

# Carbapenem-Resistant *Enterobacteriaceae* (CRE) Laboratory Detection and Infection Prevention Survey

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# Background

- MDCH developed two web-based electronic surveys in Zoomerang ([www.zoomerang.com](http://www.zoomerang.com)):
  - To identify lab-based CRE detection methods
  - To determine CRE infection prevention practices
- Lab surveys were distributed via a Microbiology Laboratory listserv
- IP surveys were distributed via Michigan Society for Infection Prevention and Control (MSIPC) and Association for Professionals in Infection Control-Greater Detroit (APIC-GD) listservs

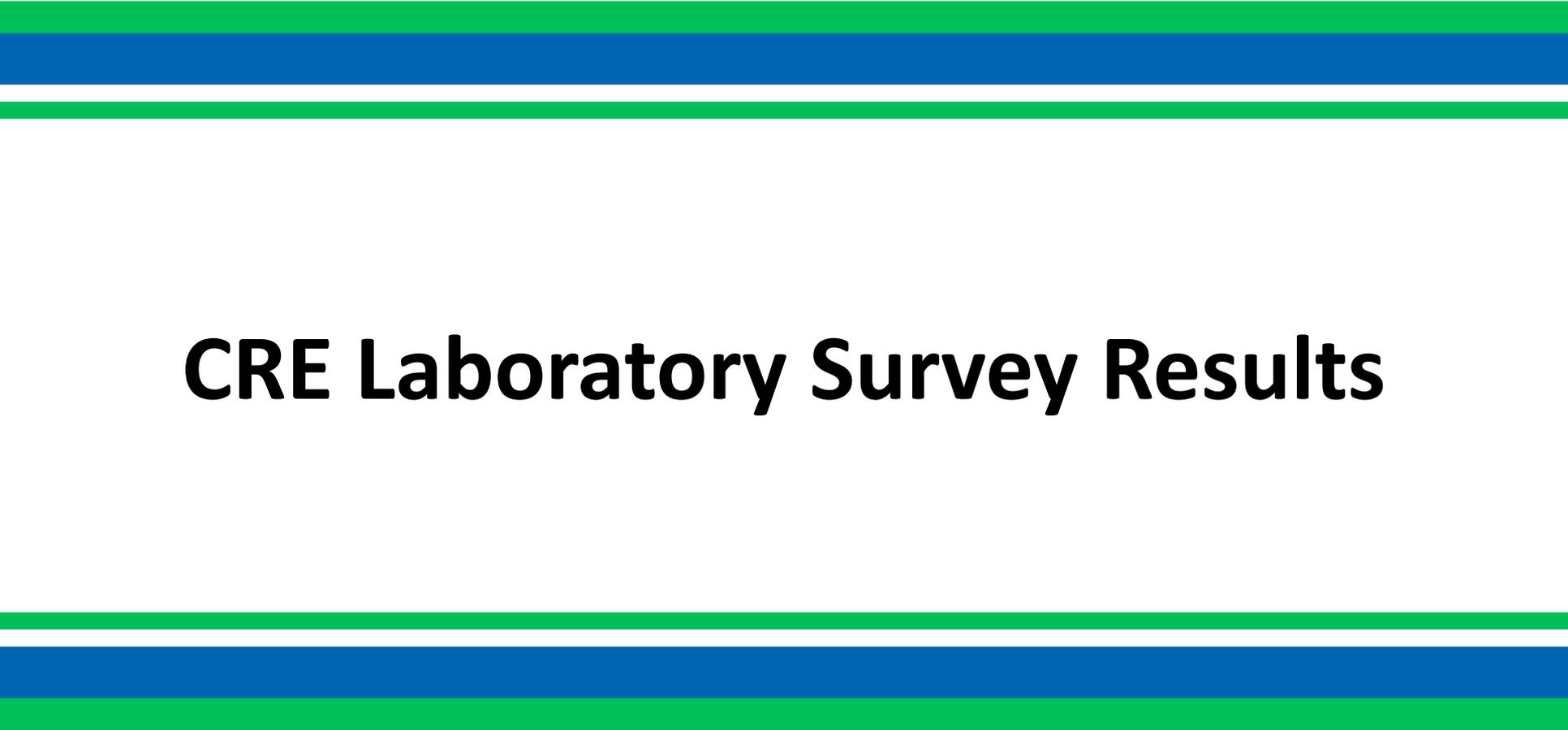


# Background

- Surveys were open from March 5<sup>th</sup> – April 9<sup>th</sup> 2012
- Survey participation was voluntary
- We asked for one lab response and one IP response per facility

