

Michigan Department of Health and Human Services (MDHHS)
Surveillance for Healthcare-Associated and Resistant Pathogens (SHARP) Unit

CRE Surveillance and Prevention Conference



Healthcare-Associated Infections and Antimicrobial Resistance in MI

- Michigan Department of Health and Human Services
- Public Health Administration
- Bureau of Epidemiology and Population Health
- Communicable Disease Division (**CD Division**)
 - Healthcare-Associated Infections/Body Art/ Tuberculosis/Viral Hepatitis (**HBTV Section**)
 - Surveillance for Healthcare-Associated and Resistant Pathogens (**SHARP Unit**)

SHARP Unit Mission

- Coordinate activities related to Healthcare-Associated Infections (HAIs) surveillance and prevention in Michigan
- Improve surveillance, detection and containment of HAIs and antimicrobial-resistance
- Quickly respond and prevent transmission of multidrug resistant organisms (MDROs) and novel resistance mechanisms
- Describe the epidemiology of HAIs, MDROs and novel resistance
- Support the implementation of best-practice infection prevention recommendations across the continuum of care

SHARP Unit

- **Brenda Brennan**
 - HAI Coordinator / SHARP Unit Manager
- **Noreen Mollon**
 - Infection Prevention Consultant
- **Sara McNamara**
 - Antimicrobial Resistance Epidemiologist
- **Chardé Fisher**
 - Health Educator
- **Elli Ray**
 - NHSN Epidemiologist
- **Anne Haddad**
 - Antimicrobial Stewardship Coordinator

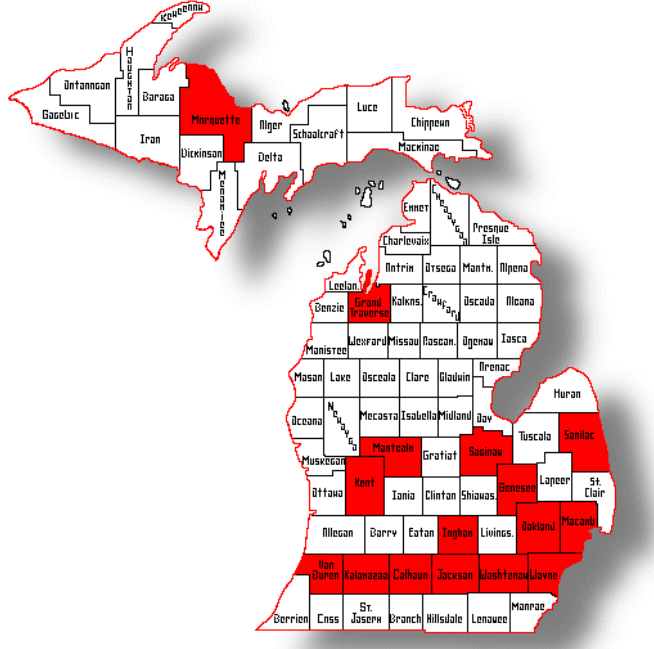
**Carbapenem-resistant *Enterobacteriaceae* (CRE)
Surveillance and Prevention Initiative**

