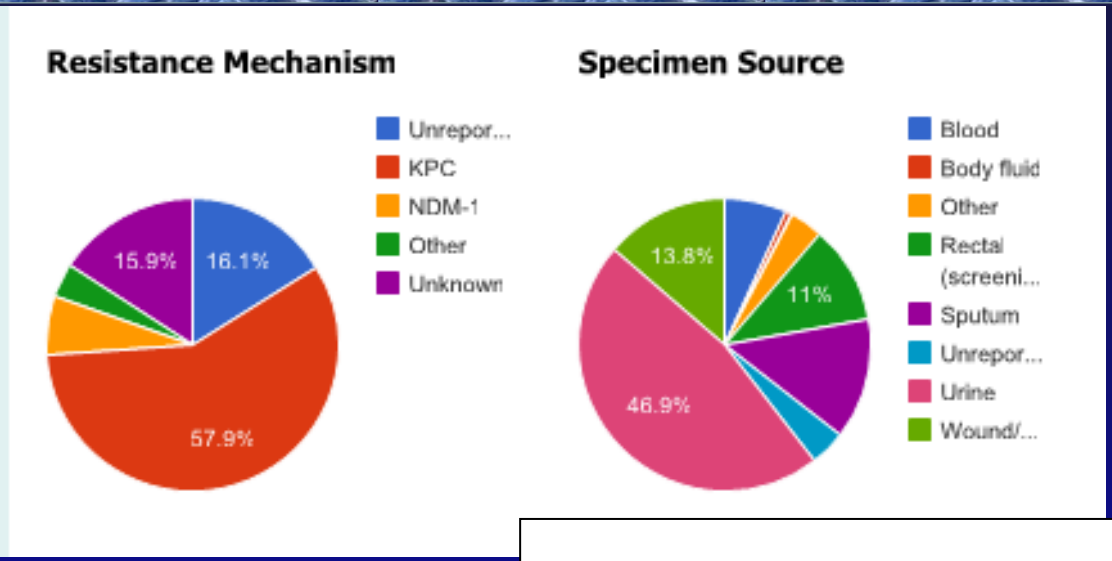
XDRO Registry



XDRO Registry: aggregate data
(as of 3/24/14)

- Total number of reports (de-duplicated): 591
- Total number of unique cases identified: 508
- Number of unique cases since November 1st: 377
- Number of unique facilities that have logged in: 292
- Number of unique facilities that have submitted reports: 96
- Number of unique facilities that have ever queried: 77

XDRO Registry: aggregate data
(as of 3/24/14)



XDRO Registry: accessing data

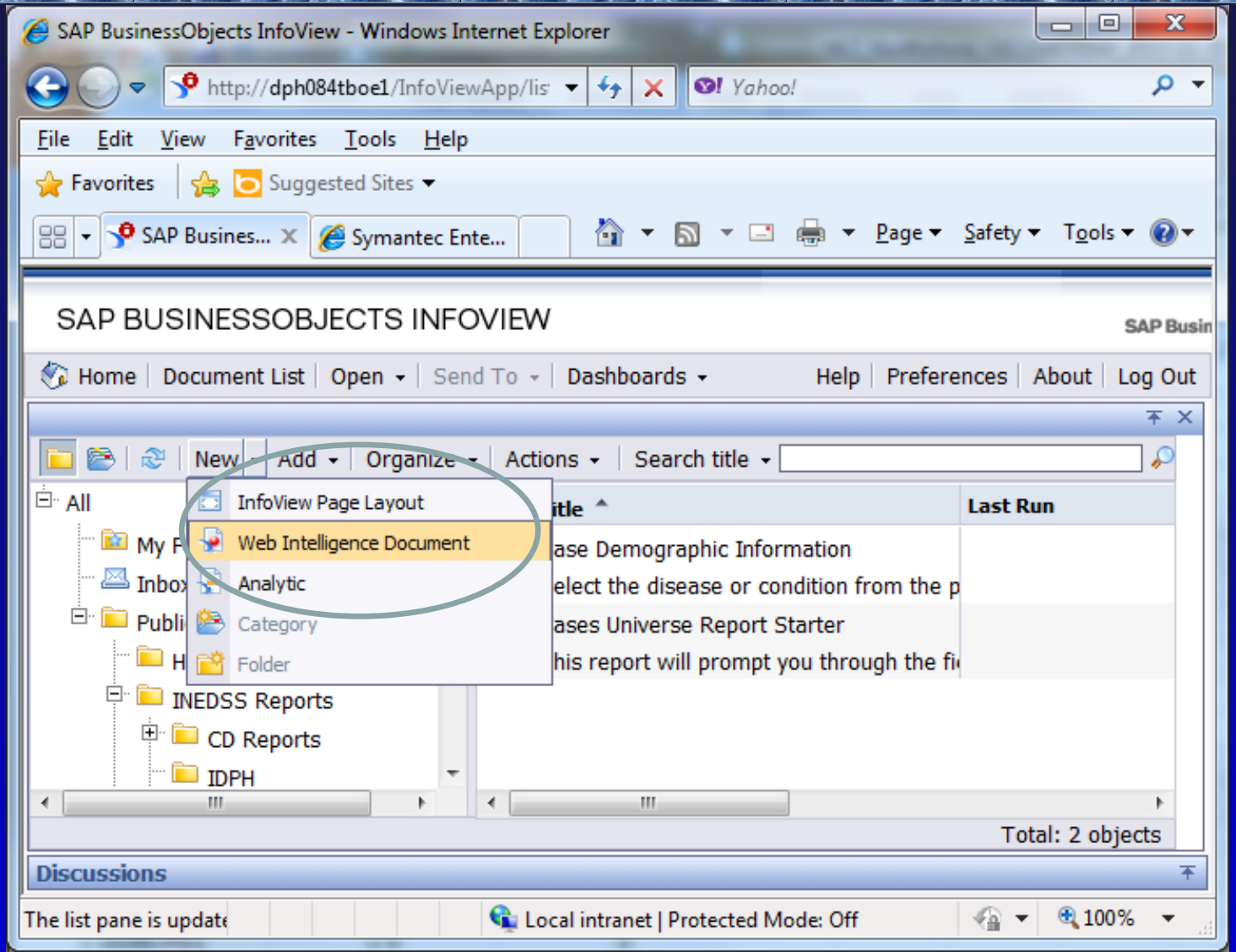
- Facilities: through XDRO registry
  > Must be approved by IDPH security