# Purpose of the Surveys

- To learn the approximate burden of CRE in Michigan healthcare facilities in 2011
- Discover which laboratory methods facilities are using to detect CRE
- Learn the infection prevention practices IPs are utilizing to track and prevent CRE transmission
- To gauge interest in the CRE Surveillance and Prevention Initiative
- To inform the CRE collaborative of current practices to help determine next steps

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# **CRE Laboratory Survey Results**

# CRE Laboratory Survey Background

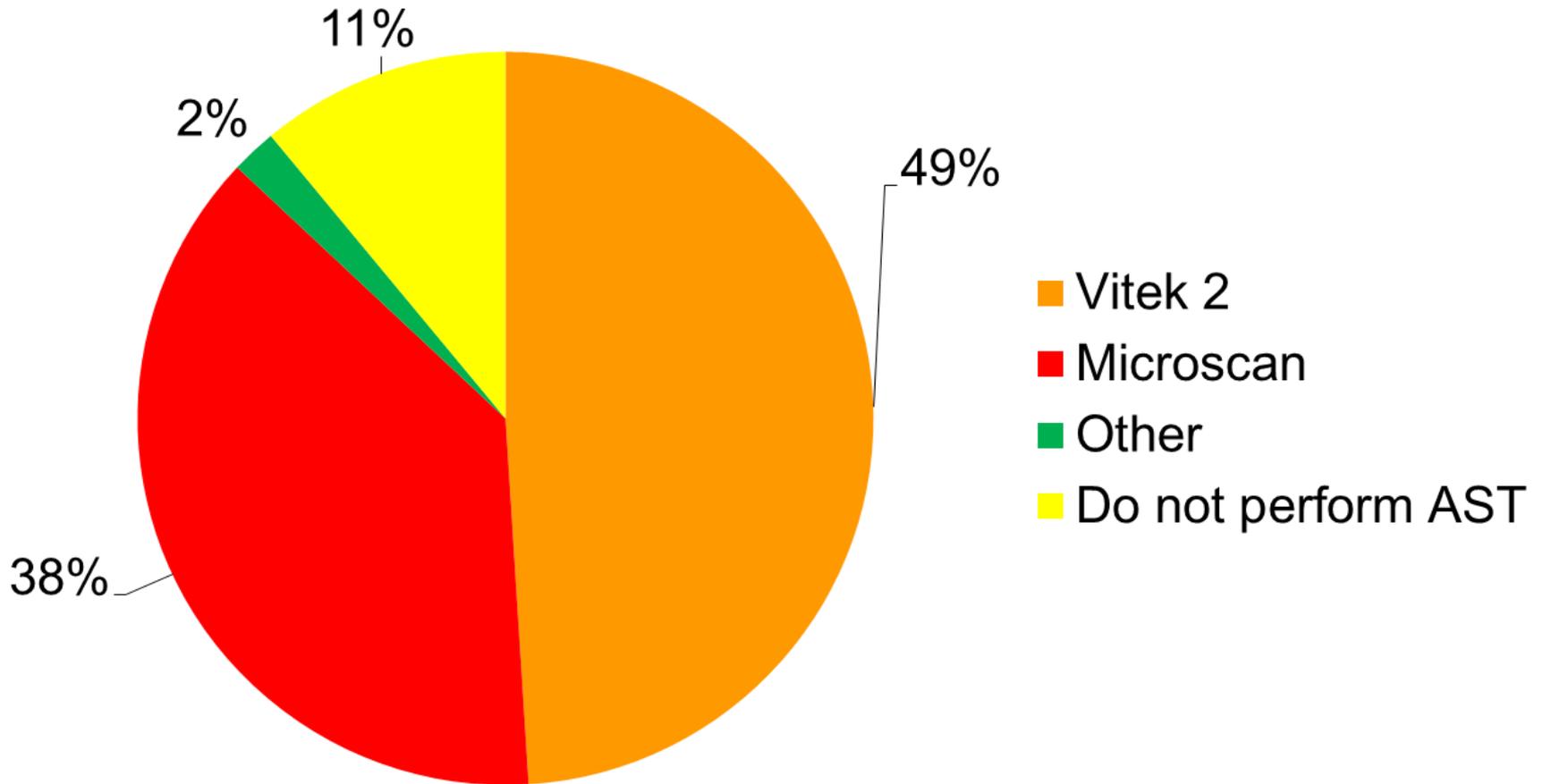
- 55 laboratories responded to the survey
- Laboratories use different commercial test systems for antimicrobial resistance
- Laboratories purchase testing panels with pre-determined set of drugs
- More antimicrobial agents than those included on lab report are often tested (“selective reporting” - part of Antimicrobial Stewardship)

