Infection Prevention, Outbreaks, and the Role of Public Health

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Centers for Disease Control and Prevention

NC Division of Public Health

Objectives

- Describe legal framework for communicable disease surveillance, investigation, and response
- Describe the SHARPPS Program
- Discuss when to call Public Health
- Review historical outbreak surveillance data
- Describe two outbreaks in long-term care settings
- Discuss role of Public Health in infection prevention, investigations, and outbreak response

Legal Framework

Public Health: Legal Framework

- Public Health Laws and Rules:
  - General Statutes
  - NC Administrative Code rules

- Health Director's Authority (State & Local)
  - Surveillance
  - Investigation
  - Control Measures

Public Health Law

General Statutes §130A-144: Investigation and Control Measures

(a) The local health director shall investigate… cases of communicable diseases and communicable conditions reported to the local health director

(b) Physicians, persons in charge of medical facilities or laboratories, and other persons shall… permit a local health director or the State Health Director to examine, review, and obtain a copy of medical or other records…

(d) The attending physician shall give control measures… to a patient with a communicable disease or communicable condition and to patients reasonably suspected of being infected or exposed to such a disease or condition.

(e) The local health director shall ensure that control measures… have been given to prevent the spread of all reportable communicable diseases or communicable conditions and any other communicable disease or communicable condition that represents a significant threat to the public health.

(f) All persons shall comply with control measures, including submission to examinations and tests…

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(f) All persons shall comply with control measures, including submission to examinations and tests…

Public Health Law

10A NCAC 41A .0103: Duties of local health director: report communicable diseases

(a) Upon receipt of a report of a communicable disease or condition… the local health director shall:

> (1) immediately investigate the circumstances… [to] include the collection and submission for laboratory examination of specimens necessary to assist in the diagnosis and indicate the duration of control measures;
>
> (2) determine what control measures have been given and ensure that proper control measures… have been given and are being complied with;

(c) Whenever an outbreak of a disease or condition occurs which is not required to be reported… but which represents a significant threat to the public health, the local health director shall give appropriate control measures… and inform the Division of Public Health

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Public Health Law

10A NCAC 41A .0101: Reportable diseases and conditions

- 74 reportable diseases and conditions
  - Timeline of reporting varies between immediately and within 7 days
- Laboratory reporting requirements

Resource: North Carolina Division of Public Health Communicable Disease Manual

Public Health Law

- **10A NCAC 41A .0201**
  - General Control Measures
- **10A NCAC 41A .0202 - .0205**
  - Control Measures for HIV, Hepatitis B, STDs, TB
- **10A NCAC 41A .0206**
  - Infection Prevention – Health Care Settings; 1992

When to call Public Health

When Should Public Health Be Called?

- Reportable diseases (10A NCAC 41A .0101)
  - http://epi.publichealth.nc.gov/cd/docs/dhhs_2124.pdf
- When **any** disease is above normal baseline (i.e. an “outbreak”)
- Report suspected infection prevention breach

When Is It An Outbreak?

- Anything above what is normally seen for any given time period
- If you aren't sure, call Public Health!
- In a facility setting, an outbreak is generally defined as two or more individuals with the same illness
  - **Caveat to this rule:**
    - One case of certain diseases = Outbreak
    - Disease not normally seen (Avian Flu, SARS, Ebola)

Surveillance for Healthcare Associated and Resistant Pathogens Patient Safety (SHARPPS) Program

Jennifer MacFarquhar
Program Director

James Lewis
Medical Director

Heather Dubendris
Epidemiologist

Katie Steider
Epidemiologist

Coming Soon!
Health Educator, Campaigns Coordinator

Savannah Carrico
Epidemiologist

Coming Soon!
Epidemiology Program Manager

NC SHARPPS Program

Mission

To work in partnerships to prevent, detect, and respond to events and outbreaks of healthcare-associated and antimicrobial resistant infections in North Carolina.

SHARPPS Program Activities

Surveillance, Investigation & Response	Prevention, Education & Training	Monitoring & Evaluation	Communication
HAI reporting to NHSN CRE surveillance DHSR Infection Prevention Breach reporting Outbreak & Exposure management	Campaigns Drug Diversion Antimicrobial resistance & stewardship Infection Control, Assessment & Response (ICAR) Partnerships External speaking engagements	Data validation Monthly reconciliation reports TAP reports Identification, evaluation of aberrant data (CLABSI, CDI)	HAI data reports ~Facility specific ~Statewide summary Newsletters Monthly webinar updates Drug Diversion tabletop

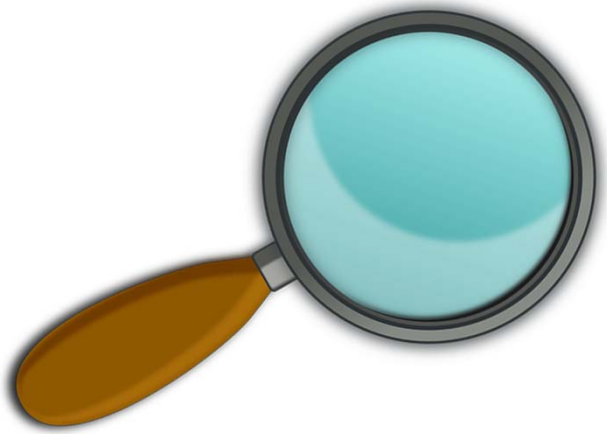
SHARPPS Program Activities

Surveillance, Investigation & Response	Prevention, Education & Training	Monitoring & Evaluation	Communication
HAI reporting to NHSN	Campaigns	Data validation	HAI data reports
CRE surveillance	Drug Diversion	Monthly reconciliation reports	~Facility specific
DHSR Infection Prevention Breach reporting	Antimicrobial resistance & stewardship	TAP reports	~Statewide summary
Outbreak & Exposure management	Infection Control, Assessment & Response (ICAR)	Identification, evaluation of aberrant data (CLABSI, CDI)	Newsletters
	Partnerships		Monthly webinar updates
	External speaking engagements		Drug Diversion tabletop

Role of Public Health

What Happens After Public Health Is Called?

- Data review
- Clinical investigation:
  - Case finding – looking for others who are or who have been ill
  - Interviews, specimen collection, testing
- Environmental investigation
- Control measures
- Assist with patient/family/public information if needed



10 Steps of an Outbreak Investigation

1. Identify investigation team and resources
2. Establish existence of an outbreak
3. Verify the diagnosis
4. Construct case definition
5. Case finding: Find cases systematically / develop line list
6. Perform descriptive epidemiology / develop hypotheses
7. Evaluate hypotheses / perform additional studies (as necessary)
8. Implement control measures
9. Communicate findings
10. Maintain surveillance

Special Considerations / Differences for Facility Investigations

- Vulnerable population
  - Increased Incidence
  - Higher mortality
- Communal living
- Can be initiated or propagated by activities, staff, or other characteristics of the facility
- Facilities are patients' homes
- Disruption of routine and comforts
- Needs of the residents vs. stopping disease spread
- Limits of the staff

Outbreak Summary

2014-2017 Outbreak Summary

Outbreak Report Summary:
2014 - 2017

A total of **901** outbreaks were reported to the Communicable Disease Branch (CDB) from January 1, 2014–December 31, 2017; an average of 225 per year. Details of those outbreaks are presented below.

As required by North Carolina Administrative Code (10A NCAC 41A .0103), local health departments must submit a written report of the investigation within 30 days of the end of the outbreak. Outbreak reports were received for 61% of 2014 outbreaks, 89% of 2015 outbreaks 84% of 2016 outbreaks, and 100% of 2017 outbreaks.

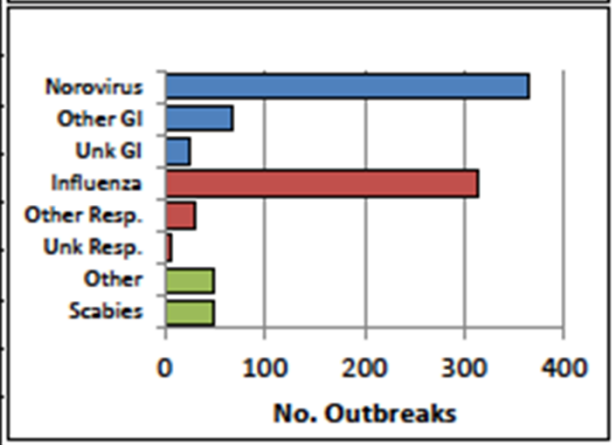
- Primary responsibility of Public Health
- January 1, 2014 – December 31, 2017
  - 901 Outbreaks
  - 225 Average/year