CRE Surveillance and Prevention Initiative

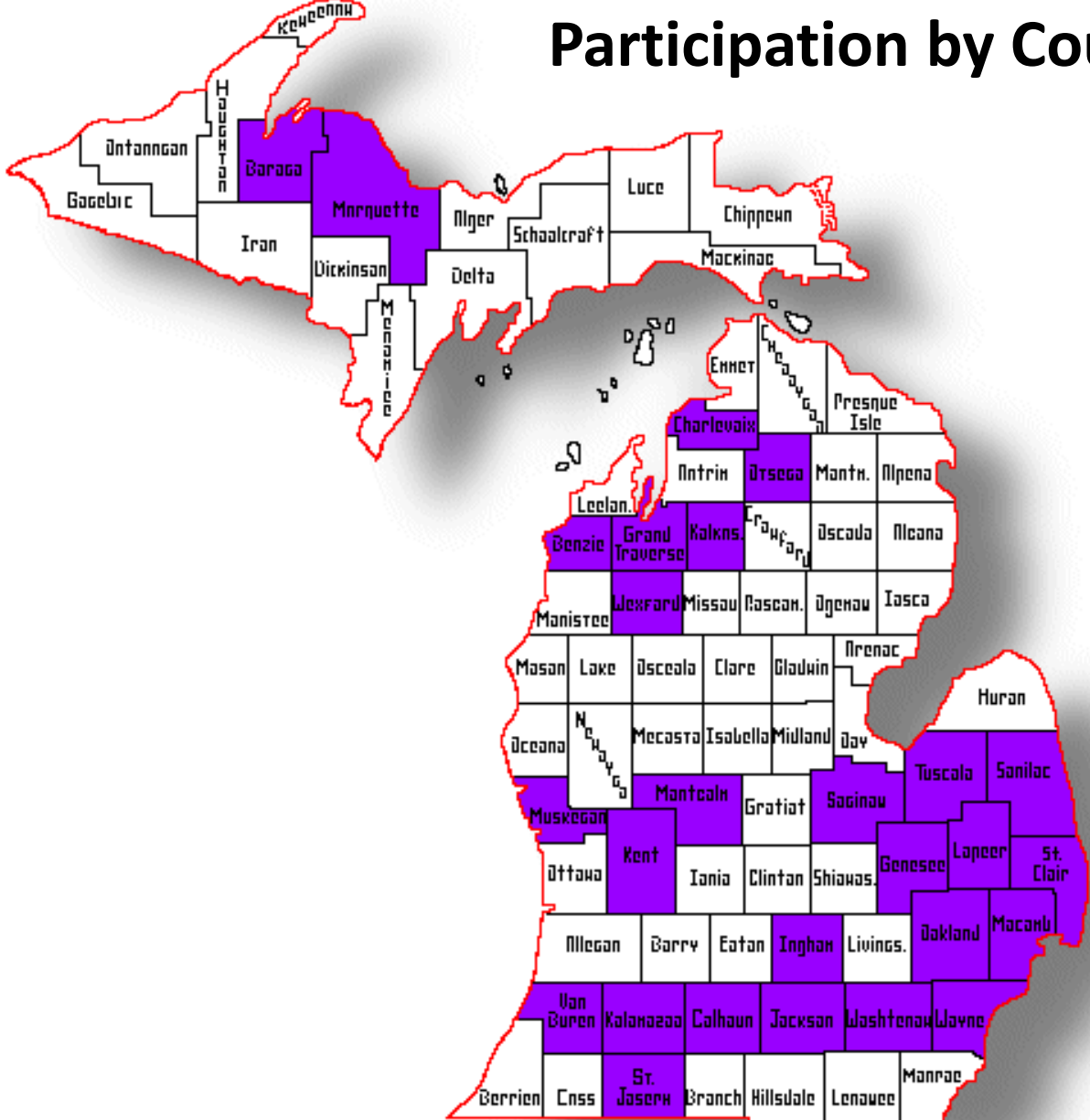
Voluntary Participation

	Beginning	End	Acute Care	LTAC	LTC/SNF	Total
Phase 1	Sept 2012	Aug 2014	17	4	0	21
Phase 2	Mar 2014	Feb 2016	7	2	0	9
Phase 3	Sept 2015	Aug 2017	4	4	2	10
New facilities	Sept 2017	Aug 2019	14	7	0	21
Combined Cohort	Sept 2017	Aug 2019	42	17	2	61