# CRE Laboratory Survey Background

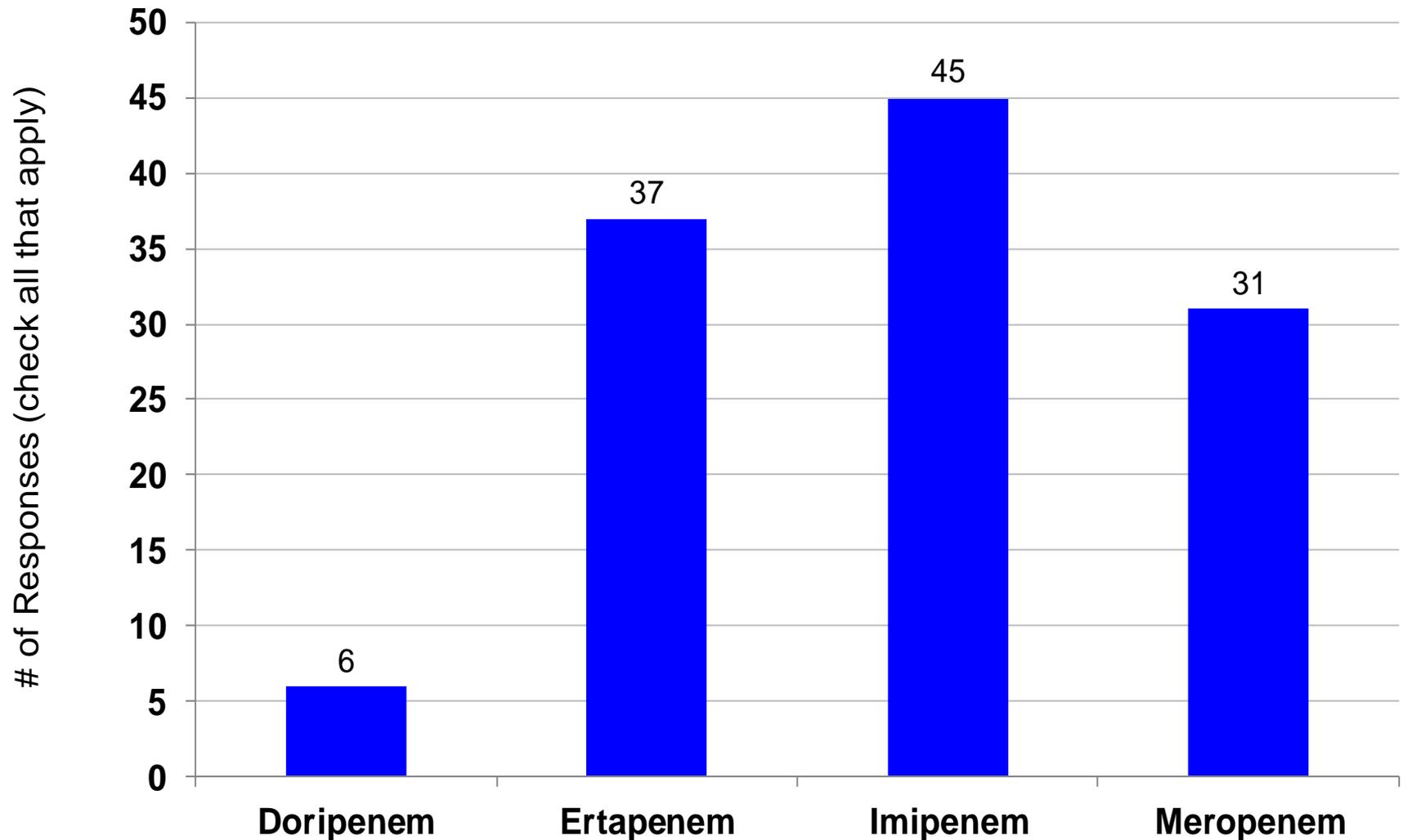
- Carbapenem antimicrobials (in US) are doripenem, ertapenem, imipenem, meropenem
- Cut-off values (i.e., breakpoints) for S, I, and R interpretations for CRE are in transition (FDA vs. changes advocated by CLSI\* beginning in 2010)
- Laboratories may need to do additional confirmatory testing, depending on which cut-off values they use