2014-2017 Outbreak Summary

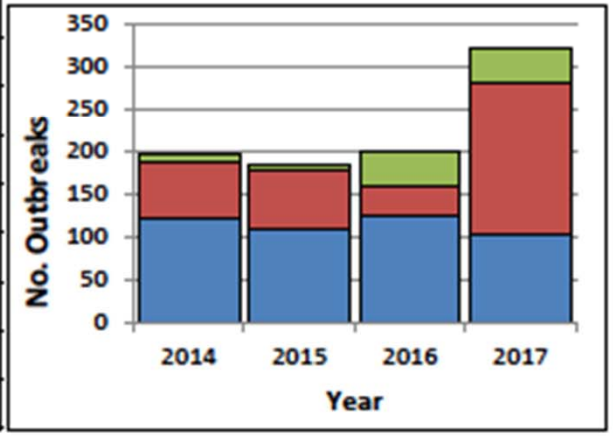
TYPE AND ETIOLOGY

Type	Etiology	2014	2015	2016	2017	Total	%
Gastrointestinal (GI) Causes							
 51%	Norovirus	104	78	95	88	365	80%
	Salmonella	5	4	2	4	15	3%
	Shigella	7	11	11	4	33	7%
	Other GI	3	11	3	3	20	4%
	Unknown	3	4	14	4	25	5%
	Total	122	108	125	103	458	
Respiratory Causes							
 38%	Influenza	57	66	25	165	313	90%
	Pertussis*	1	1	2	8	12	3%
	Legionella	5	0	2	3	10	3%
	Other Respiratory	0	2	3	2	7	2%
	Unknown	2	0	3	0	5	1%
	Total	65	69	35	178	347	
Other Causes							
 11%	Other	6	6	19	17	48	50%
	Scabies	4	2	20	22	48	50%
	Total	10	8	39	39	96	
Total Outbreaks		197	185	199	320	901	

Outbreaks by Type and Etiology: 2014-2017

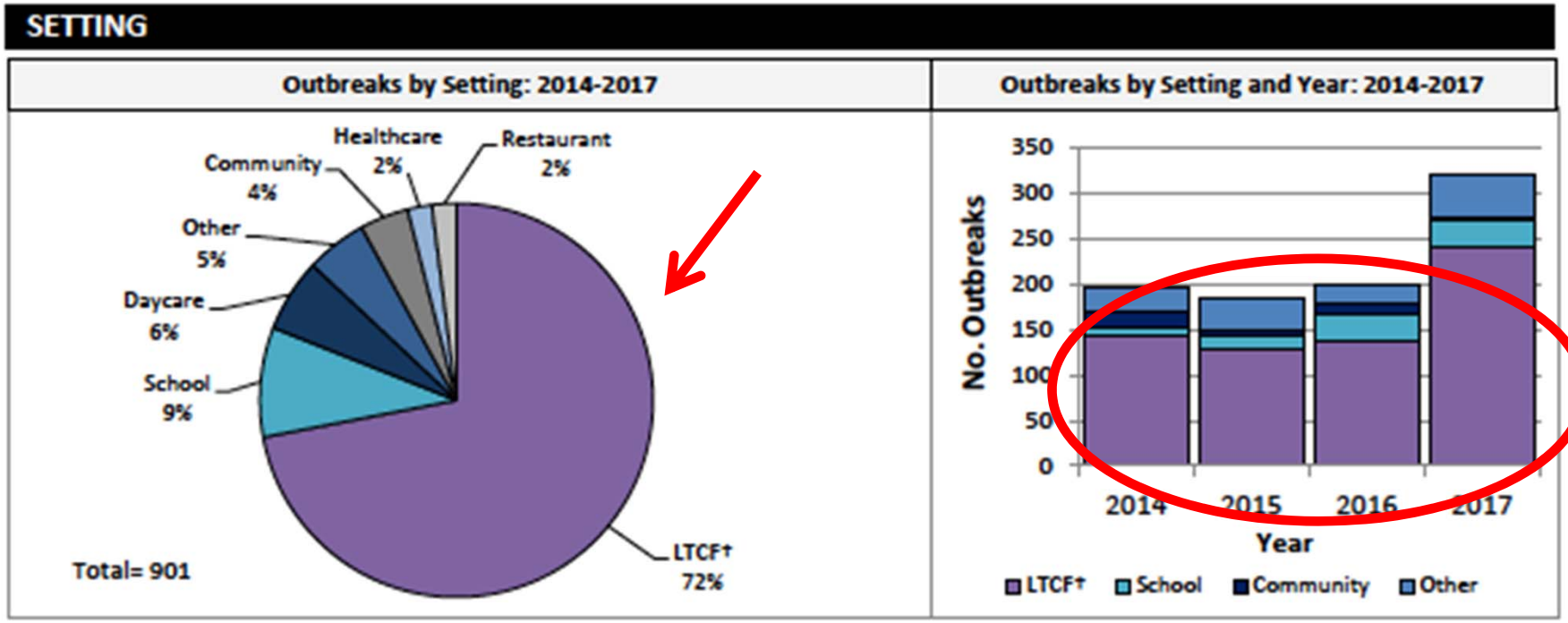


Outbreaks by Type and Year: 2014-2017



**Pertussis was at epidemic levels in 2014, therefore individual outbreaks were not reported.*

2014-2017 Outbreak Summary



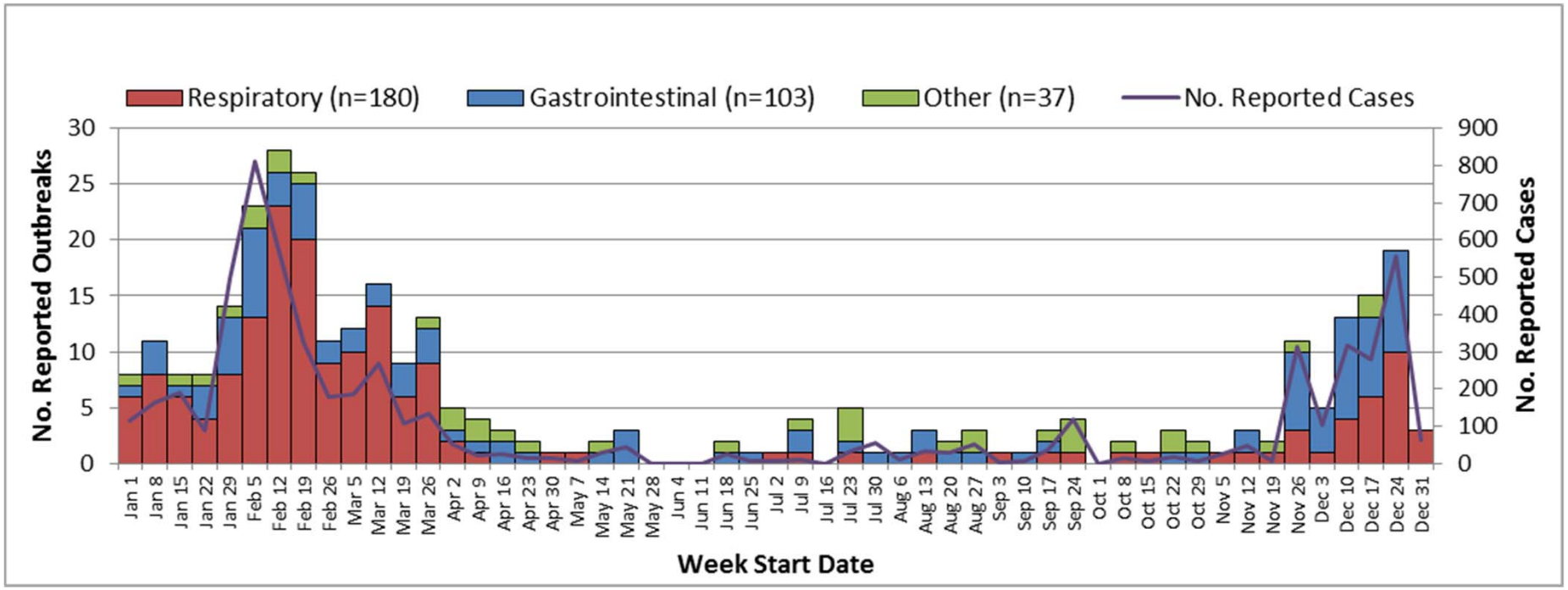
†Long-term care facility (LTCF) includes nursing homes, adult care homes, and assisted living facilities

NC Communicable Disease Branch - http://epi.publichealth.nc.gov/cd

***72% of outbreaks occurred in LTC settings**

2017 Outbreak Summary

- 320 outbreaks reported to NC DPH in 2017
  - ~225 reported outbreaks occurred in LTC settings
  - 6,021+ outbreak-associated cases identified



Safe Injection Practices

Safe Injection Practices

- Measures taken to perform injections in a safe manner for patients and providers
- Prevent transmission of infectious diseases from:
  - Patient to provider
  - Provider to patient
  - Patient to patient
- Bloodborne pathogens
  - Hepatitis B (HBV)
  - Hepatitis C (HCV)
  - Human Immunodeficiency Virus (HIV)

http://www.cdc.gov/injectionsafety/

Public Health Role in Safe Injection Practices

- Raise awareness of safe injection practices and eradicate outbreaks resulting from unsafe injection practices
  - Collaborative efforts
  - Forging new partnerships
  - Safe injection education for licensed professionals

- Investigate outbreaks of disease related to unsafe injection practices

Unsafe Injection Practices: Causes

1. Syringe reuse (direct and indirect)
2. Misuse of single-dose/single-use vials
3. Failure to use aseptic technique
4. Unsafe diabetes care
5. Drug Diversion