CRE Surveillance and Prevention Initiative Participation by County, June 2019

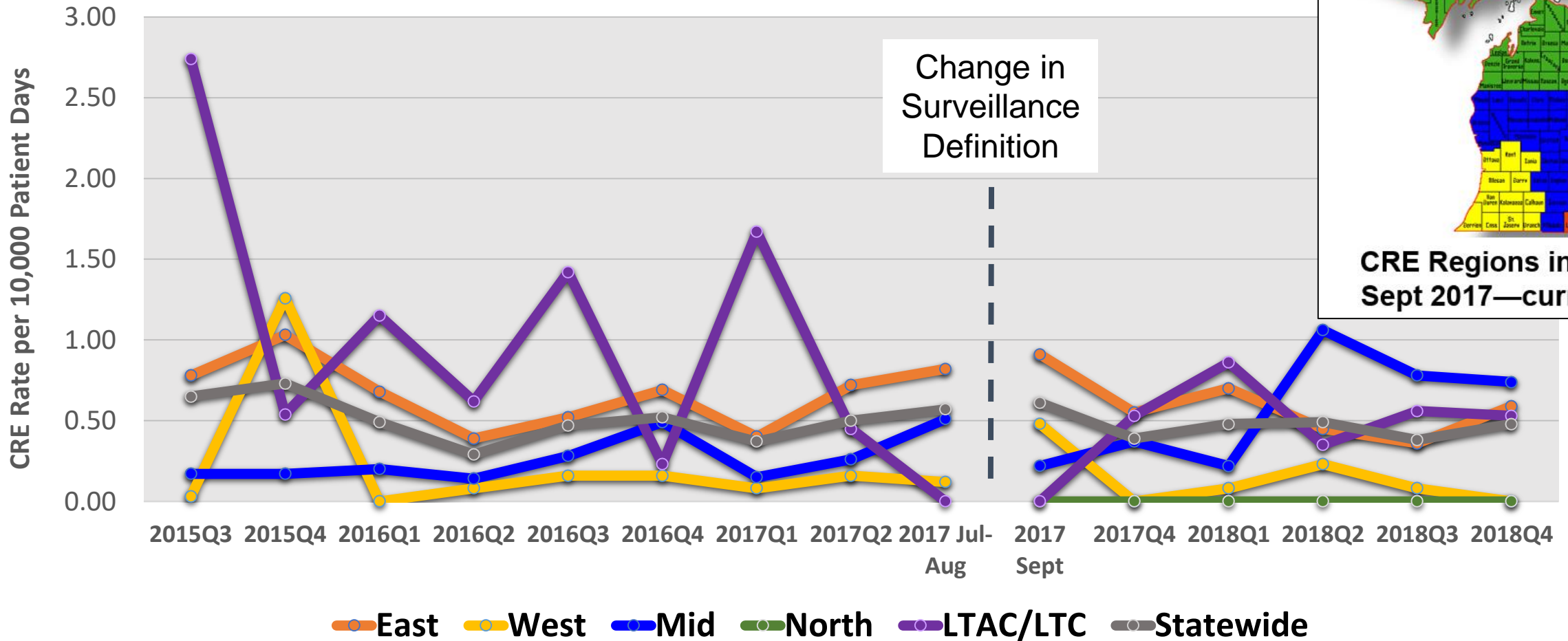


Participation by County,
2012-2017



Regional CRE Incidence Rates

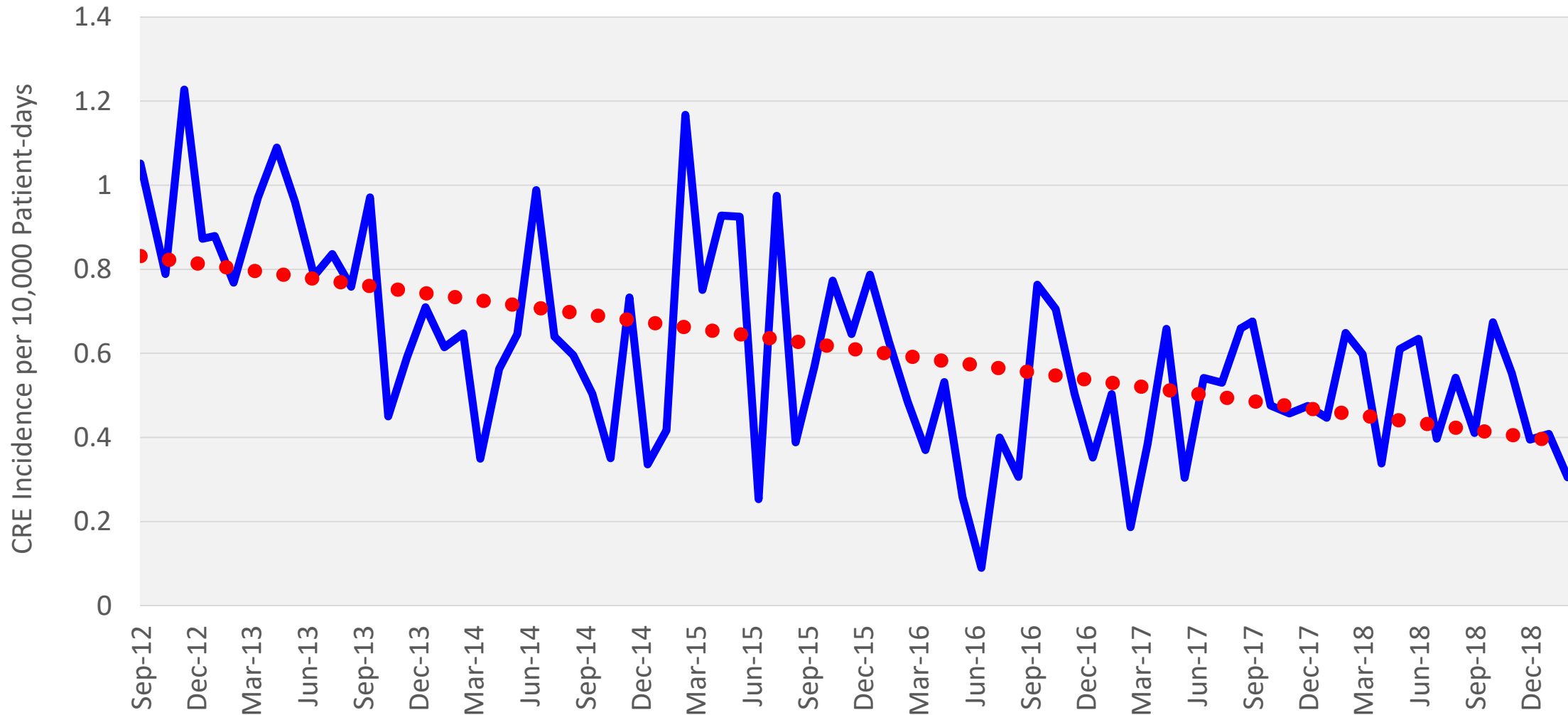
2015 Q3 – 2018 Q4



Regional CRE Incidence Rates

Region	Number of Facilities	2018 Q4		
		Number of CRE Cases	Total Patient Days	Overall Rate
East	19	23	387,506	0.59
West	7	0	130,446	0.00
Mid	9	10	134,477	0.74
North	7	0	42,364	0.00
LTAC/LTC	19	3	56,487	0.53
Statewide	61	36	751,280	0.48