\*Clinical and Laboratory Standards Institute

# Primary method of performing Antimicrobial Susceptibility Testing (AST) (n=55)



# Carbapenems included on AST card or panel (n=49)

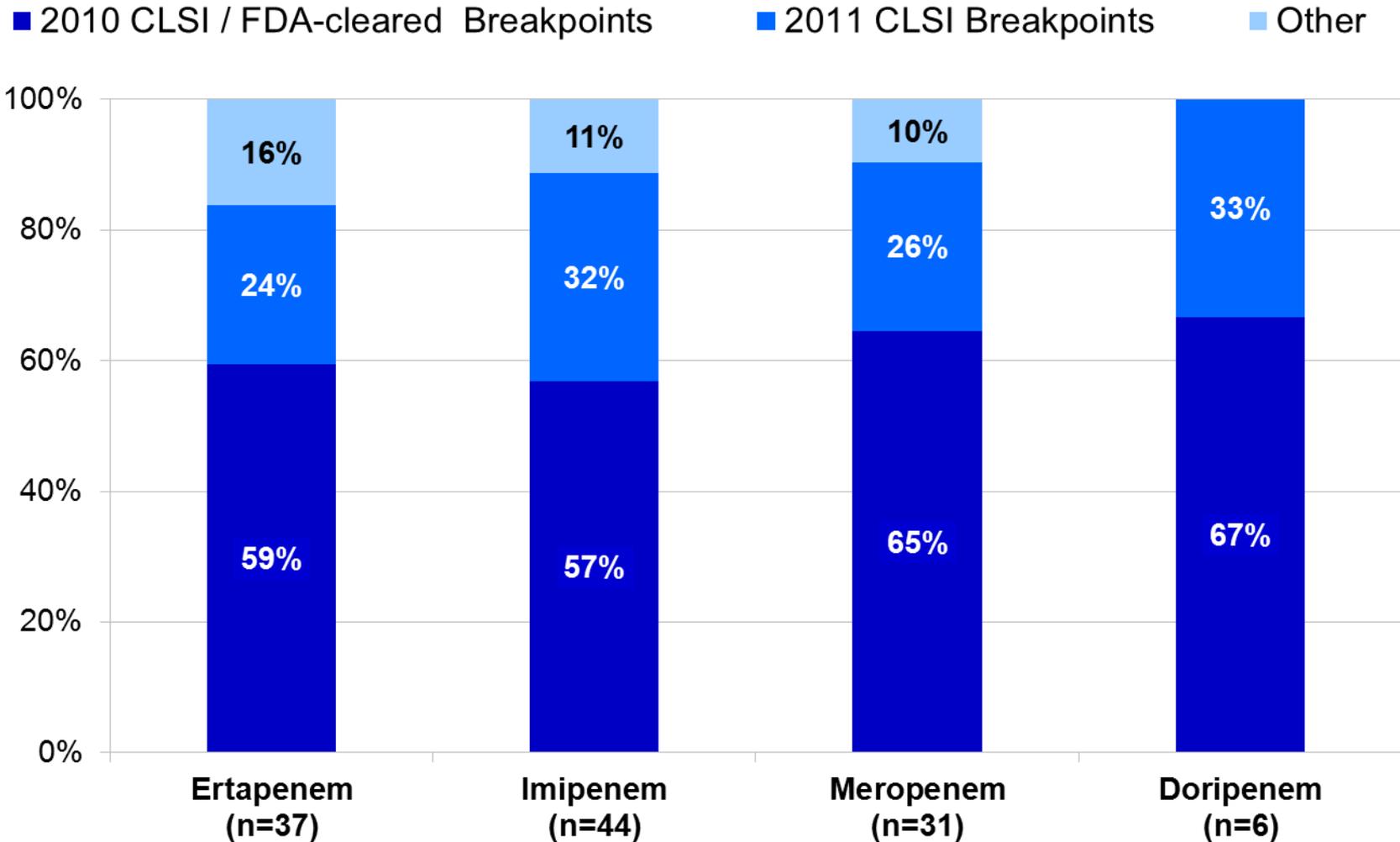