North Carolina Hepatitis Outbreaks, Non-Hospital Settings

Setting	Year	Type	No. Incident Infections
Cardiology	2008	HCV	5
ALF	2010	HBV	8
SNF	2010	HBV	6
SNF	2010	HBV	6
Dialysis	2013	HBV	1
Total			**26**

Outbreak: Tuesday, October 12, 2010

- County health department notified by infection preventionist at local hospital
- 4 cases of acute hepatitis
- Residents of the same assisted living facility

Investigation Methods

- Evaluated infection control practices
  - Observations
  - Interviews
- Searched for additional cases
  - Serologic testing of all residents
  - Hospital records, surveillance databases
- Epidemiologic study
  - Potential healthcare exposures, risk factors

HBV Outbreak in Assisted Living Facility

Cases identified	**8**
Mean age	**70.6 years**
Hospitalized	**8 (100%)**
Died	**6 (75%)**

Health Care Exposures

Exposure	Attack rate (%)	
	Exposed	Not exposed
Assisted BGM	**8/15 (53)**	**0/25 (0)**
Injected medication	**4/16 (25)**	**4/22 (18)**
Phlebotomy	**4/25 (16)**	**4/15 (27)**
Blood transfusion	**0/1 (0)**	**8/38 (21)**
Catheter device	**0/3 (0)**	**8/37 (22)**
Wound care	**1/8 (13)**	**6/28 (21)**

Infection Control Observations

- Glucose meters:
  - Used for more than one resident
  - Not disinfected between uses
- Adjustable lancing devices:
  - Used for more than one resident

Recommendations to Facility

- Use single-use disposable lancets
- Purchase and use individual glucose meters for each resident
- Vaccinate all susceptible residents

Direct Communication to Providers

- Sent to all licensed facilities and providers statewide

North Carolina Department of Health and Human Services
Division of Public Health • Epidemiology Section
Section Office
1902 Mail Service Center • Raleigh, North Carolina 27699-1902
Tel 919-733-3421 • Fax 919-733-0195

Beverly Eaves Perdue, Governor
Lanier M. Cansler, Secretary

Jeffrey P. Engel, MD
State Health Director

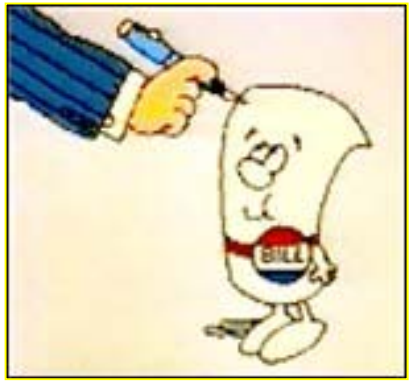
December 2, 2010

TO: All North Carolina Health Care Providers

FROM: Megan Davies, MD, State Epidemiologist

WARNING: **SPREAD OF HEPATITIS B THROUGH UNSAFE DIABETES CARE**

"Act to Protect Adult Care Home Residents"



- Signed into law May 31st, 2011

- Requires:
  - Stronger infection prevention policies
  - Inspection and monitoring of infection prevention activities
  - Reporting of suspected outbreaks
  - Increased training and competency evaluation for medication aides, adult care home supervisors

New Reporting required by CMS

Center for Clinical Standards and Quality/Survey & Certification Group

Ref: S&C: 14-36-ALL
REVISED 10.28.16

DATE: May 30, 2014

TO: State Survey Agency Directors

FROM: Director
Survey and Certification Group

SUBJECT: Infection Control Breaches Which Warrant Referral to Public Health Authorities
****Additional Information has been added to Breaches to Be Referred. This policy memorandum supersedes policy memorandum S&C: 14-36-ALL*****

Memorandum Summary

- ***Infection Control Breaches Warranting Referral to Public Health Authorities:*** If State Survey Agencies (SAs) or Accrediting Organizations (AOs) identify any of the breaches of generally accepted infection control standards listed in this memorandum, they *must* refer them *as directed* to appropriate State authorities for public health assessment and management.

- ***Identification of Public Health Contact:*** SAs should consult with their State's Healthcare Associated Infections (HAI) Prevention Coordinator or State Epidemiologist on the preferred referral process. Since AOs operate in multiple States, the Centers for Medicare & Medicaid Services (CMS) strongly encourages them to notify the appropriate State public health officials to make the referral of information about serious infection control breaches on the part of healthcare providers they survey in that state. Contact information for each state's health departments is identified on the Centers For Disease Control & Prevention's (CDC's) website at: https://www.cdc.gov/HAI/state-based/index.html

Surveyors must report to State

Breaches to Be Referred

When one or more infection control breaches, that could potentially expose patients to the blood or bodily fluids of another, are identified during any survey of a Medicare or Medicaid-certified provider/supplier, the SA or AO *must* make the appropriate State public health authority aware of the deficient practice. Examples of such infection control breaches *that must be reported* are unsafe injection practices and use of sharps, including:

- Using the same needle for more than one individual;
- Using the same syringe, pen or injection device (e.g. pre-filled, manufactured, insulin or any other *medication or biological*) for more than one individual;
- Re-using a needle or syringe which has already been used to administer medication *or a biological* to an individual, to subsequently enter a medication container (e.g., vial, bag), and then using contents from that medication container for another individual;
- Using the same lancing/fingerstick device for more than one individual, even if the lancet is changed.

The SA or AO should also refer other infection control breaches in addition to those described above if recommended by their State public health authorities or if they believe the breaches require public health assessment and management. Examples of such infection control breaches include, but are not limited to, the following:

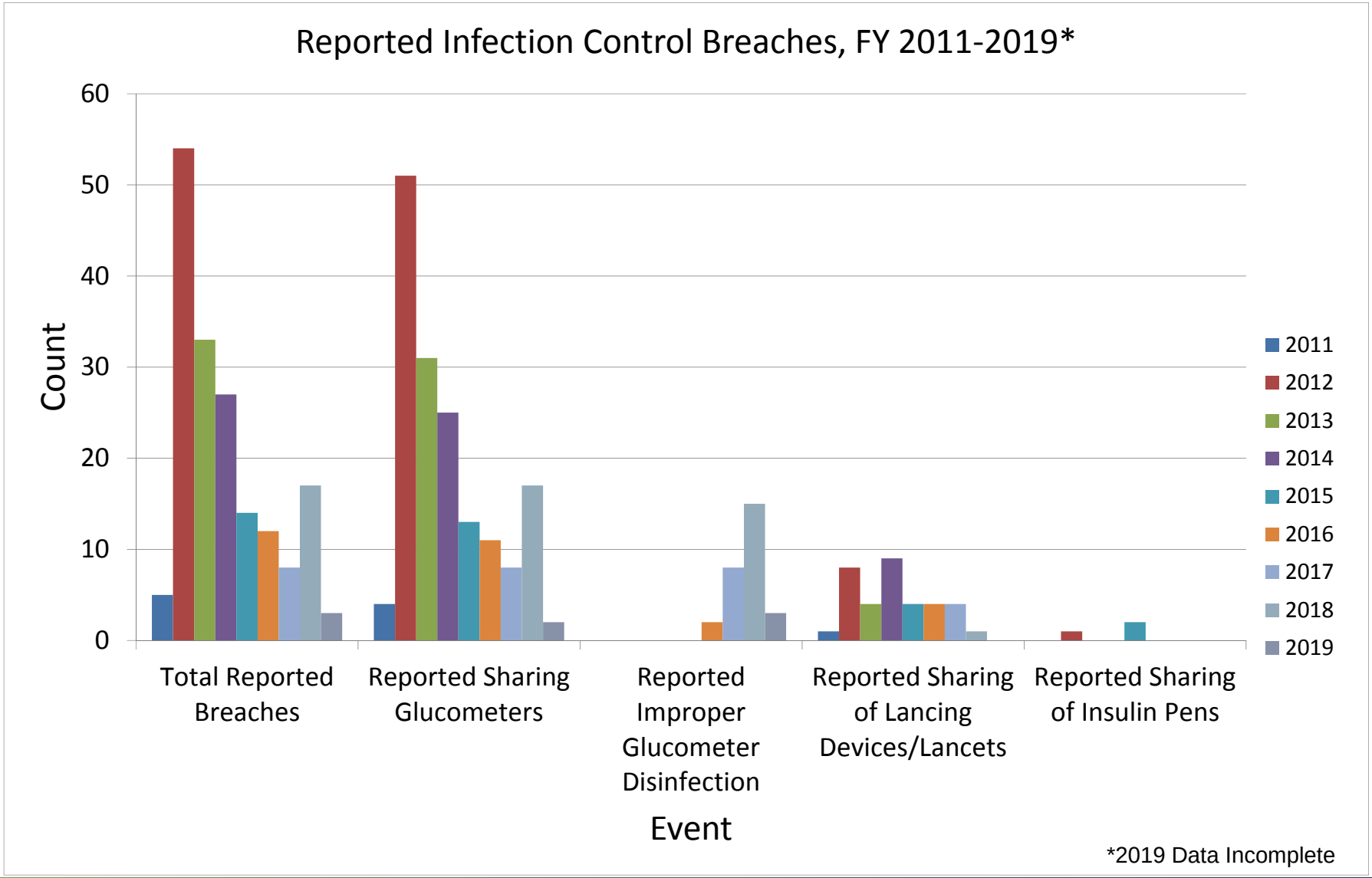
- *Improper cleaning and disinfection of endoscopy equipment; and,*
- *Improper cleaning and sterilization of surgical instruments.*

