

# Investigation of KPC-Producing Carbapenem Resistant Enterobacteriaceae (CRE) in a Skilled Nursing Facility—Pennsylvania, 2016

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On behalf of

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# The call in October 2016

- Several residents diagnosed with Carbapenem-resistant *Enterobacteriaceae* (CRE)
- On-site investigation
- Suboptimal infection control practices
- Recommendations made



# Case definition & cases identified

A case was defined as a specimen positive for CRE from any body site during 2016 in a facility resident.

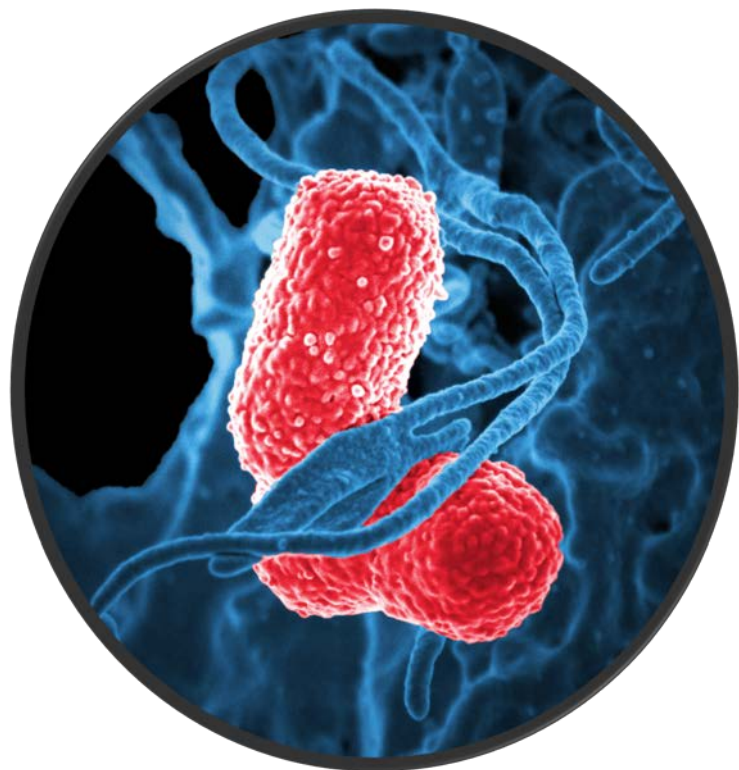
Date of first positive	Case count
April	1
June	1
July	1
September	1
October	1
November	1
Total in 2016	6



# Follow up laboratory testing

- Rectal surveillance specimens
  - ▣ 7 residents who had CRE-positive roommate in the past 2 years
  - ▣ 4 residents with a history of CRE
- Urine specimens
  - ▣ 3 recent CRE isolates from clinical lab
- Specimens sent to CDC
  - ▣ Culture
  - ▣ Mechanism testing
  - ▣ PFGE

# Laboratory results

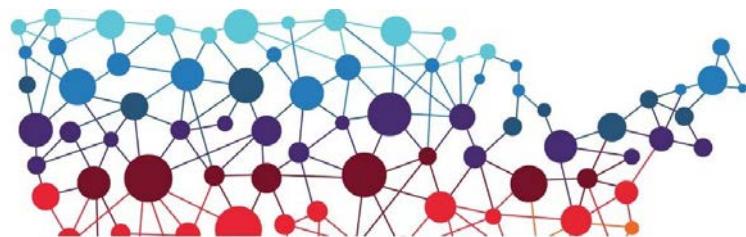


- 1 colonized roommate identified
- All specimens KPC-CRE
- PFGE
  - ▣ 2 pattern clusters
  - ▣ Unrelated patterns

# Point Prevalence Survey

December 2016

- Rectal screening specimens collected from 77 of 88 (88%) residents
  - ▀ Sent to ARLN laboratory (NY) for KPC detection
- 1 additional case of CRE



**ARLAB**network



# Point Prevalence Survey

- 13 additional KPC-colonized residents identified
- 21 total cases of KPC-CRE in 2016



# Cohort analysis

- Data obtained from medical records
  - ▀ Sent to us from the facility staff
- Only included residents eligible for the point prevalence survey (not previously identified cases)