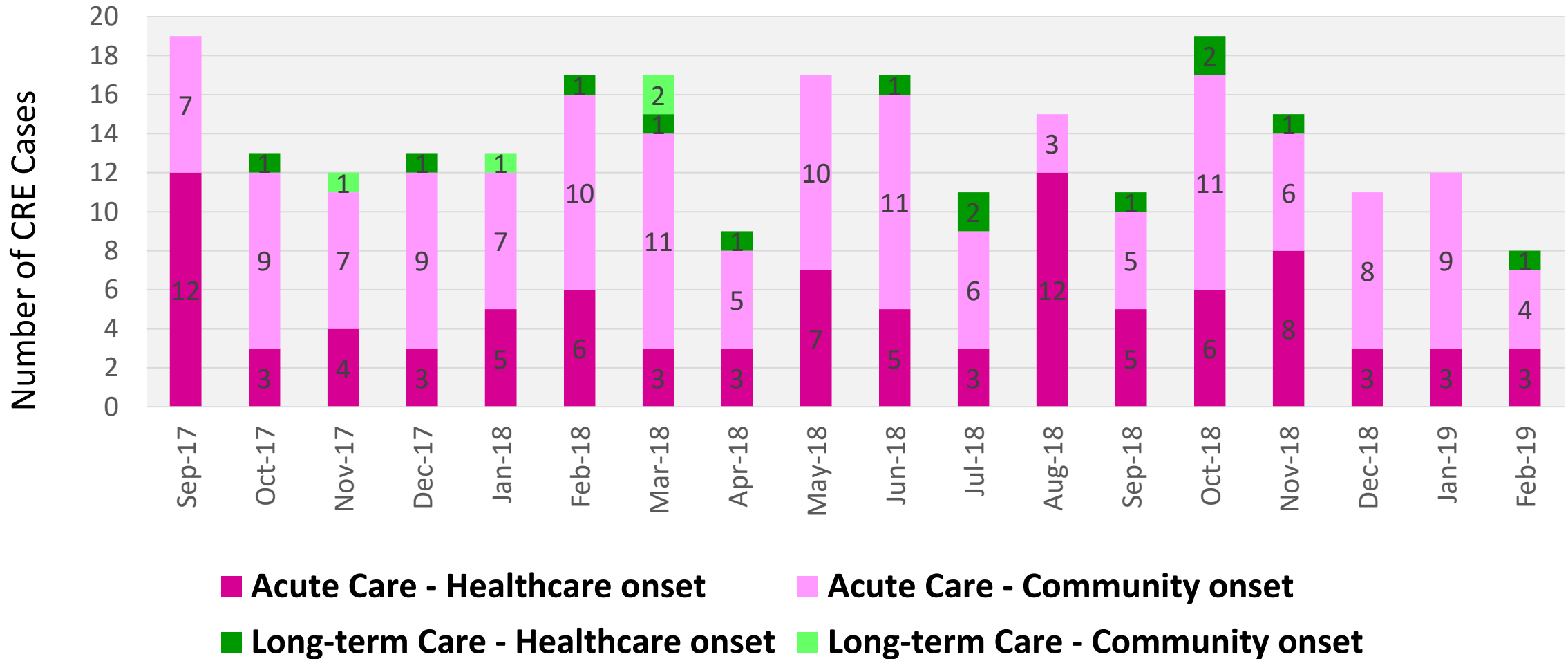
Overall CRE Incidence – All Facilities



CRE Cases Reported

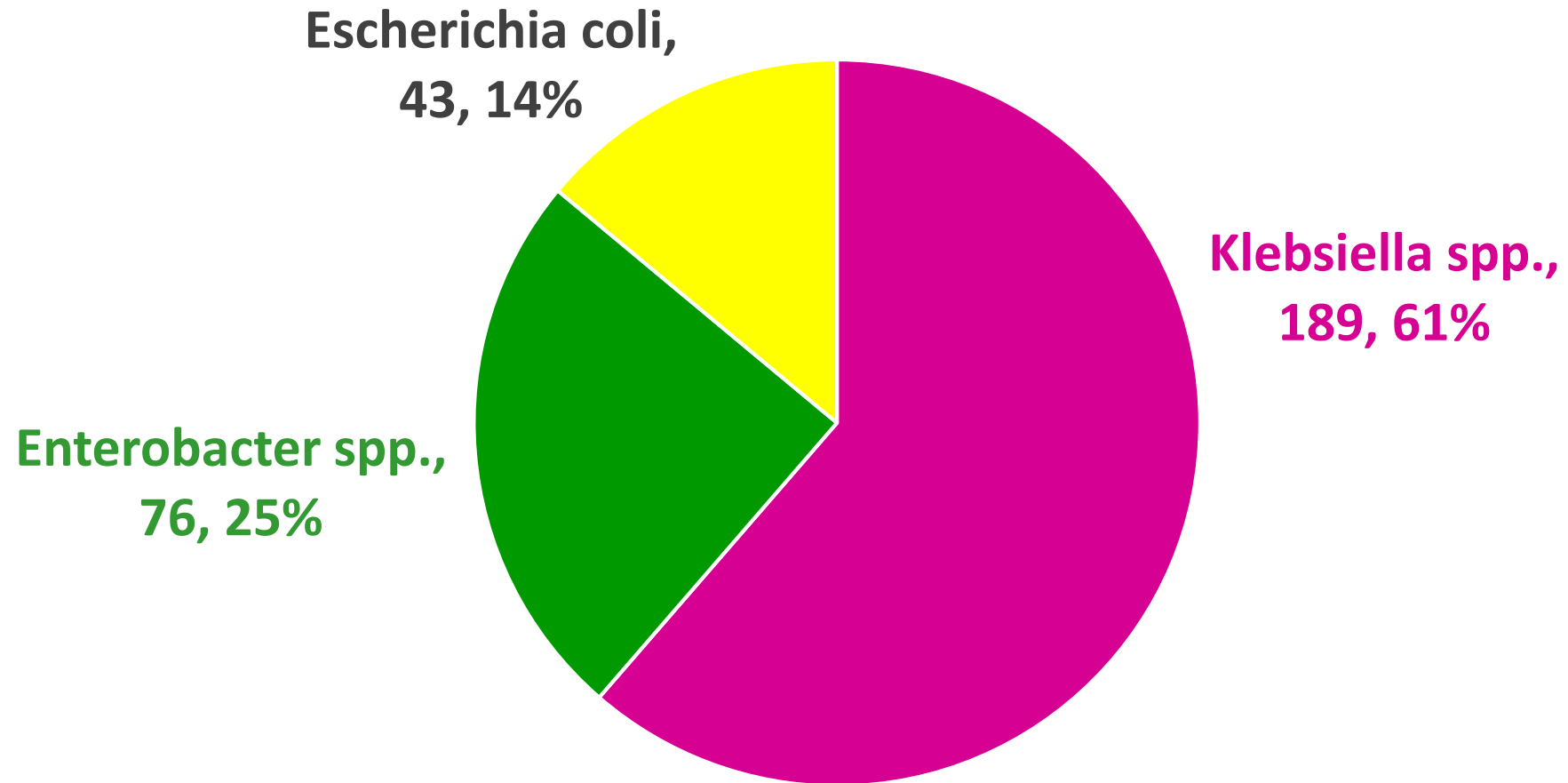
Combined Cohort

Inpatient CRE Cases by Facility-Type and Onset



CRE Cases by Organism