Coordination with the LHD

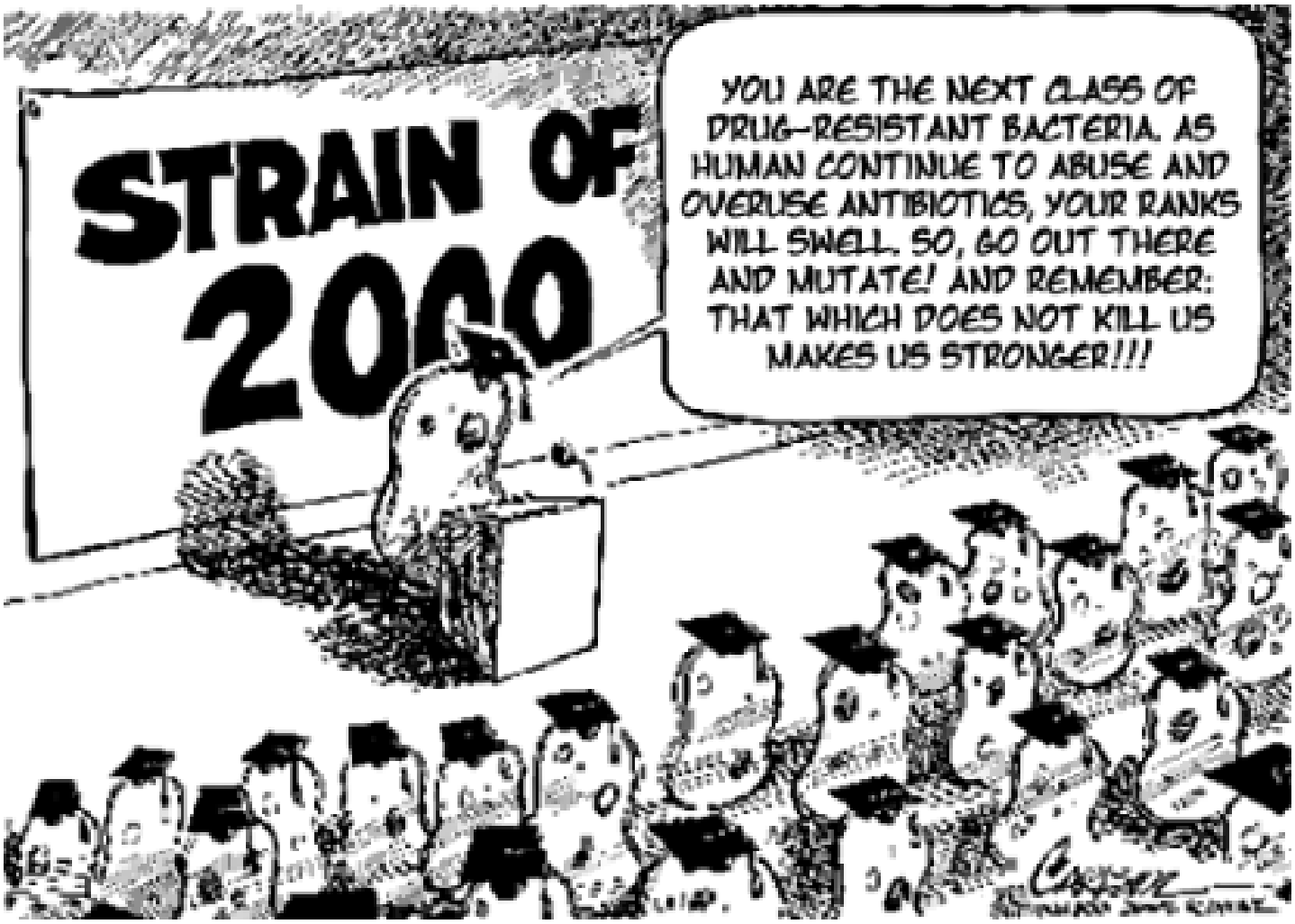
- DHSR notifies DPH of infection breach

- LHD is notified of the breach by DPH
  - Investigation protocol – step by step instruction
  - Educational information – for facility
  - Investigation breach follow up report

Infection Prevention Breaches



Multidrug-Resistant Organisms (MDROs)



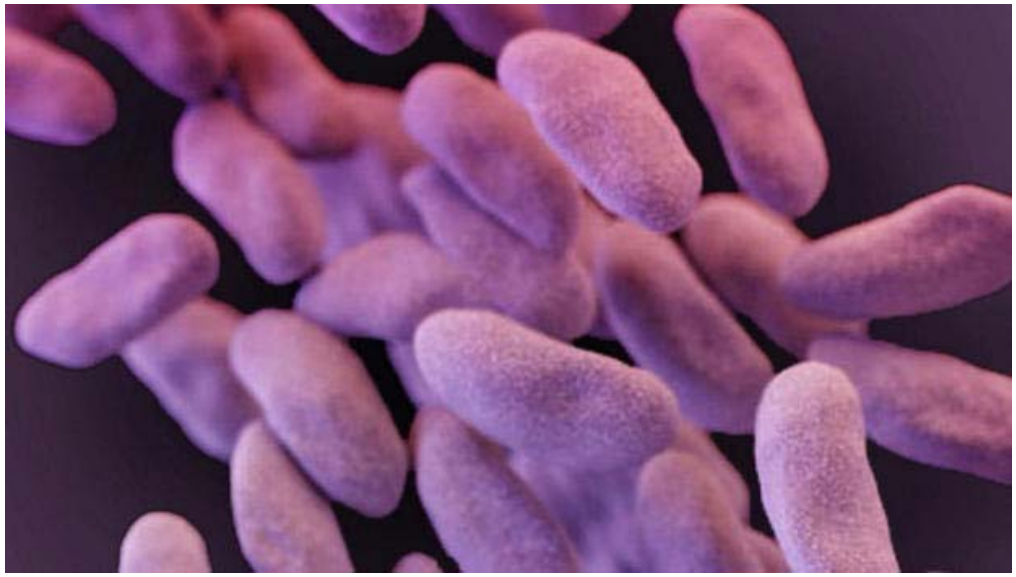
Multidrug-resistant Organisms (MDROs)

- Resistant to multiple types of antibiotics
- Can cause infection in any part of the body
- Intra- and inter-facility spread
- Vulnerable patients at risk for infection
- Infections are difficult to treat and can be associated with high mortality rates

- Cause ~2 million infections in United States annually
  - 23,000 deaths

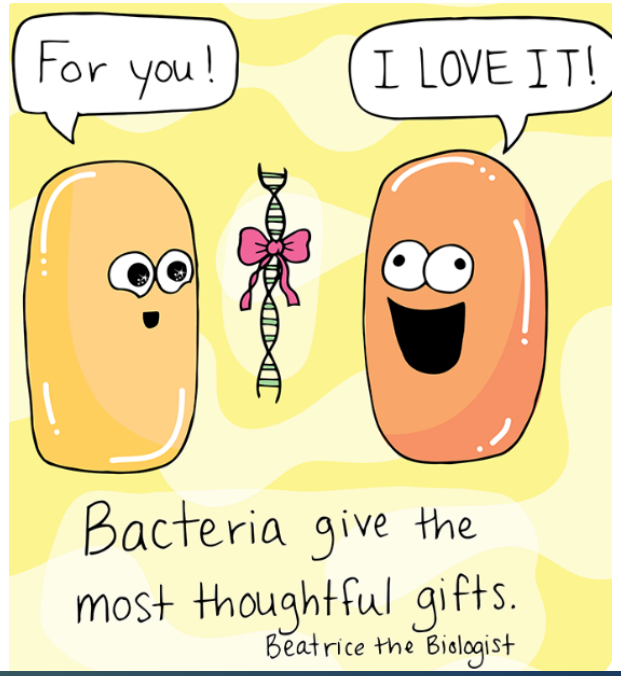
Multidrug-Resistant Organisms

- Methicillin-resistant *Staphylococcus aureus* (MRSA)
- Vancomycin Intermediate/Resistant Staphylococcus aureus (VISA/VRSA)
- Vancomycin-resistant *Enterococcoccus* (VRE)
- Extended-spectrum Beta-Lactamases (ESBL)
- Carbapenem-resistant *Enterobacteriaceae* (CRE)



Public Health Significance

- Spread facilitated by interfacility transfer of patients
- Affects vulnerable patient populations
- Difficult to treat
- Improper treatment → some organisms may produce another enzyme that makes it easier to transmit resistance



Investigation

- Notified by LHD on April 21, 2017 (a Friday!)
  - Increase in the number infections caused by a specific MDRO among patients admitted to local hospital between October 16, 2016 and April 13, 2017