# Cohort analysis

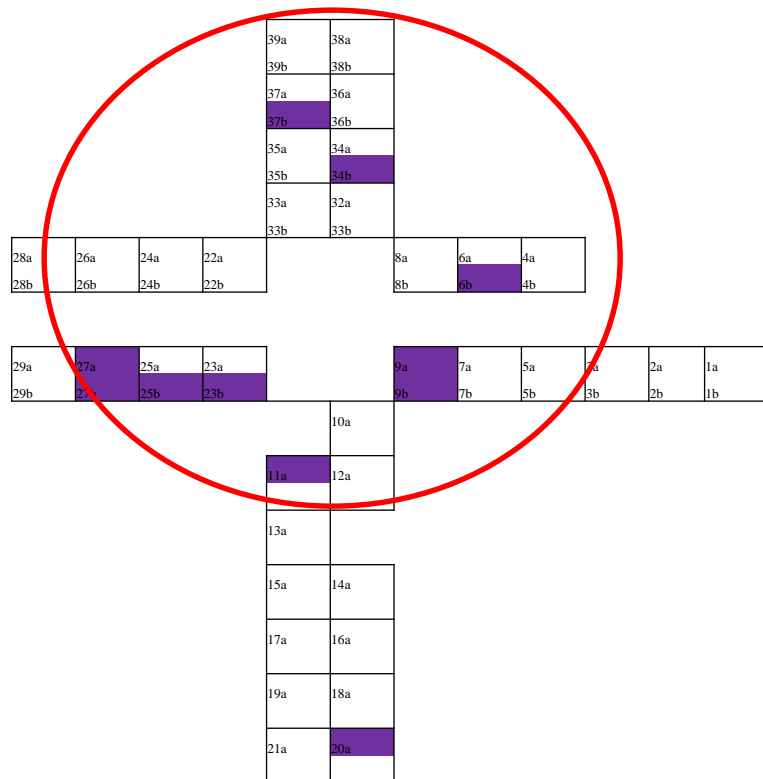
	Non-colonized	Colonized	p-value*
	n(%)	n(%)	
History of MDRO	11(17%)	6(46%)	0.026
Room on Wing A	26(41%)	11(85%)	0.005
Indwelling urinary catheter	3(5%)	1(8%)	0.531

\*Fisher's Exact Test

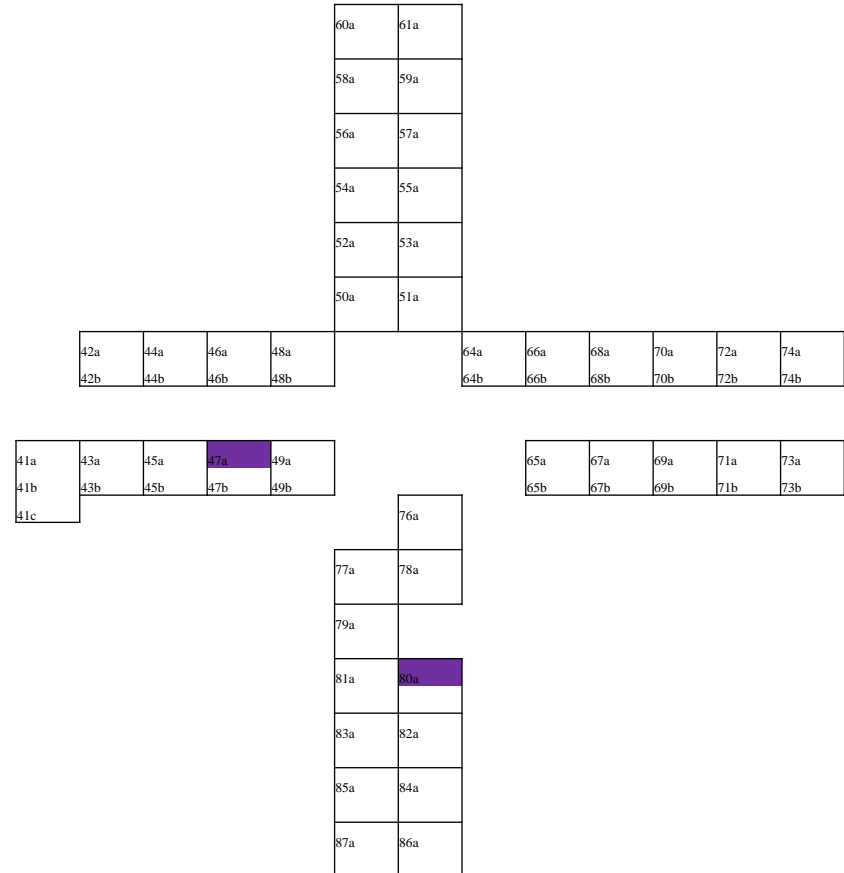
**Not shown:** age, sex, length of stay, antibiotic exposure in previous 6 months, number of antibiotics in previous 6 months, dementia diagnosis, dementia with behavioral problems, incontinence, limited mobility, hospital admission in previous 12 months