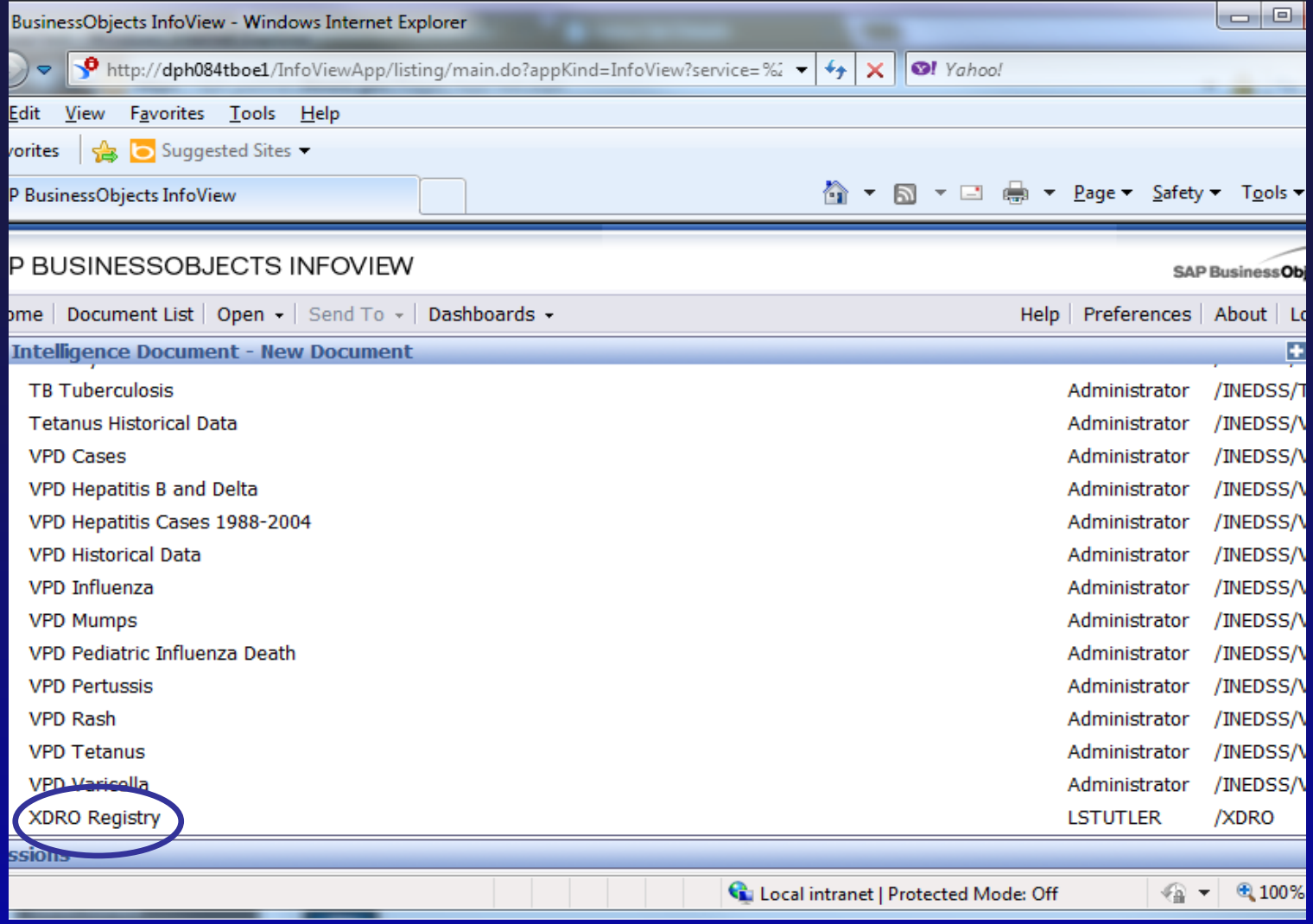
- Health Departments: through

I-NEDSS AVR (Business Objects Tool)