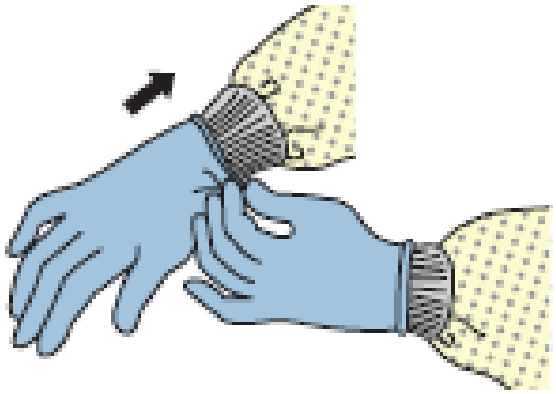
- Majority of cases were residents of three long-term care facilities (LTCFs)

- Coordinated an investigation to:
  - **assess infection prevention practices among these LTCFs, and**
  - **prevent further intra- and inter- facility spread of disease**

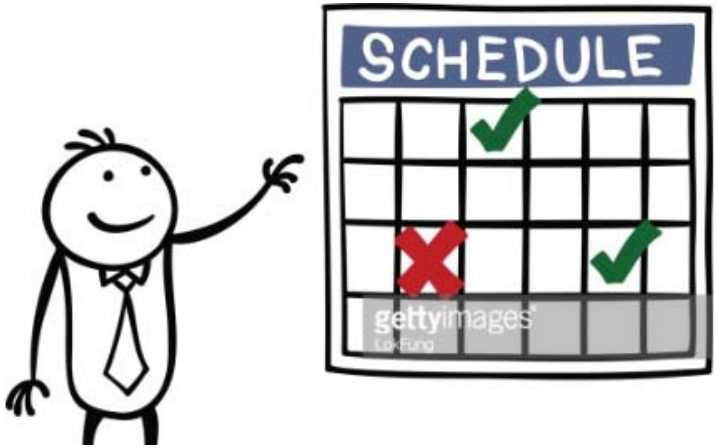
Investigation, cont.

- 4 cases were discussed on Friday but > 40 positive labs were waiting for us on Monday morning!

Initial control measures



Gown and gloves



Hand hygiene

Prevent opportunities for transmission

Site Visit Findings

- **Hand hygiene:** inconsistent ✘
- **Wound care:** reusing scissors, interruptions in flow from clean to dirty ✘
- **OT/PT:** contact precautions not adequately maintained, lack of dedicated equipment ✘
- **Contact precautions:** implemented to varying degrees ✘
- **Lack of inter-facility notification** ✘
- **Outdated policies** ✘

Control Measures

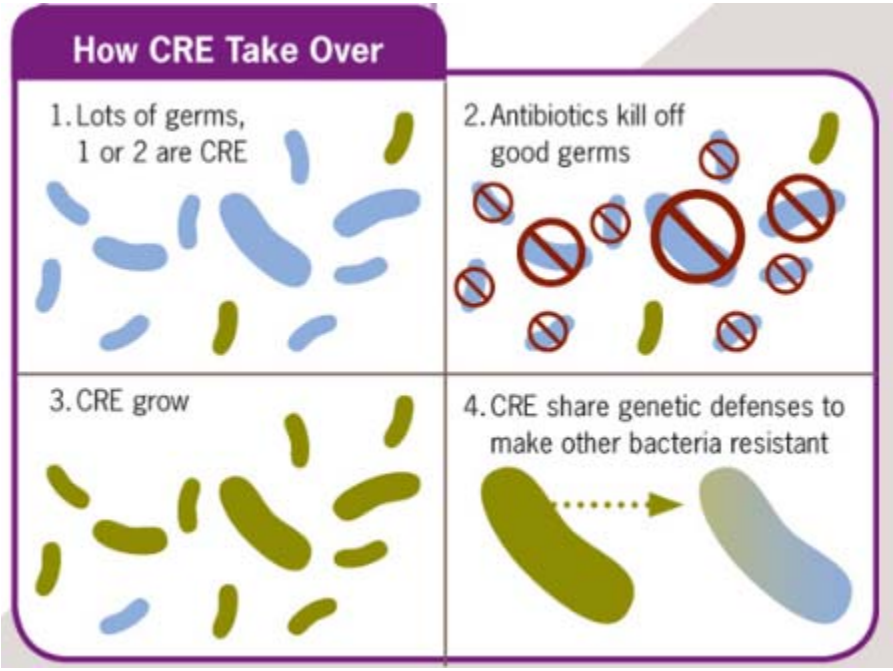
1. Staff Education
2. Laboratory notification
3. Cohort infected residents
4. Contact precautions for colonized and infected individuals at higher risk for transmission
5. Hand Hygiene
6. Environmental cleaning
7. Communicate MDRO status to transferring and receiving facilities
8. Review infection prevention policies and procedures
9. Antimicrobial Stewardship

CRE alert

Site Visit: Control Measures

1. Staff Education

- In service education on Infection prevention
- NC administrative code 10A NCAC 41A .0206



Site Visit: Control Measures

2. Laboratory notification

CRE alert

- Establish process for notification
  - What organisms?
  - Who is the point of contact for results?
  - Are isolates available for additional testing?

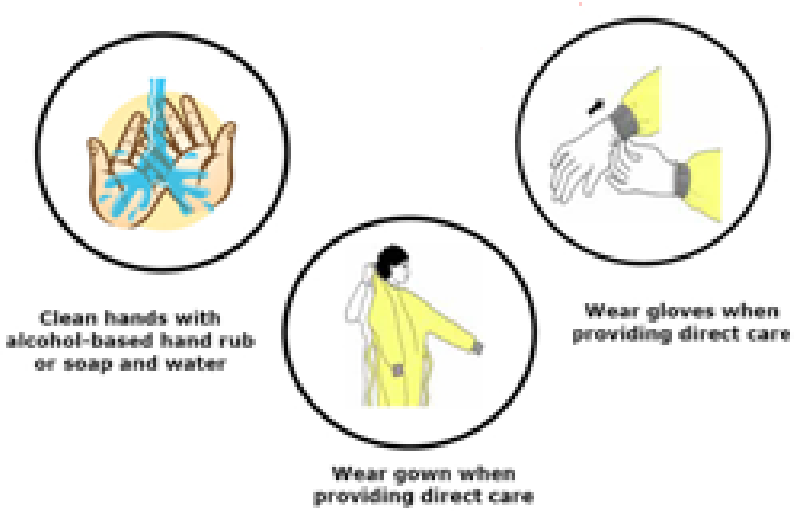
Site Visit: Control Measures

3. Cohort infected residents

Consider: physical location, ancillary services/care, environmental cleaning, equipment

Site Visit: Control Measures

4. Contact precautions
    - Colonized and infected individuals at higher risk for transmission



“Enhanced Standard Precautions”??

- Continent
- Contained
- Cognizant
- Compliant
- Clean
- Care being provided

Consider before each interaction!