# Room location

A




B



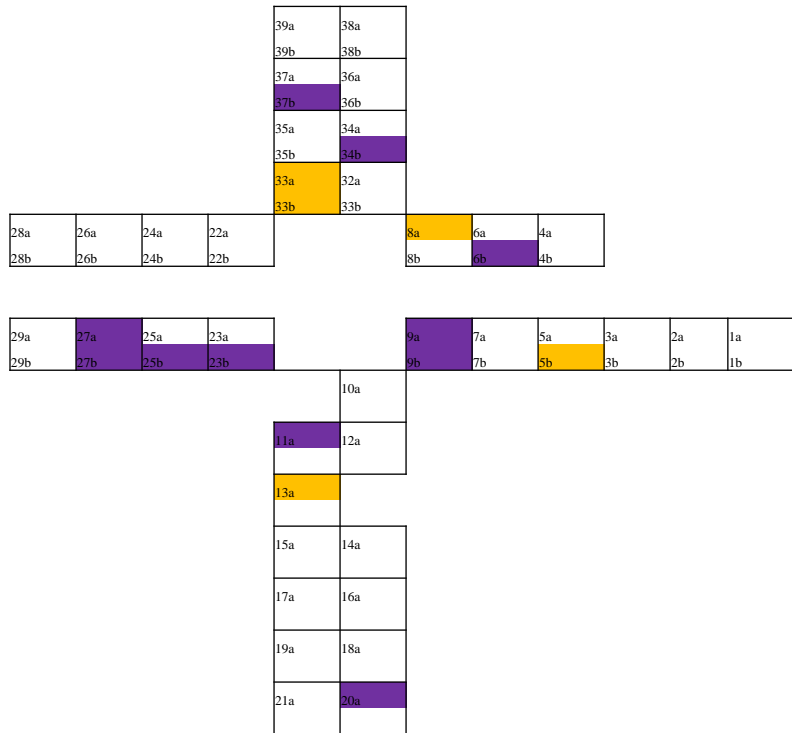


# Room location

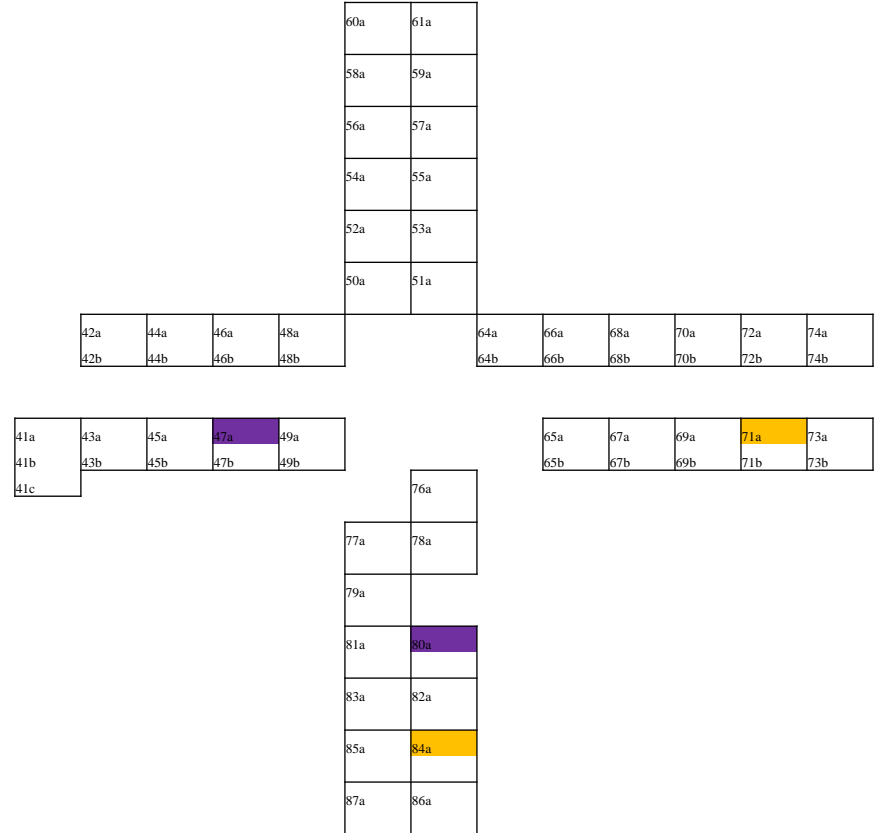
Current residents only:

 clinical  
 colonized

## A



## B





# Recommendations & Conclusions

- Multiple importations and intra-facility transmission likely occurred
- Rectal screening for CRE upon admission to facility recommended
- ARLN CRE colonization screening and further analysis is helpful
- CDC CRE Toolkit Guidelines should be followed for CRE infection control



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