> Must sign user agreement form

Creating a Web Intelligence Document

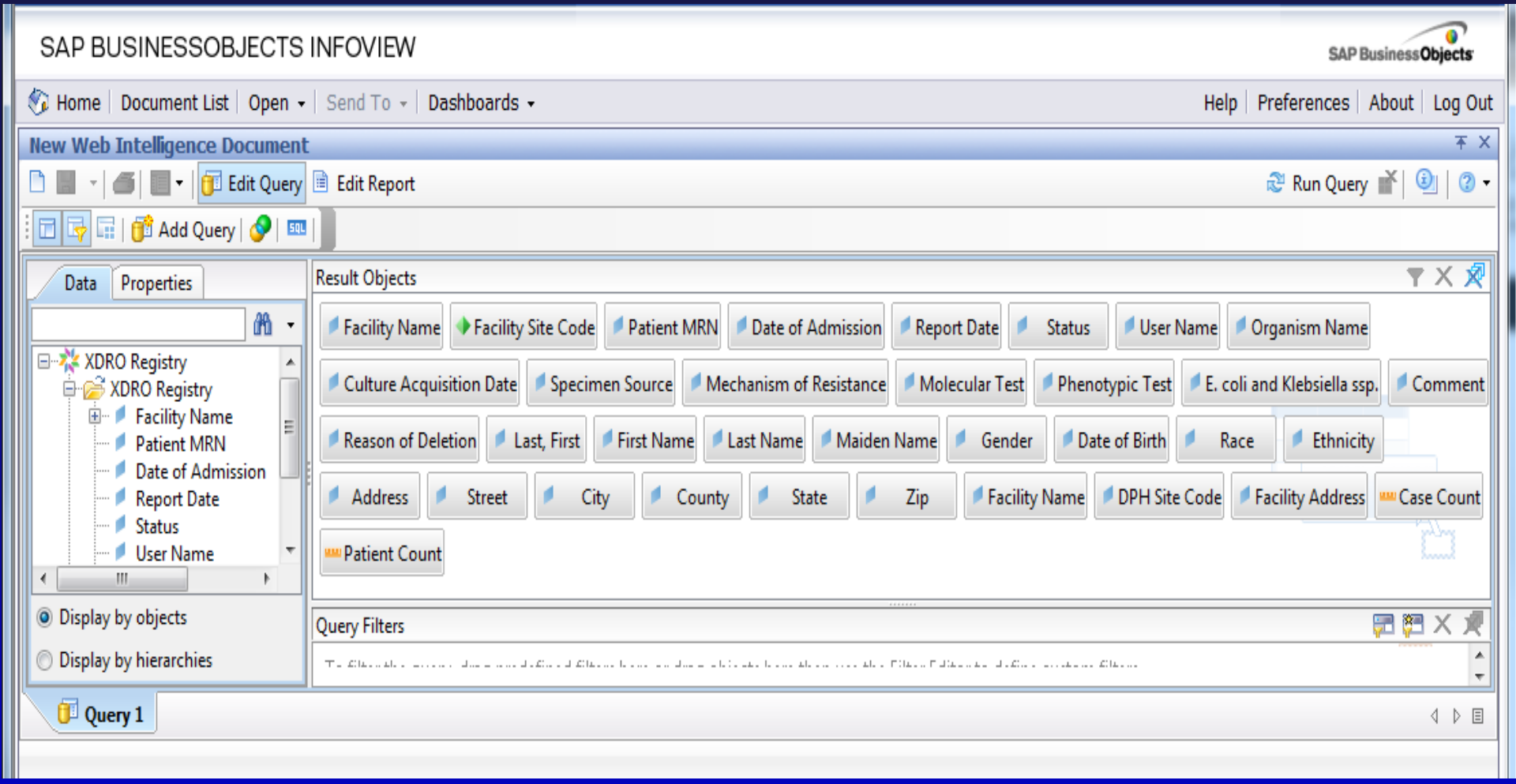




Accessing XDRO data

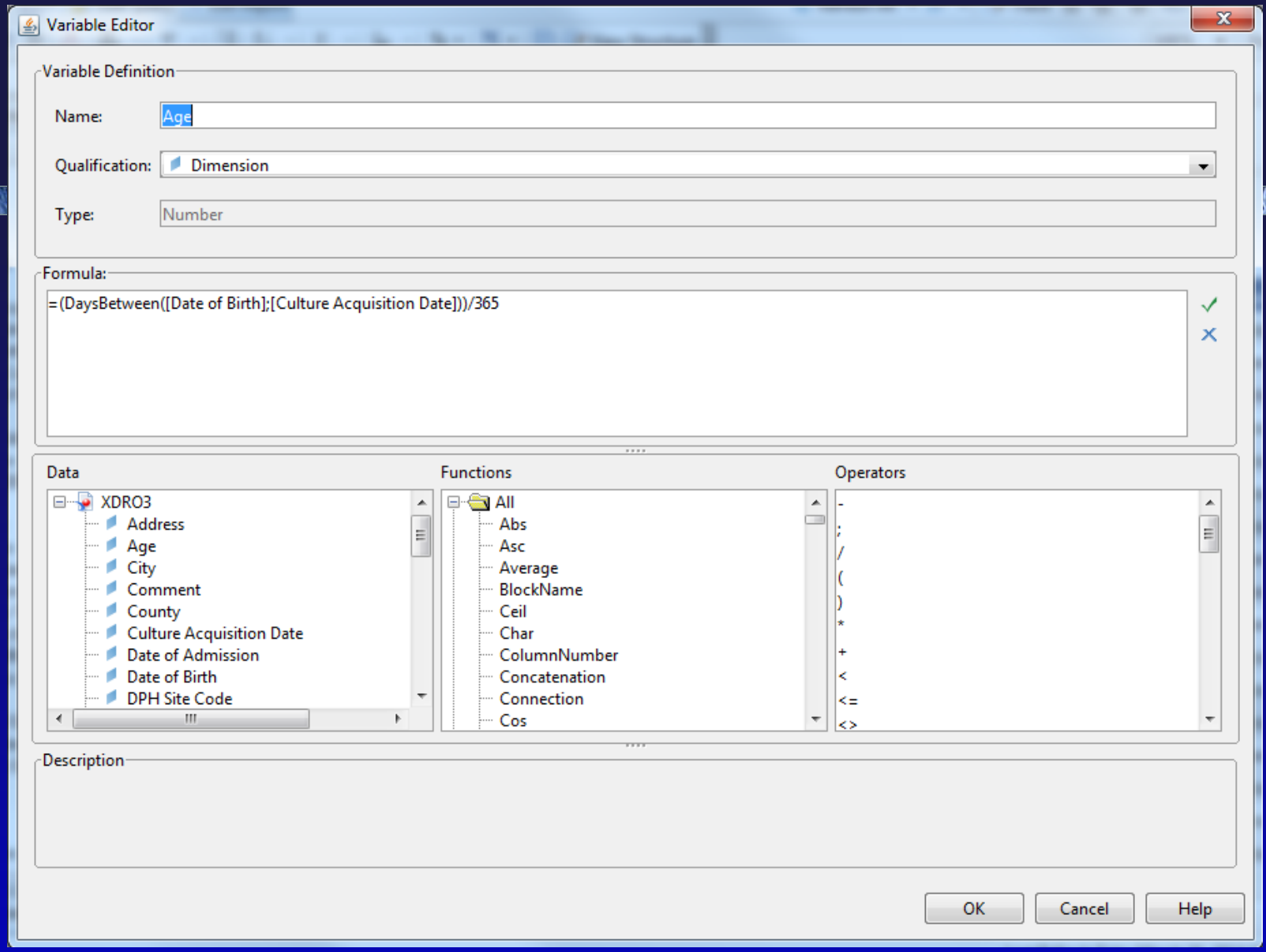
XDRO universe selected when creating a new Web Intelligence Document

AVR data fields that are currently available



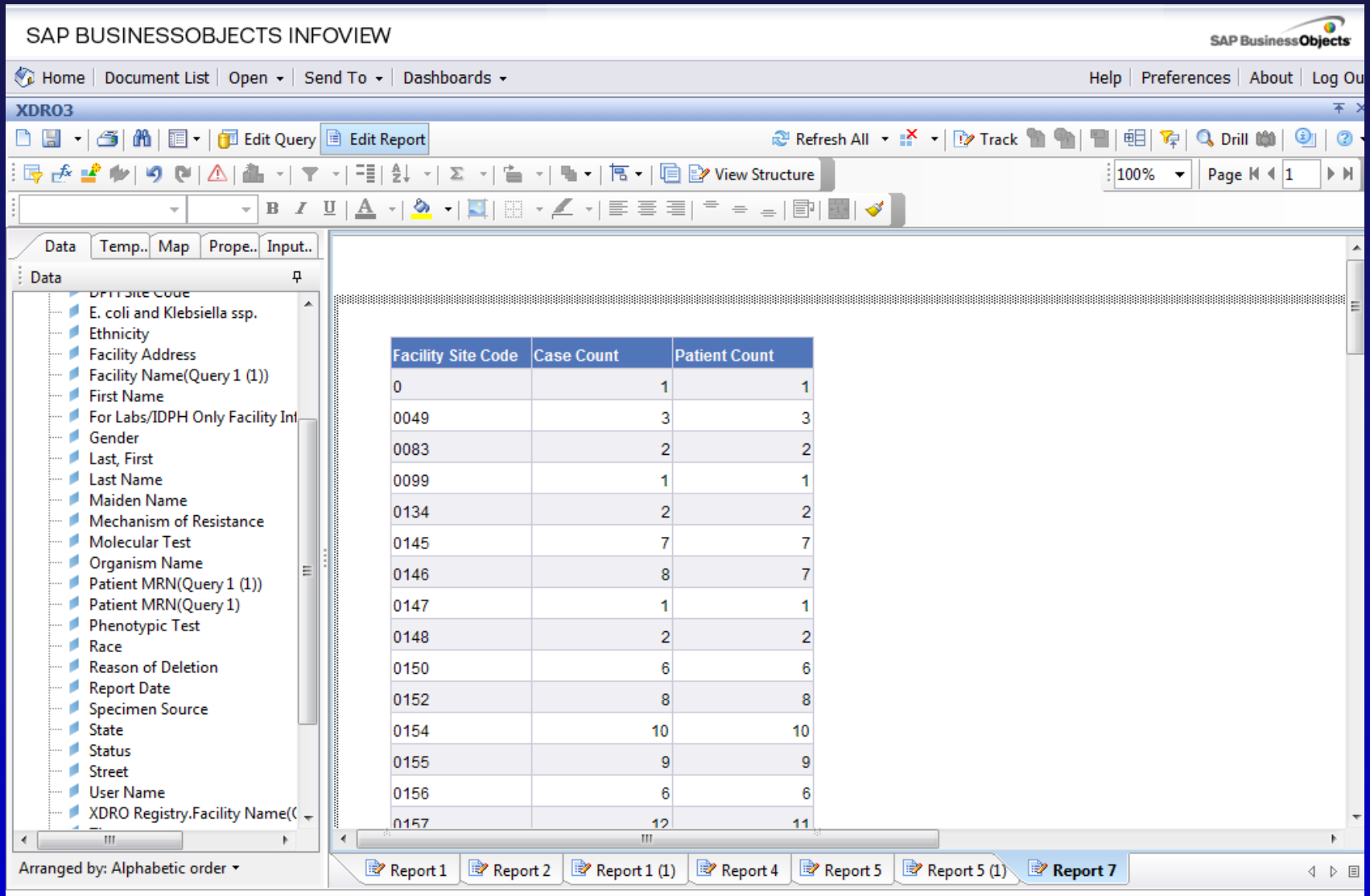
Data Elements

Category	Object	Description
Registry	Facility Name	Name of facility that the user reporting the case is affiliated
	Patient MRN	Medical Record Number
	Date of Admission	Date of admission or seen by facility
	Report Date	Date the case is reported in the XDRO
Culture	Organism Name	Organism identified (i.e. Enterobacter spp., Klebsiella pheumoniae)
	Culture Acquisition Date	Date the specimen was collected
	Specimen Source	Site of specimen collection (i.e. blood, body fluid, rectal, sputum, tissue, urine, wound)
	Mechanism of Resistance	For example: NDM-1, KPC
	Comment	Free text field with additional case report details, if provided
Patient Demographics	Includes the following: name, gender, date of birth, race, ethnicity, address (street, city, county, state, Zip)	
Lab/IDPH only Facility Info	Facility Name /Address	The facility that a lab is reporting on behalf of (i.e. long term care facility)
Measures	Case Count	Case count is based on unique ID in the database. Patients can have multiple cases.
	Patient Count	Patient Count is patient Medical Record Number