Site Visit: Control Measures

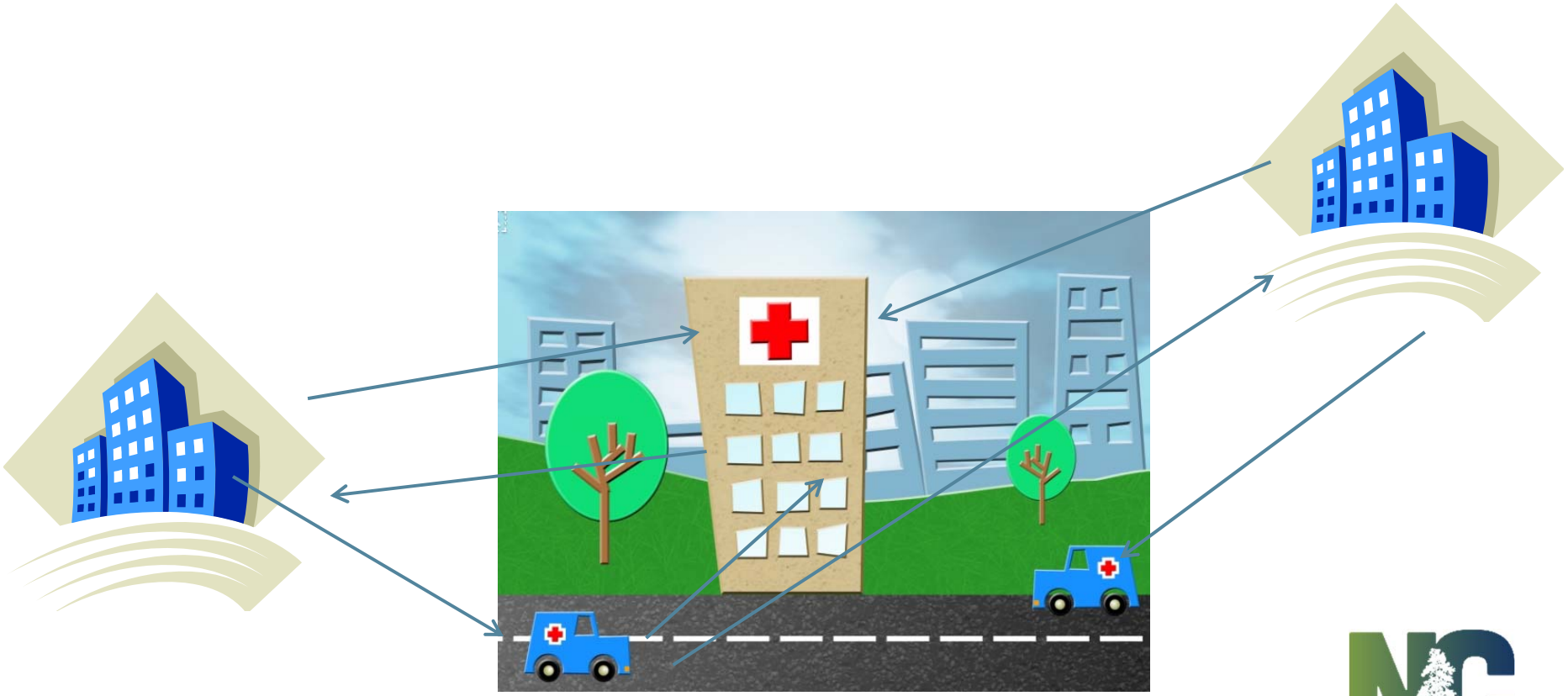
5. Hand Hygiene

Site Visit: Control Measures

6. Environmental cleaning

Site Visit: Control Measures

7. Communicate MDRO status to transferring and receiving facilities



Communication between Healthcare Facilities

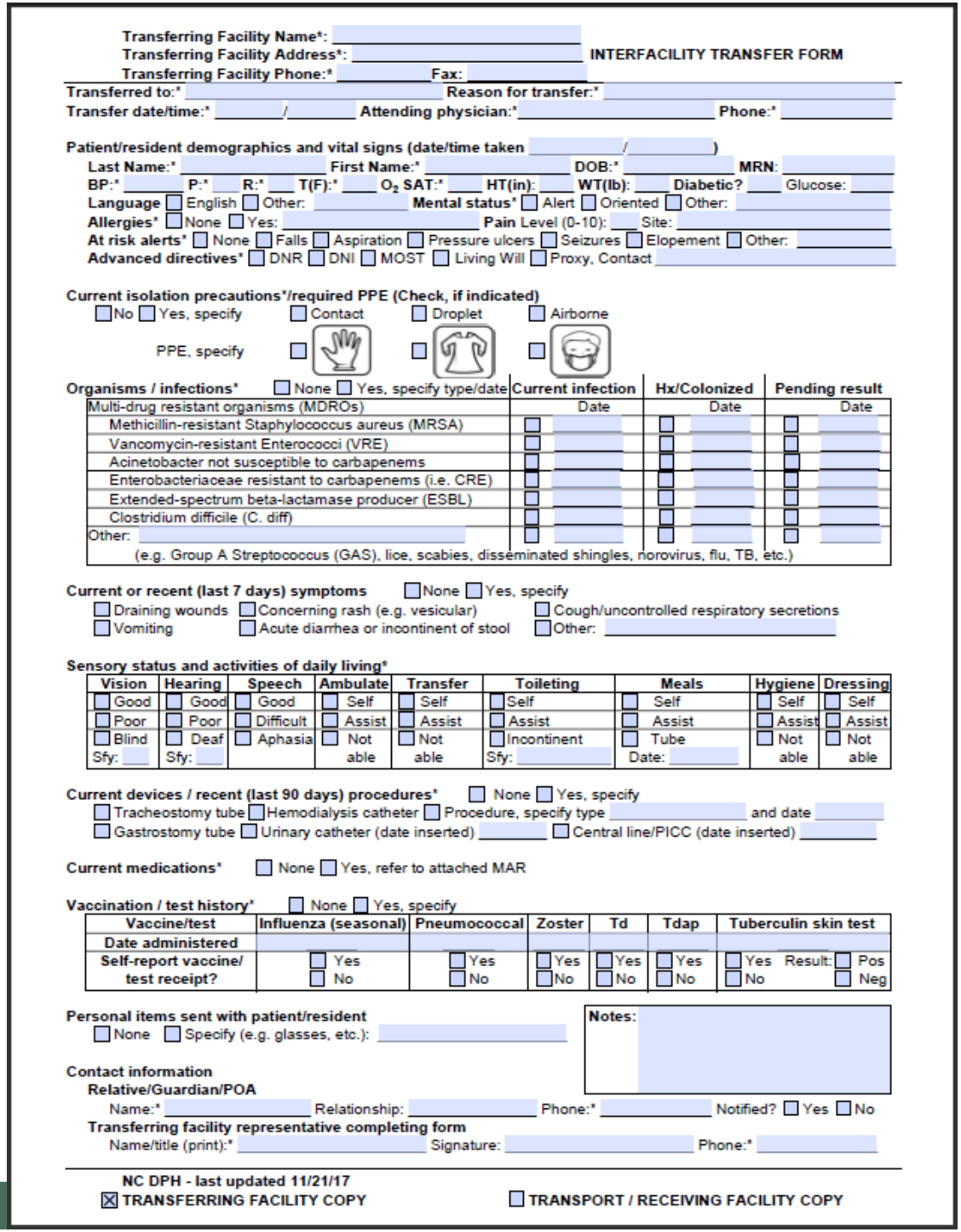
- Useful
  - Patient status/needs
  - Care plan

- Required by CMS
  - Reform of Requirements for Long-Term Care Facilities
  - (proposed) Revisions to Requirements for Discharge Planning for Hospitals, Critical Access Hospitals, and Home Health Agencies

- Beneficial re: MDROs
  - Protects patients / residents
  - Contains healthcare costs
  - Prevents the spread of MDROs

Sections

- Transferring facility info
- Transfer info
- Pt. demographics and VS
- Current isolation precautions
- Organisms/infections
- Current/recent sx.
- Sensory status and ADLs
- Current devices/recent procedures
- Current meds
- Vaccination/test hx.
- Personal items
- Contact information



Transferring Facility Name*: _____
Transferring Facility Address*: _____ **INTERFACILITY TRANSFER FORM**
Transferring Facility Phone:* _____ Fax: _____
Transferred to:* _____ Reason for transfer:* _____
Transfer date/time:* ____/____ Attending physician:* _____ Phone:* _____

Patient/resident demographics and vital signs (date/time taken ____/____)
Last Name:* _____ First Name:* _____ DOB:* _____ MRN: _____
BP:* _____ P:* ___ R:* ___ T(F):* ___ O_2 SAT:* ___ HT(in): ___ WT(lb): ___ Diabetic? ___ Glucose: ___
Language ☐ English ☐ Other: _____ Mental status* ☐ Alert ☐ Oriented ☐ Other: _____
Allergies* ☐ None ☐ Yes: _____ Pain Level (0-10): ___ Site: _____
At risk alerts* ☐ None ☐ Falls ☐ Aspiration ☐ Pressure ulcers ☐ Seizures ☐ Elopement ☐ Other: _____
Advanced directives* ☐ DNR ☐ DNI ☐ MOST ☐ Living Will ☐ Proxy, Contact _____

Current isolation precautions*/required PPE (Check, if indicated)
☐ No ☐ Yes, specify ☐ Contact ☐ Droplet ☐ Airborne
PPE, specify ☐ ☐ ☐

Organisms / infections* ☐ None ☐ Yes, specify type/date

	Current infection	Hx/Colonized	Pending result
Multi-drug resistant organisms (MDROs)	Date	Date	Date
Methicillin-resistant Staphylococcus aureus (MRSA)	☐	☐	☐
Vancomycin-resistant Enterococci (VRE)	☐	☐	☐
Acinetobacter not susceptible to carbapenems	☐	☐	☐
Enterobacteriaceae resistant to carbapenems (i.e. CRE)	☐	☐	☐
Extended-spectrum beta-lactamase producer (ESBL)	☐	☐	☐
Clostridium difficile (C. diff)	☐	☐	☐
Other: _____	☐	☐	☐

(e.g. Group A Streptococcus (GAS), lice, scabies, disseminated shingles, norovirus, flu, TB, etc.)