# Laboratories able to test >1 Carbapenem (though not always on same panel)

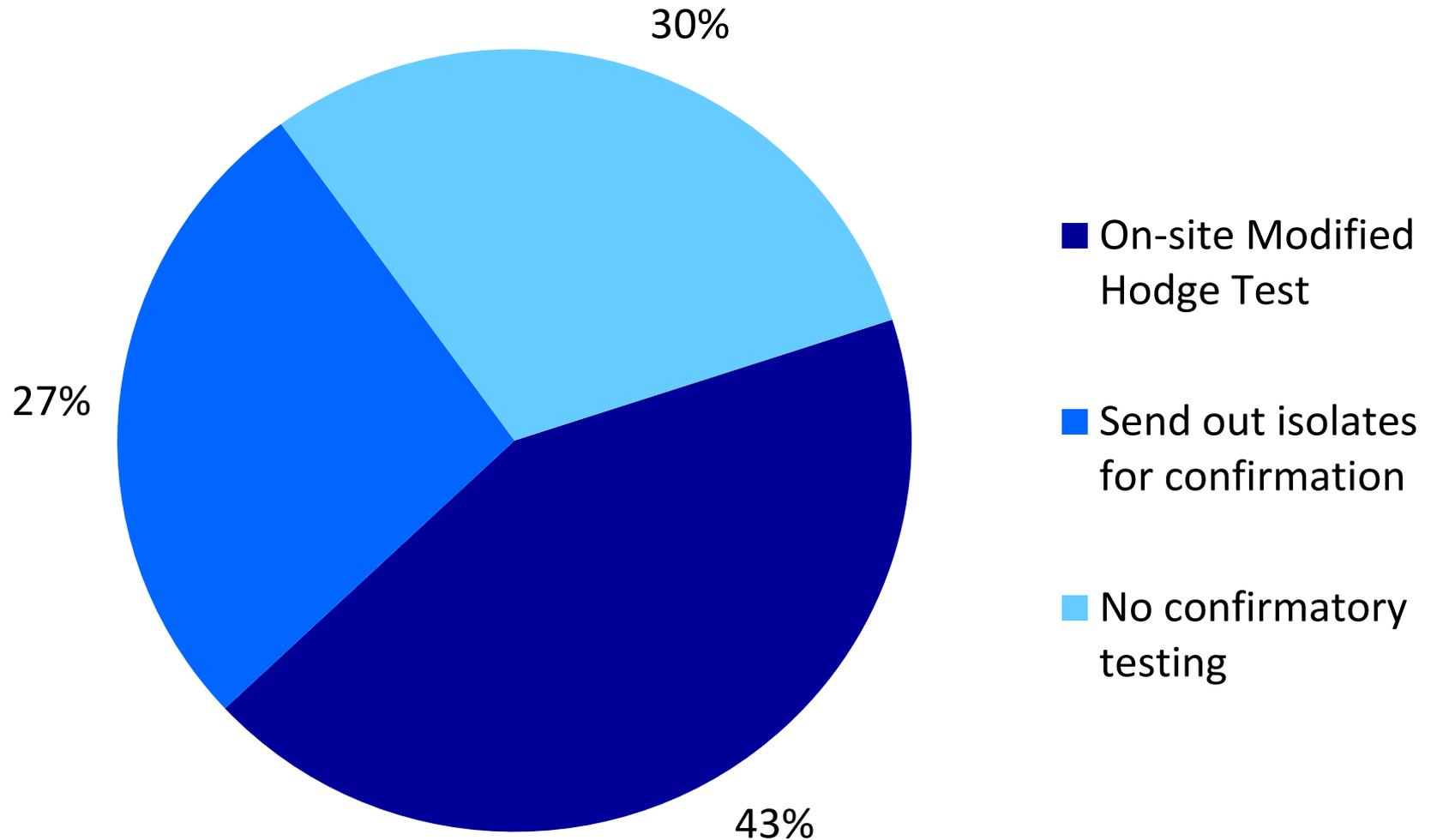
		Erta	Mero	Dori
<b>Imi alone</b>	3			
<b>Imi +</b>		13	8	1
<b>Erta +</b>			3	0
<b>Erta + Dori +</b>			1	0
<b>Erta + Imi +</b>			16	1
<b>Erta + Imi + Mero +</b>				3