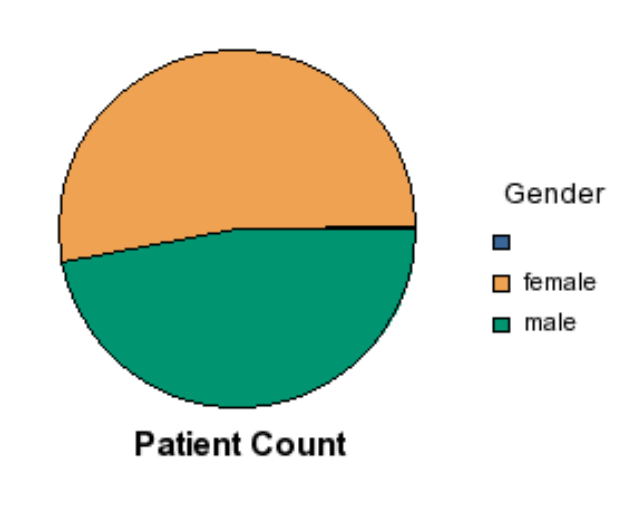


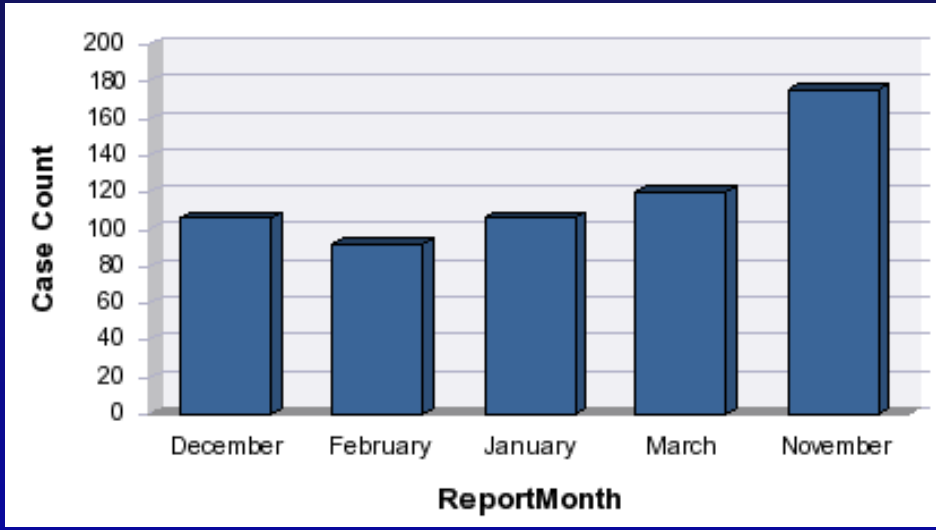
Formula for creating Age from Date of Birth and Culture Acquisition Date