Current or recent (last 7 days) symptoms ☐ None ☐ Yes, specify
☐ Draining wounds ☐ Concerning rash (e.g. vesicular) ☐ Cough/uncontrolled respiratory secretions
☐ Vomiting ☐ Acute diarrhea or incontinent of stool ☐ Other: _____

Sensory status and activities of daily living*

Vision	Hearing	Speech	Ambulate	Transfer	Toileting	Meals	Hygiene	Dressing
☐ Good	☐ Good	☐ Good	☐ Self	☐ Self	☐ Self	☐ Self	☐ Self	☐ Self
☐ Poor	☐ Poor	☐ Difficult	☐ Assist	☐ Assist	☐ Assist	☐ Assist	☐ Assist	☐ Assist
☐ Blind	☐ Deaf	☐ Aphasia	☐ Not able	☐ Not able	☐ Incontinent	☐ Tube	☐ Not able	☐ Not able
Sfy: ___	Sfy: ___				Sfy: ___	Date: ___		

Current devices / recent (last 90 days) procedures* ☐ None ☐ Yes, specify
☐ Tracheostomy tube ☐ Hemodialysis catheter ☐ Procedure, specify type _____ and date _____
☐ Gastrostomy tube ☐ Urinary catheter (date inserted) _____ ☐ Central line/PICC (date inserted) _____

Current medications* ☐ None ☐ Yes, refer to attached MAR

Vaccination / test history* ☐ None ☐ Yes, specify

Vaccine/test	Influenza (seasonal)	Pneumococcal	Zoster	Td	Tdap	Tuberculin skin test
Date administered						
Self-report vaccine/ test receipt?	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No Result: ☐ Pos ☐ Neg

Personal items sent with patient/resident
☐ None ☐ Specify (e.g. glasses, etc.): _____

Notes:

Contact information
Relative/Guardian/POA
Name:* _____ Relationship: _____ Phone:* _____ Notified? ☐ Yes ☐ No
Transferring facility representative completing form
Name/title (print):* _____ Signature: _____ Phone:* _____

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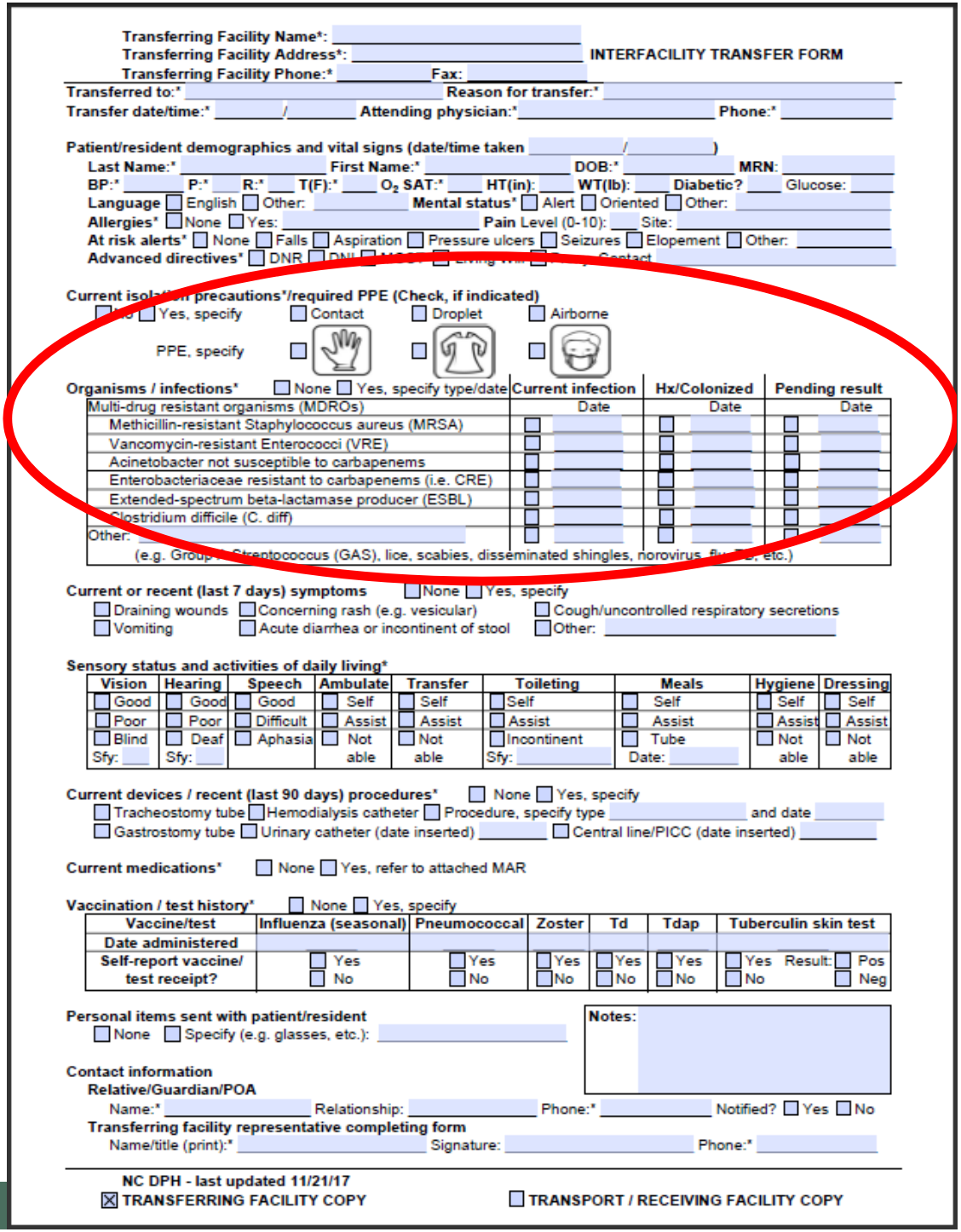
☒ **TRANSFERRING FACILITY COPY** ☐ **TRANSPORT / RECEIVING FACILITY COPY**

Highlights

- Current isolation precautions needed
- PPE
- Specific MDROs



Transferring Facility Name*:
Transferring Facility Address*:
Transferring Facility Phone:* Fax:

INTERFACILITY TRANSFER FORM

Transferred to:* Reason for transfer:*
Transfer date/time:* / Attending physician:* Phone:*

Patient/resident demographics and vital signs (date/time taken /)

Last Name:* First Name:* DOB:* MRN:
BP:* P:* R:* T(F):* O_2 SAT:* HT(in): WT(lb): Diabetic? Glucose:
Language ☐ English ☐ Other: Mental status* ☐ Alert ☐ Oriented ☐ Other:
Allergies* ☐ None ☐ Yes: Pain Level (0-10): Site:
At risk alerts* ☐ None ☐ Falls ☐ Aspiration ☐ Pressure ulcers ☐ Seizures ☐ Elopement ☐ Other:
Advanced directives* ☐ DNR ☐ DNI ☐ Living Will ☐ Contact

Current isolation precautions*/required PPE (Check, if indicated)

☐ No ☐ Yes, specify ☐ Contact ☐ Droplet ☐ Airborne

PPE, specify ☐ ☐ ☐

Organisms / infections* ☐ None ☐ Yes, specify type/date

	Current infection	Hx/Colonized	Pending result
Multi-drug resistant organisms (MDROs)	Date	Date	Date
Methicillin-resistant Staphylococcus aureus (MRSA)	☐	☐	☐
Vancomycin-resistant Enterococci (VRE)	☐	☐	☐
Acinetobacter not susceptible to carbapenems	☐	☐	☐
Enterobacteriaceae resistant to carbapenems (i.e. CRE)	☐	☐	☐
Extended-spectrum beta-lactamase producer (ESBL)	☐	☐	☐
Clostridium difficile (C. diff)	☐	☐	☐
Other:	☐	☐	☐

(e.g. Group A Streptococcus (GAS), lice, scabies, disseminated shingles, norovirus, flu, TB, etc.)

Current or recent (last 7 days) symptoms ☐ None ☐ Yes, specify

☐ Draining wounds ☐ Concerning rash (e.g. vesicular) ☐ Cough/uncontrolled respiratory secretions
☐ Vomiting ☐ Acute diarrhea or incontinent of stool ☐ Other:

Sensory status and activities of daily living*

Vision	Hearing	Speech	Ambulate	Transfer	Toileting	Meals	Hygiene	Dressing
☐ Good	☐ Good	☐ Good	☐ Self	☐ Self	☐ Self	☐ Self	☐ Self	☐ Self
☐ Poor	☐ Poor	☐ Difficult	☐ Assist	☐ Assist	☐ Assist	☐ Assist	☐ Assist	☐ Assist
☐ Blind	☐ Deaf	☐ Aphasia	☐ Not able	☐ Not able	☐ Incontinent Sfy:	☐ Tube Date:	☐ Not able	☐ Not able
Sfy:	Sfy:							

Current devices / recent (last 90 days) procedures* ☐ None ☐ Yes, specify

☐ Tracheostomy tube ☐ Hemodialysis catheter ☐ Procedure, specify type and date
☐ Gastrostomy tube ☐ Urinary catheter (date inserted) ☐ Central line/PICC (date inserted)

Current medications* ☐ None ☐ Yes, refer to attached MAR

Vaccination / test history* ☐ None ☐ Yes, specify

Vaccine/test	Influenza (seasonal)	Pneumococcal	Zoster	Td	Tdap	Tuberculin skin test
Date administered						
Self-report vaccine/ test receipt?	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No Result: ☐ Pos ☐ Neg

Personal items sent with patient/resident
☐ None ☐ Specify (e.g. glasses, etc.):

Notes:

Contact information
Relative/Guardian/POA
Name:* Relationship: Phone:* Notified? ☐ Yes ☐ No
Transferring facility representative completing form
Name/title (print):* Signature: Phone:*

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NC DPH Interfacility Transfer Form