Sept 2017 – Feb 2019

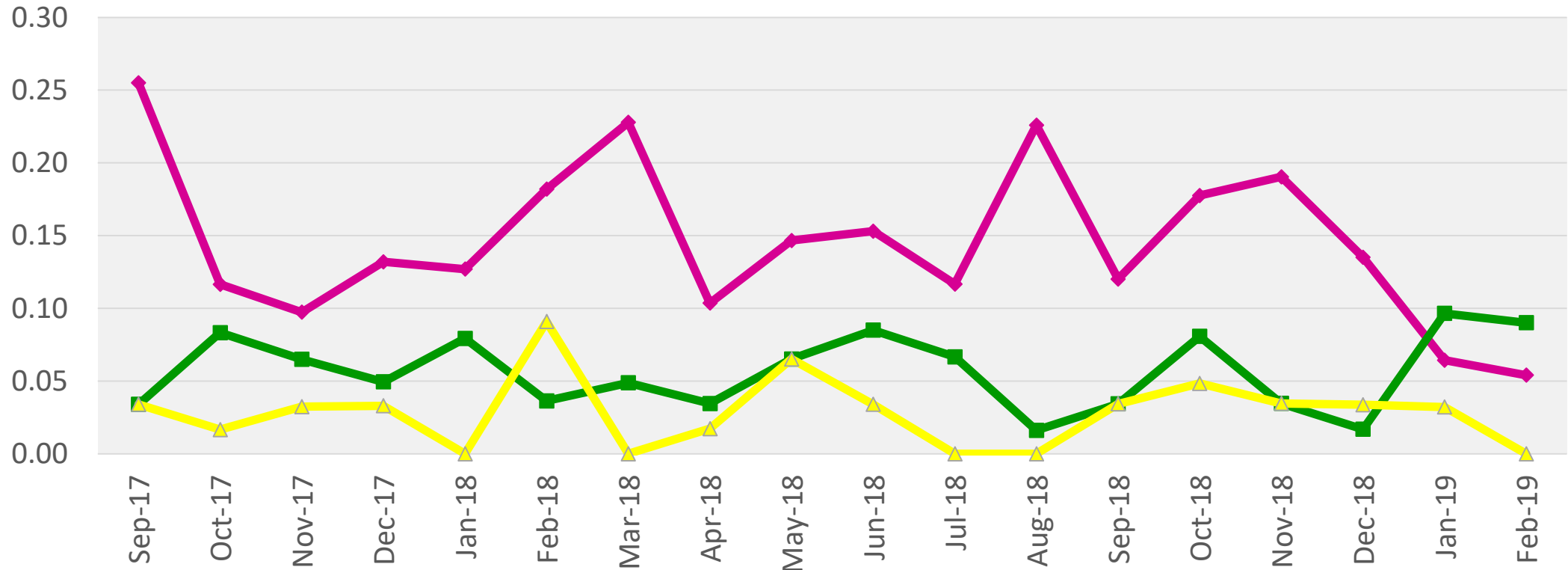


CRE Cases Reported

Combined Cohort

Overall Inpatient Prevalence Rate by Organism

Prevalence Rate per 1,000 Admissions



◆ Klebsiella spp.

■ Enterobacter spp.