Sample AVR Report

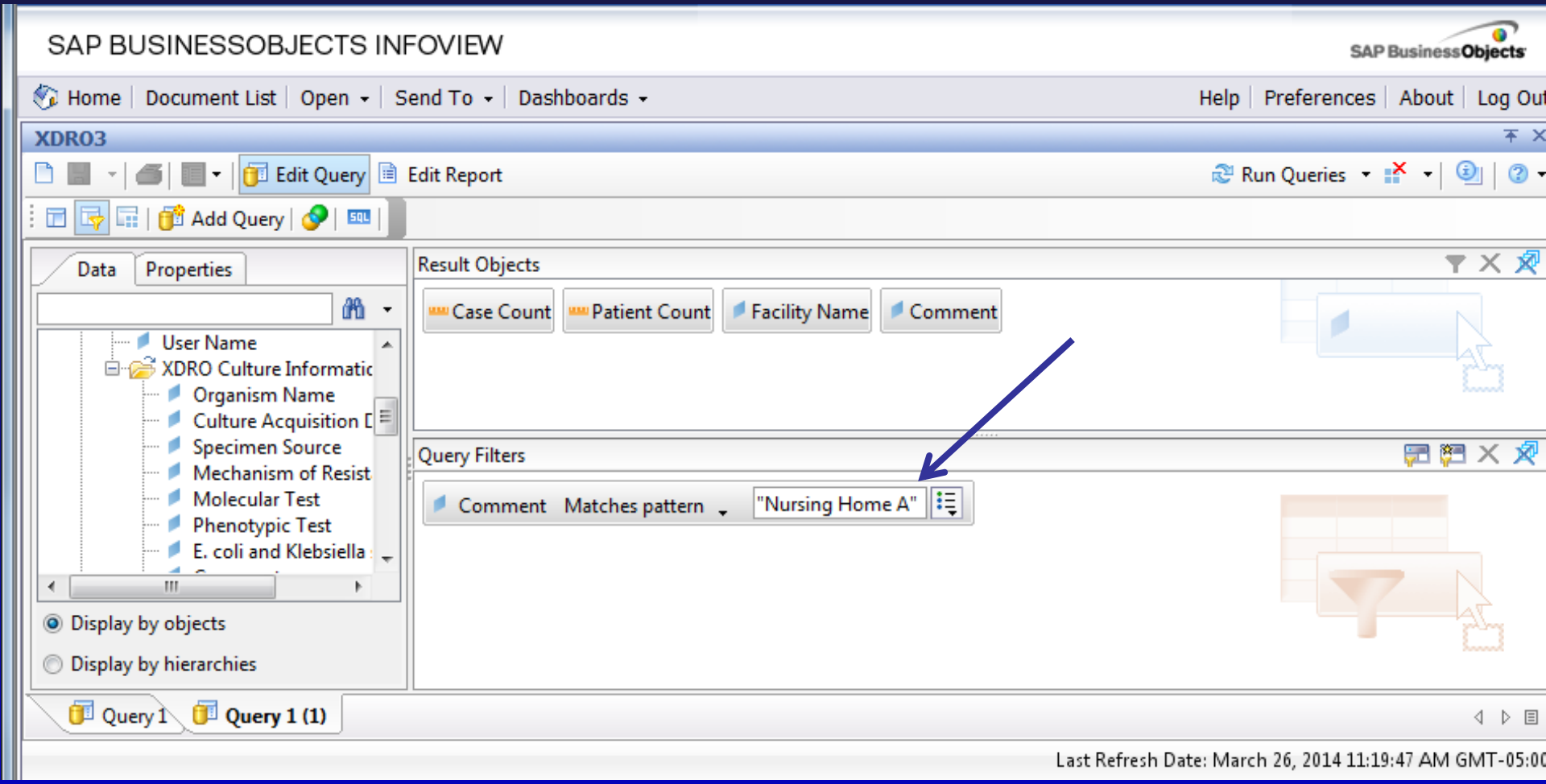


Sample AVR graphics



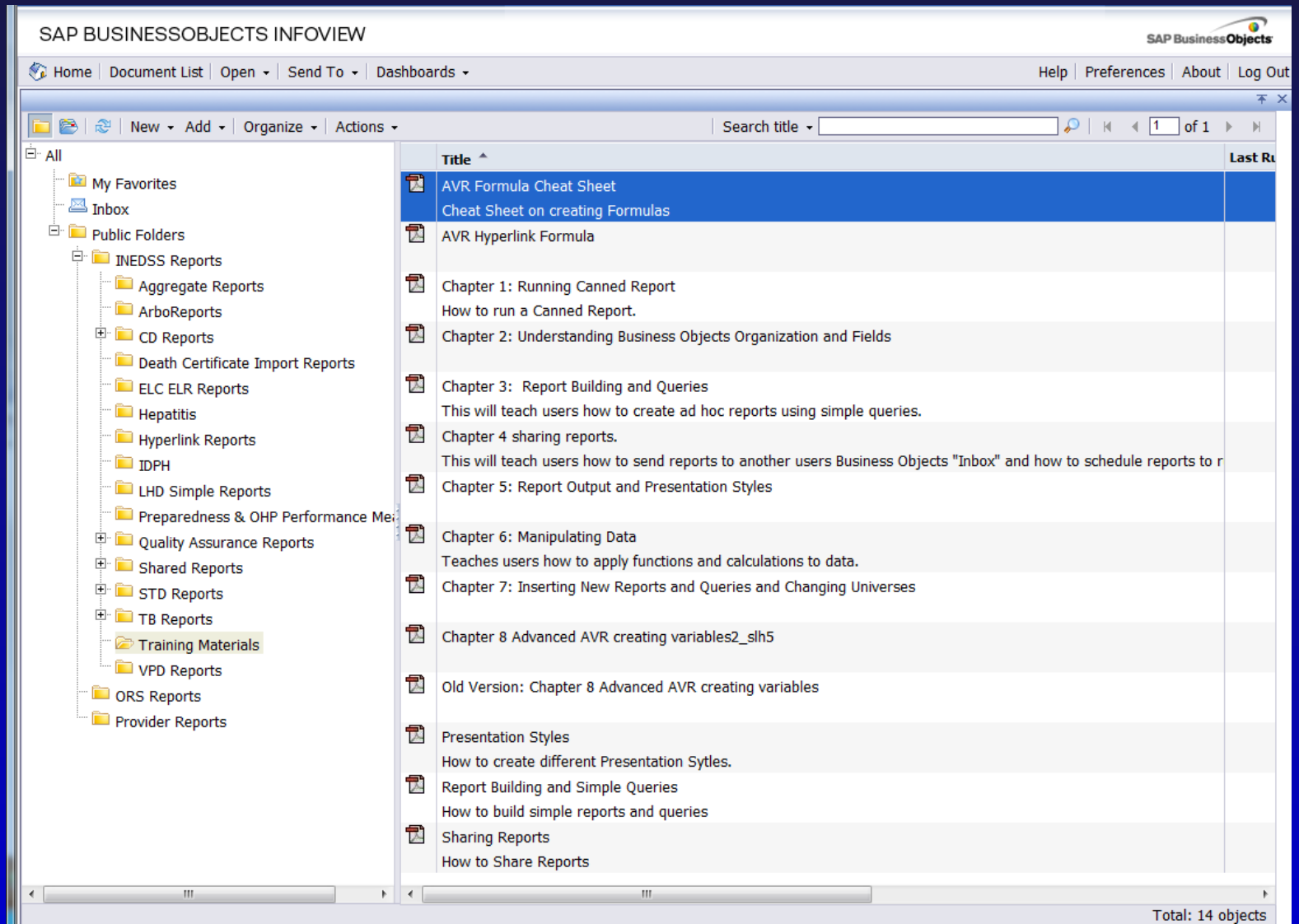


Matches pattern query

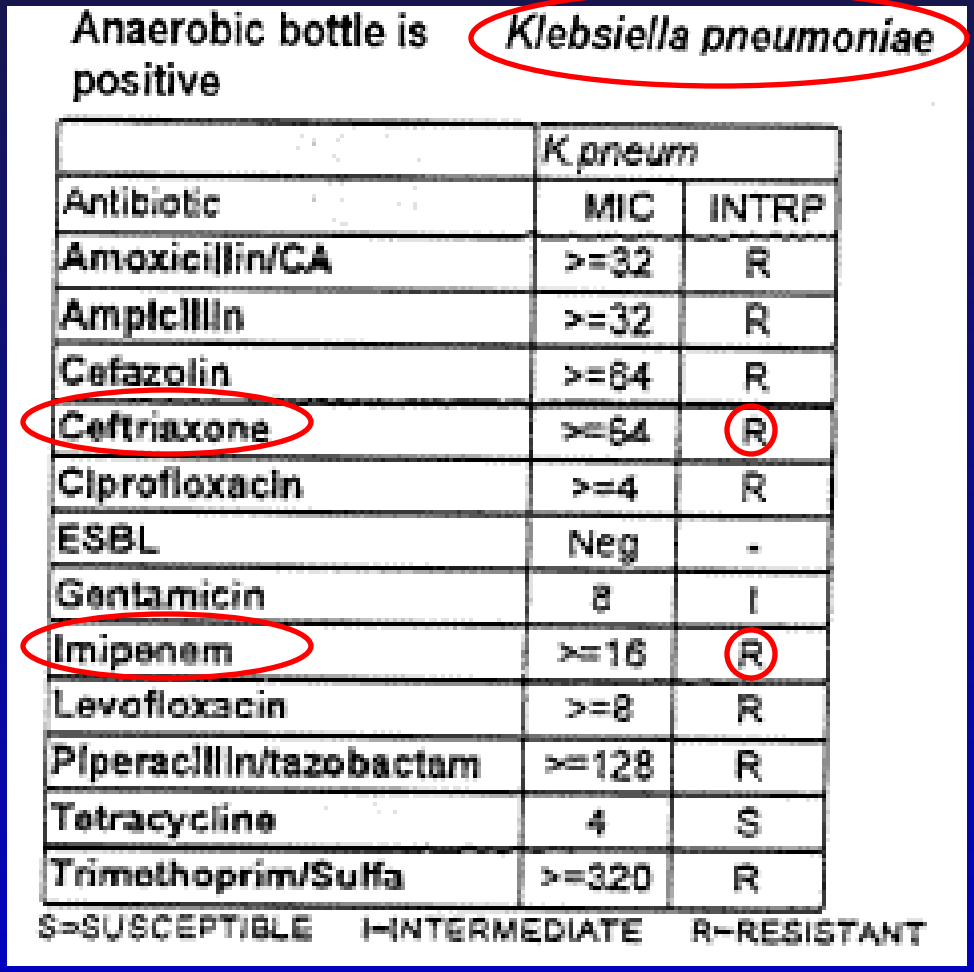


Matches pattern query allow for free text searches by finding a string that matches a pattern
Wildcards in pattern can include (*) to replace a set of characters or (?) to replace one character

Training Manual Location



When a call comes in…



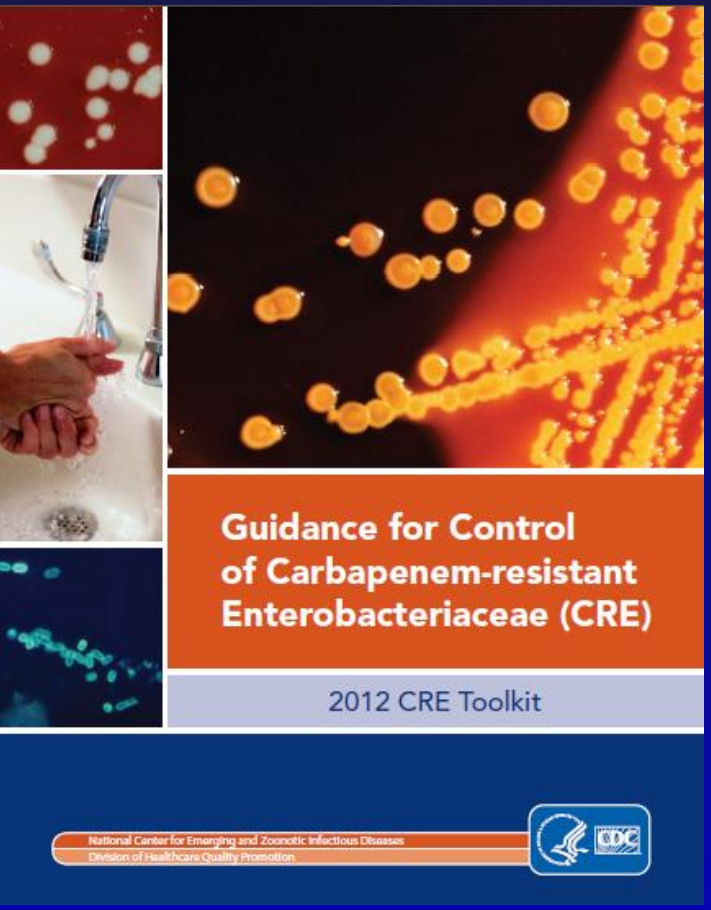
Anaerobic bottle is positive — *Klebsiella pneumoniae*