Benefits

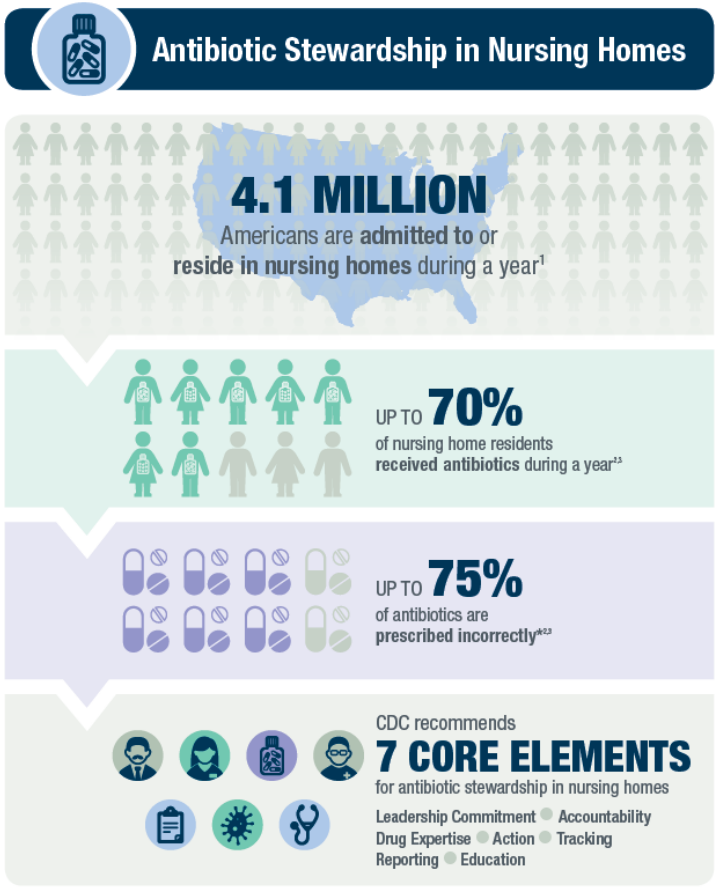
- Standardized format for interfacility communication of patient MDRO status during transfer
- Information needed/desired during transfer all in one place
- Complies with Reform of Requirements for Long-term Care Facilities (CMS)
- http://epi.publichealth.nc.gov/cd/hai/docs/InterfacilityTransferInstructionsandForm.pdf

Site Visit: Control Measures

8. Review infection prevention policies and procedures
   - Review annually
   - Assess staff competency with specific attention to the following:
     - Hand Hygiene
     - Donning and doffing of PPE
     - Contact Precautions
   - Enroll the staff member in charge of infection prevention in training required by NCAC Rule .0206

Site Visit: Control Measures

9. Antimicrobial Stewardship



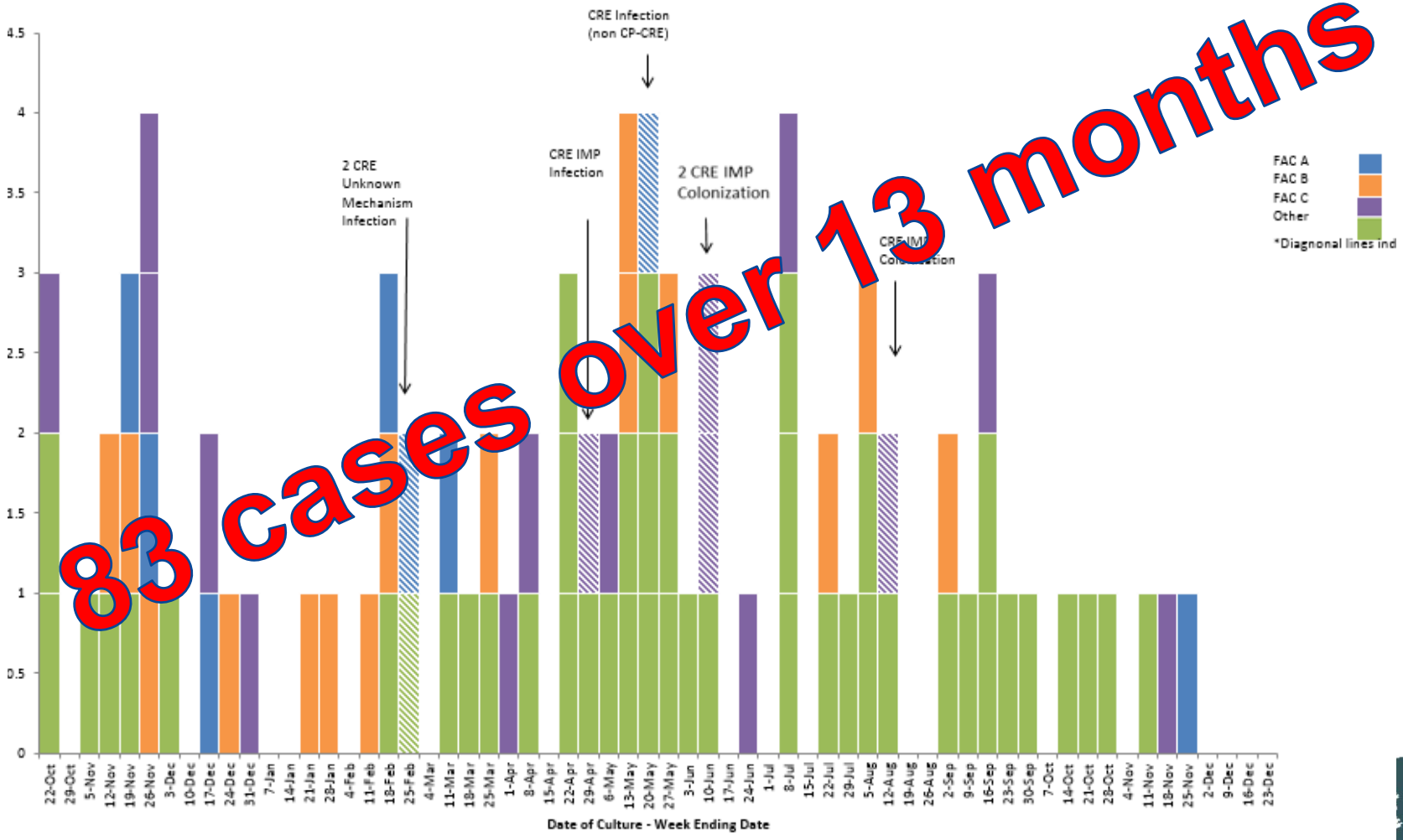
HEALTHCARE PROVIDERS, RESIDENTS, AND FAMILIES PLAY A CRITICAL ROLE IN SUPPORTING OPTIMAL ANTIBIOTIC USE AND PREVENTING INFECTIONS IN NURSING HOMES.

What can healthcare providers do to support appropriate antibiotic use and prevent infections in nursing homes?

- ❑ Follow clinical guidelines when prescribing antibiotics.
  - ▶ Use the right antibiotic, at the right dose, for the right duration, and at the right time.
- ❑ Review antibiotic therapy 2-3 days after it is started based on the resident's clinical condition and microbiology culture results.
- ❑ Talk to residents and their families about when antibiotics are and are not needed, and discuss possible harms such as allergic reactions, *C. difficile* and antibiotic-resistant infections.
  - ▶ Ask residents if they have ever had a *C. difficile* infection, and tailor antibiotic treatment accordingly.
- ❑ Be aware of antibiotic resistance patterns in your facility and community; use the data to inform prescribing decisions.
- ❑ Follow hand hygiene and other infection prevention measures with every resident.

MDRO Cases by Week of Culture, County A, October 22, 2016–November 30, 2017 (n=83)*

**excluding repeat cultures (same patient/same organism)*



Early detection and aggressive implementation of control measures are key to prevention and control

Why Involve Public Health?

- Investigations require communicable disease / infection prevention expertise and experience
- Uniquely qualified to assess patient risk
- Complex problem
- Threats to public's health
- IT'S OUR JOB!

Public Health
Prevent. Promote. Protect.

Resources

- NC Division of Public Health, SHARPPS Program
  - http://epi.publichealth.nc.gov/cd/diseases/hai.html
- Exposure Investigations
  - NC ADMINISTRATIVE CODE, TITLE 10A, SUBCHAPTER 41A
  - https://www.cdc.gov/niosh/topics/bbp/guidelines.html
- MDROs
  - Management of Multidrug Resistant Organisms in Healthcare Settings, 2006 https://www.cdc.gov/infectioncontrol/guidelines/MDRO/index.html
  - NC DPH CRE information for Long-Term Care Facilities http://epi.publichealth.nc.gov/cd/hai/docs/CREinfoLTCfacilities.pdf
  - NC DPH MDRO Toolkit for Long-Term Care Facilities http://epi.publichealth.nc.gov/cd/docs/MDROToolkit_r2.pdf
- Safe Injection Practices
  - http://www.oneandonlycampaign.org/
  - http://www.oneandonlycampaign.org/partner/north-carolina
  - http://www.cdc.gov/injectionsafety/drugdiversion/index.html
- Antimicrobial Stewardship
  - http://epi.publichealth.nc.gov/cd/antibiotics/campaign.html
- Centers for Disease Control and Prevention
  - Legionella: https://www.cdc.gov/legionella/
  - GAS: https://www.cdc.gov/groupastrep/

Thank you!

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