▲ Escherichia coli

CRE Prevention Measures Implemented

- **Facility chose intervention(s)**
 - Type of facility
 - Regional CRE incidence
 - Available resources
 - Facility-specific barriers
 - Areas identified for improvement
 - Achievable
- **CRE Prevention Plan (CPP) form used to document**
 - Interventions, timeline, resources, department responsibilities, potential barriers, and measureables
 - Commit to implementation
- **CPP may change over time**
 - That is ok - we just needed to know

Prevention Measures Implemented

Category	Specific Measure
Procedure Changes	<ul style="list-style-type: none"> • Screening and presumptive isolation of all patients admitted from an LTAC • PICU CHG Bath Audits • Development of practioner-specific reports to describe infectious diseases specialist approvals of carbapenem use • In-house laboratory will be performing phenotypic testing to confirm carbapenamase production • Flagging of CRE patient in our IC surveillance system (RL systems) so that they can be isolated more quickly on subsequent admissions • Daily CHG bathing of all ICU patients • Terminal Clean/Bed exchange for patient who has occupied a room for greater than 45 days • Prompt discontinuance of unnecessary invasive devices • CHG bathing in confirmed CRE cases for 3 days • Sending CRE isolates to MDHHS BOL for lab confirmation
Education	<ul style="list-style-type: none"> • Improved physician education on prevention and control of MDRO organisms, infection, and colonization • MDRO Component in 2013 Annual CHM Infection Prevention (IP) Nursing Intranet Learning (NL) Competency, Education • Hand Hygiene Impact on MDRO/CRE • Educating new/transitioning staff in the proper process of CHG bathing of patients in ICU • Educational pamphlet will be developed to educate patients and visitors about CRE • Educate patient care services (RNs, and PCAs) about preventing transmission of CRE, compliance with signage and supplies for Contact Precautions while screening patients for CRE or for a patient that is positive for CRE • Education to raise awareness of the resistance mechanisms of emerging pathogens • Present MDRO (including CRE) education for Medical Residents and reach other healthcare personnel (RNs, support services, MDs, etc.) using forums such as unit huddle
Compliance	<p>Evaluating compliance with isolation practices (i.e., posting of proper signage, availability of gloves, masks, and gowns as well as proper use of these supplies) for all patients that are in isolation</p>
Communication	<p>Rapid communication between lab, IP and ID physicians, inter-facility communication, Inter-facility communication for CRE positive patients: When a CRE is identified, communication will occur to any outside transferring facility by communication transfer form and/or phone communication</p>
Pilot project	<p>Project using Dazo fluorescent marking gel to objectively measure thoroughness of disinfection cleaning on critical surfaces</p>

CRE Infections Prevented

2012-current

Initiative Phase	All Facilities	Acute Care	LTAC/LTC
Phase 1	280	235	45
Phase 2	68	50	18
Phase 3	14	0	14
Combined Cohort (Mar 2018 - current)	2	6	-4
Total Initiative	364	291	73

CRE Surveillance & Prevention Initiative

Changing over time

- **CP-CRE** added to the reportable disease list **January 2018**
 - All facilities reporting CP-CRE
- ***Candida auris*** added to the reportable disease list **January 2019**
- With the initiative officially ending in **August 2019**, we have some decisions to make...

CRE Surveillance & Prevention Initiative

Changing over time

Options

- Shift focus in organism
 - Voluntary reporting of CR-Acinetobacter and CR-Pseudomonas
- Shift focus in facilities
 - Recruit the remaining LTACs, vSNFs, and SNFs
 - Point prevalence for CP-CRE, CRAB, CRPA or *Candida auris*
 - *Targeted prevention*
- Pilot study
 - Enroll a few facilities to voluntarily screen for CP-CRE and *Candida auris* upon admission for patients hospitalized outside the US in 6 mo prior

CRE Surveillance & Prevention Initiative

Changing over time

Options

- Interventions in high prevalence areas (geographically)
 - ICARs and systematic screenings (regular Point Prevalence Surveys)
 - Targeted, facility-specific prevention

The CRE Surveillance and Prevention Initiative ends August 2019

- Continue to provide quarterly/regional CRE/Novel Resistance Reports
- Continue the CRE Partners in Prevention... MDRO/AR quarterly call
- SurveyMonkey sent to participating facilities to determine interest and need

CRE Surveillance and Prevention Conference

- **Welcome... thank you for coming!**
- Thank you to our presenters, moderators, and fellow conference planners
- Please ask questions
- Enjoy the conference!