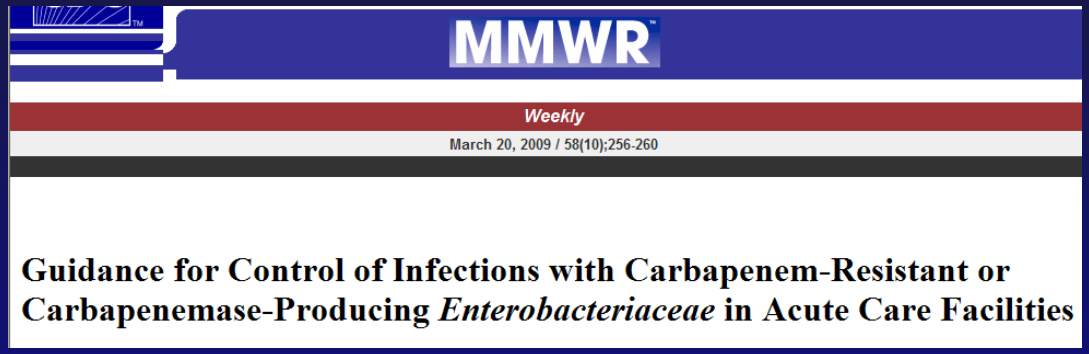
	K pneum	
Antibiotic	MIC	INTRP
Amoxicillin/CA	>=32	R
Ampicillin	>=32	R
Cefazolin	>=64	R
Ceftriaxone	>=64	R
Ciprofloxacin	>=4	R
ESBL	Neg	-
Gentamicin	8	I
Imipenem	>=16	R
Levofloxacin	>=8	R
Piperacillin/tazobactam	>=128	R
Tetracycline	4	S
Trimethoprim/Sulfa	>=320	R

S=SUSCEPTIBLE I=INTERMEDIATE R=RESISTANT

- Confirm CRE: request actual lab reports
- Immediate infection control guidelines
- Further investigation
  - Microbiology look-back (6-12 mos)
- Inter-facility communication

When a call comes in…





XDRO registry

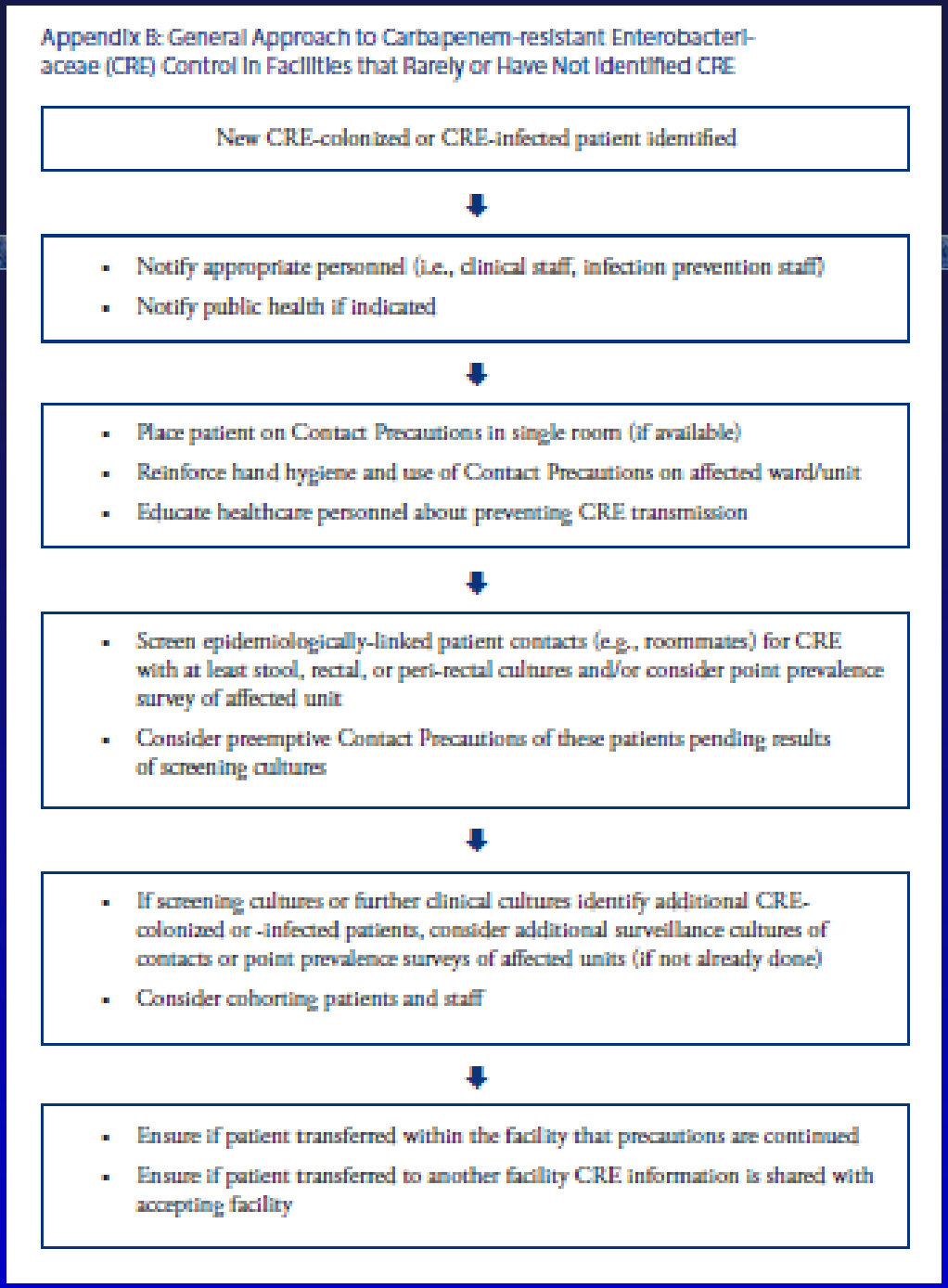
http://www.cdc.gov/hai/pdfs/cre/cre-guidance-508.pdf
http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5810a4.htm

CRE Toolkit

- Contact precaution guidelines
  - Both acute care and long-term care settings
- Screening guidelines (e.g. epi-linked to CRE colonized or infected patients)
- In facilities with CRE transmission
  - Active surveillance guidelines (e.g. point prevalence rectal surveillance cultures on unit)
  - Patient and staff cohorting guidelines
  - Chlorhexidine bathing information

CRE Toolkit

- Also specific guidance for facilities that have rarely or never previously identified CRE



Appendix B: General Approach to Carbapenem-resistant Enterobacteriaceae (CRE) Control In Facilities that Rarely or Have Not Identified CRE

New CRE-colonized or CRE-infected patient identified

- Notify appropriate personnel (i.e., clinical staff, infection prevention staff)
- Notify public health if indicated

- Place patient on Contact Precautions in single room (if available)
- Reinforce hand hygiene and use of Contact Precautions on affected ward/unit
- Educate healthcare personnel about preventing CRE transmission

- Screen epidemiologically-linked patient contacts (e.g., roommates) for CRE with at least stool, rectal, or peri-rectal cultures and/or consider point prevalence survey of affected unit
- Consider preemptive Contact Precautions of these patients pending results of screening cultures

- If screening cultures or further clinical cultures identify additional CRE-colonized or -infected patients, consider additional surveillance cultures of contacts or point prevalence surveys of affected units (if not already done)
- Consider cohorting patients and staff

- Ensure if patient transferred within the facility that precautions are continued
- Ensure if patient transferred to another facility CRE information is shared with accepting facility

Laboratory Samples

- In Illinois, CRE isolates OTHER than KPC are highest priority for further testing
- If phenotypic lab testing suggests enzyme other than KPC, lab should submit sample to IDPH
  - In absence of full testing, encourage sample submission from individuals with history of international medical care or epi-links to non-KPC CRE

Illinois CRE Detect and Protect

- Infection prevention
- Surveillance
- Laboratory testing
- Inter-facility communication
- Antimicrobial stewardship

CRE Detect and Protect: IDPH Collaborators

Division of Patient Safety and Quality:

- Mary Driscoll, Division Chief
- Erica Runningdeer, HAI Coordinator
- Angela Tang & Robynn Leidig, CRE Project Directors
- Chinyere Alu, Antimicrobial Stewardship Project Director

Division of Infectious Diseases:

- Craig Conover, Senior Medical Advisor/ State Epidemiologist
- Allison Arwady, Epidemic Intelligence Service officer

Division of Laboratories:

- Matt Charles, Assistant Division Chief
- Roman Golash, Supervisor, Clinical Microbiology Section

Illinois CRE Task Force

Purpose

Guide CRE prevention and control efforts

Leadership

Dr. Stephanie Black (Chicago DPH) and

Dr. Mary Hayden (Rush University Medical Center)

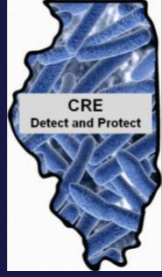
Membership

Facilities from across the spectrum of care (infectious disease doctors, infection preventionists, microbiologists, clinical staff), trade associations, state healthcare quality improvement organization, IDPH

CRE Task Force Members

- ACL Laboratories
- Advocate Lutheran General Hospital
- APIC- Central
- CDC Prevention Epicenter
- Chicago Department of Public Health
- Health Care Council of Illinois (HCCI) and Illinois Council on Long Term Care
- Illinois Hospital Association
- ISU/ Mennonite College of Nursing
- Kindred Healthcare
- Lee Manor Rehabilitation and Nursing Center
- Life Services Network
- Loyola University Medical Center
- Lutheran Life
- Metropolitan Chicago Healthcare Council
- NorthShore University Health System
- OSF Saint Francis Medical Center
- RML Specialty Hospital
- Saint Anthony Hospital
- Telligen
- The University of Chicago Medicine-Infection Control
- The University of Chicago Medicine-Microbiology
- UnityPoint Health – Methodist

Campaign Sponsors



Association for Professionals in Infection Control and Epidemiology (APIC)
- Central IL, Chicago, Southern IL Chapters

CDC Chicago Prevention and Intervention Epicenter

Health Care Council of Illinois

Illinois Critical Access Hospital Network

Illinois Health Care Association

Illinois Hospital Association

Life Services Network

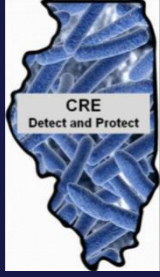
Metropolitan Chicago Healthcare Council

Nanosphere, Inc.

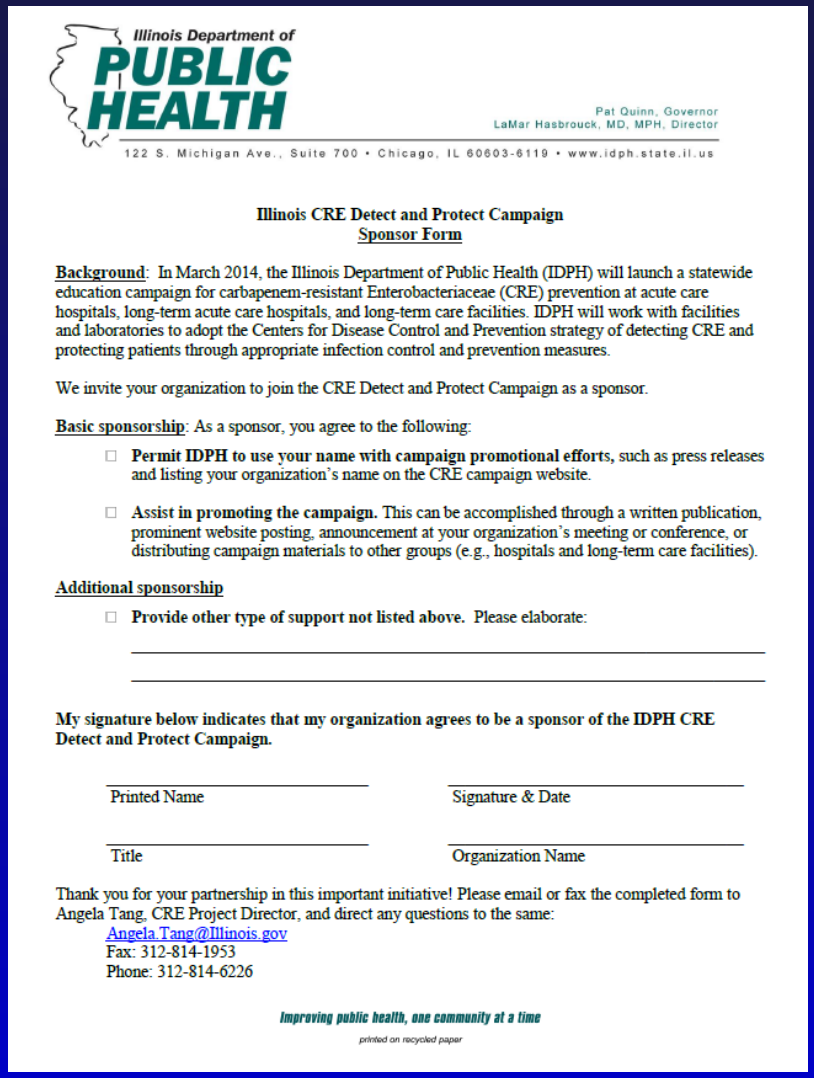
Telligen

The CRE Detect & Protect campaign is funded by an Affordable Care Act (ACA) award through the CDC

Campaign Sponsors (LHDs)



- Cook County Dept of Public Health
- Chicago Dept of Public Health
- DuPage County Health Dept
- Henry County Health Dept
- Kane County Health Dept
- Kendall County Health Dept
- Knox County Health Dept
- McHenry County Dept of Health
- Schuyler County Health Dept
- St. Clair County Health Dept
- Whiteside County Health Dept



Illinois Department of PUBLIC HEALTH

Pat Quinn, Governor
LaMar Hasbrouck, MD, MPH, Director

122 S. Michigan Ave., Suite 700 • Chicago, IL 60603-6119 • www.idph.state.il.us

Illinois CRE Detect and Protect Campaign
Sponsor Form

Background: In March 2014, the Illinois Department of Public Health (IDPH) will launch a statewide education campaign for carbapenem-resistant Enterobacteriaceae (CRE) prevention at acute care hospitals, long-term acute care hospitals, and long-term care facilities. IDPH will work with facilities and laboratories to adopt the Centers for Disease Control and Prevention strategy of detecting CRE and protecting patients through appropriate infection control and prevention measures.

We invite your organization to join the CRE Detect and Protect Campaign as a sponsor.

Basic sponsorship: As a sponsor, you agree to the following:

- ☐ **Permit IDPH to use your name with campaign promotional efforts,** such as press releases and listing your organization's name on the CRE campaign website.
- ☐ **Assist in promoting the campaign.** This can be accomplished through a written publication, prominent website posting, announcement at your organization's meeting or conference, or distributing campaign materials to other groups (e.g., hospitals and long-term care facilities).

Additional sponsorship

- ☐ **Provide other type of support not listed above.** Please elaborate:

_____

_____

My signature below indicates that my organization agrees to be a sponsor of the IDPH CRE Detect and Protect Campaign.

Printed Name _____ Signature & Date _____

Title _____ Organization Name _____

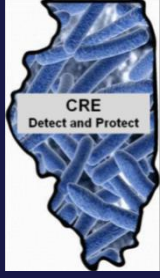
Thank you for your partnership in this important initiative! Please email or fax the completed form to Angela Tang, CRE Project Director, and direct any questions to the same:

Angela.Tang@Illinois.gov
Fax: 312-814-1953
Phone: 312-814-6226

Improving public health, one community at a time

printed on recycled paper

Facility Participants



Acute Care Hospitals: 88

Long-Term Care Facilities: 95

Long-Term Acute Care Hospitals: 3

Independent Labs: 1

(Signed up as of 3/21/14)

Illinois CRE Detect and Protect Campaign

Participation Form – Healthcare Facilities and Independent Laboratories

In March 2014, the Illinois Department of Public Health (IDPH) will launch a statewide education campaign to promote practices that prevent carbapenem-resistant Enterobacteriaceae (CRE). **We encourage acute care hospitals, long-term acute care hospitals, long-term care facilities, and independent or free-standing laboratories to sign up to participate in the campaign.**

Why should my facility participate?

- CRE are extensively drug-resistant organisms (XDROs) that can spread quickly and have been increasingly detected among patients in Illinois.
- CRE prevention will result in better outcomes for your patients and reduced healthcare costs.
- You will have the chance to learn from other healthcare facilities, labs, and CRE experts committed to this issue.
- Your facility will be listed on the campaign website in recognition of your commitment to improving patient care.

What are the requirements for participants?

- Attend CRE Detect and Protect webinars. This is a series of five webinars that will be led by infectious disease and infection prevention experts from March – July 2014. Labs are asked to attend one webinar on lab testing and surveillance, but are welcome to attend other sessions.
- Obtain access and sign in to the XDRO registry, even if no CRE have been detected at the facility.

As an authorized executive, my signature below indicates that my facility agrees to be a participant of the IDPH CRE Detect and Protect Campaign.

Printed Name _____ Signature & Date _____

Title _____ Facility Name _____

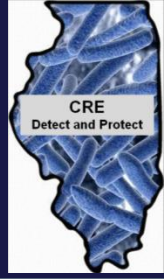
Facility type: ☐ Acute care hospital ☐ Long-term acute care hospital ☐ Skilled nursing home ☐ Other long-term care facility ☐ Independent or free-standing laboratory

Please provide information for the point-of-contact at your facility for the campaign:

Name & Title _____ E-mail & Phone Number _____

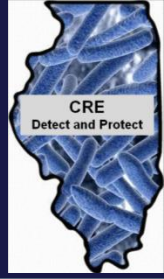
Thank you for your participation in this important initiative! Please email or fax the completed form by Friday, March 14, 2014 to Angela Tang, CRE Project Director, and direct any questions to the same:
Angela.Tang@illinois.gov
Fax: 312-814-1953
Phone: 312-814-6226

Upcoming CRE Webinars



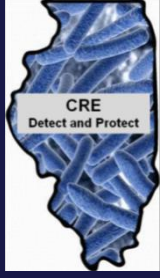
Target Audience	Topics	Timeline (tentative)
Facility leadership/ administration	Campaign overview, How to support staff	April
Infection prevention staff	CRE infection prevention, Using XDRO to your advantage	April

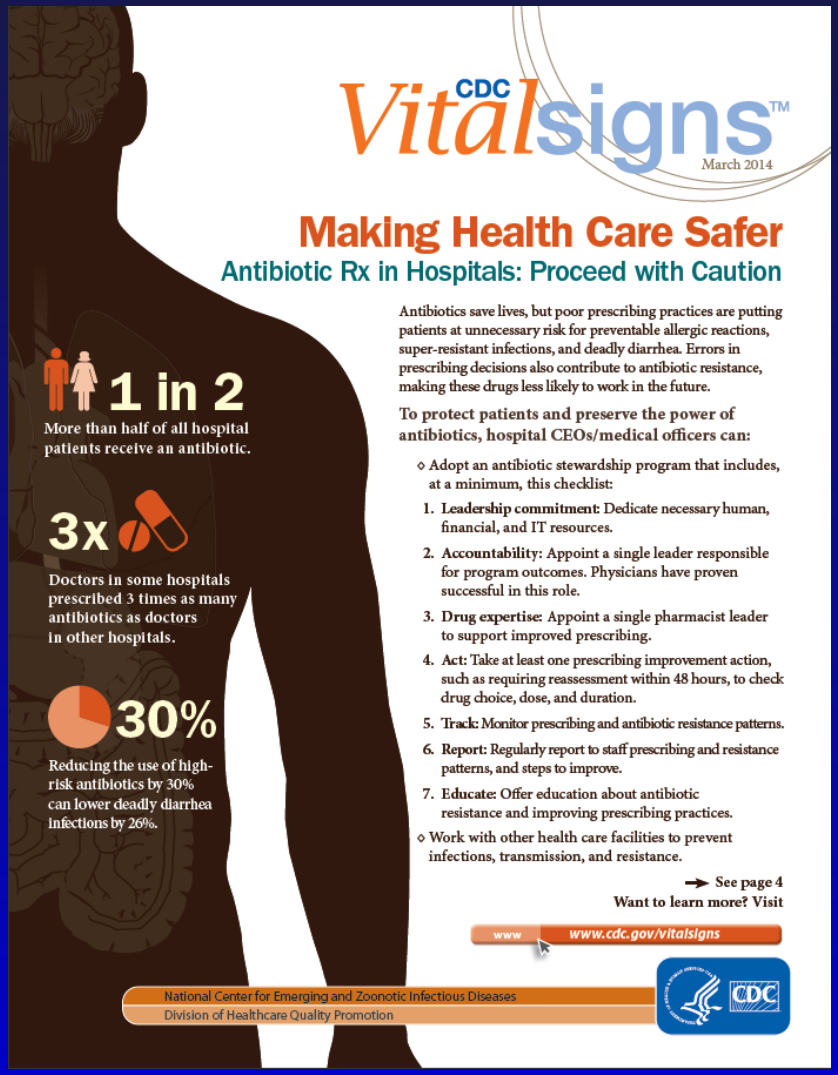
Upcoming CRE Webinars (cont.)



Target Audience	Topics	Timeline (tentative)
Laboratorians	Reporting to XDRO, CRE testing guidelines	May
Infection prevention staff	Inter-facility communication	May
Infection prevention staff	CRE case studies, Outbreak response	June

Antimicrobial Stewardship





Measuring Success of Antimicrobial Stewardship Efforts

Illinois Department of PUBLIC HEALTH

When
Wednesday April 16, 2014 from 1:00 PM to 2:00 PM CDT
Add to Calendar

Where
This is an online event.

Metrics applied to antimicrobial stewardship programs can help drive sustainable improvement within your organization. Join this webinar to learn how to identify pertinent data points and methods for antimicrobial use tracking.

Who Should Attend:
Pharmacists, Physicians, Nurses, Infection Prevention Personnel and Administrators interested in improving antimicrobial use and associated metrics at acute and long term care facilities.

Objectives:

- Compare and Contrast process and outcome metrics
- Identify necessary data points and methods for antimicrobial use tracking
- Identify pertinent outcome metrics when given a systematic stewardship intervention

Presenter:
Alan Gross, Pharm D., BCPS, Infectious Diseases Pharmacist at the University of Illinois Hospital and Health Sciences System and Clinical Assistant Professor at the University of Chicago, College of Pharmacy

Loria Pollack, M.D., MPH, Medical Officer at the Division of Healthcare Quality Promotion, Centers for Disease Control and Prevention

For additional information, contact Miriam Ovando, Project Assistant at Telligen.

Register Now!

This material was prepared by Telligen, the Medicare Quality Improvement Organization for Illinois, under contract with the Centers for Medicare & Medicaid Services (CMS), an agency of the U.S. Department of Health and Human Services. The contents presented do not necessarily reflect CMS policy. 10SoW-IL-HAI-03/14-696

Contact information

- Direct XDRO questions/ comments to: DPH.XDROregistry@illinois.gov

- Direct CRE campaign questions/ comments to

  Robynn Leidig: Robynn.Leidig@illinois.gov, 312-814-1631

  Angela Tang: Angela.Tang@illinois.gov, 312-814-6226

Illinois Department of PUBLIC HEALTH

https://www.xdro.org/cre-campaign/index.html