- 1** Laboratory with only one carbapenem antimicrobial on test panel
- 2** Laboratory with two carbapenem antimicrobials on test panel(s)
- 3** Laboratory with three carbapenem antimicrobials on test panel(s)
- 4** Laboratory with all four carbapenem antimicrobials on test panel(s)

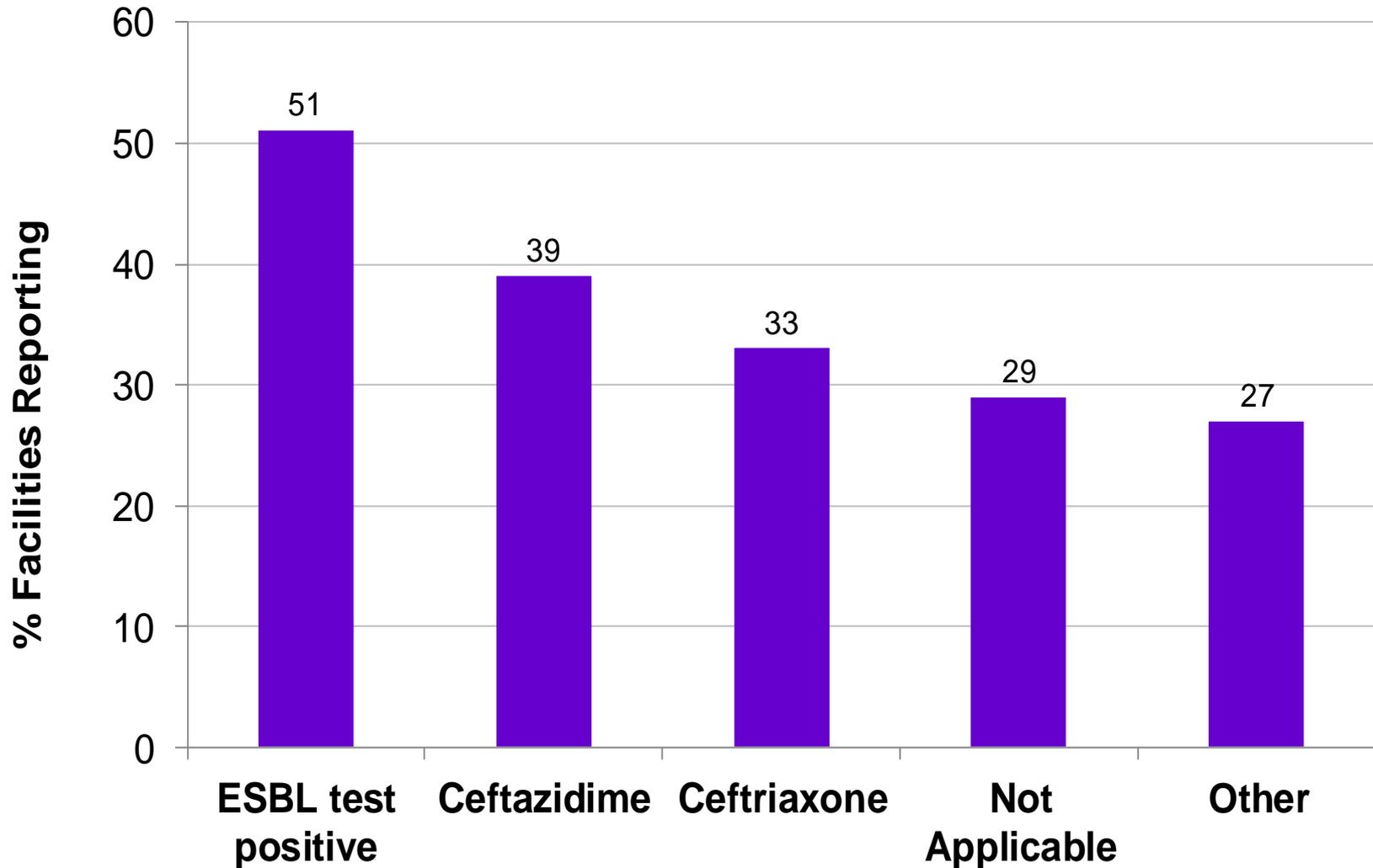
# Carbapenem breakpoints used for determining Non-Susceptibility



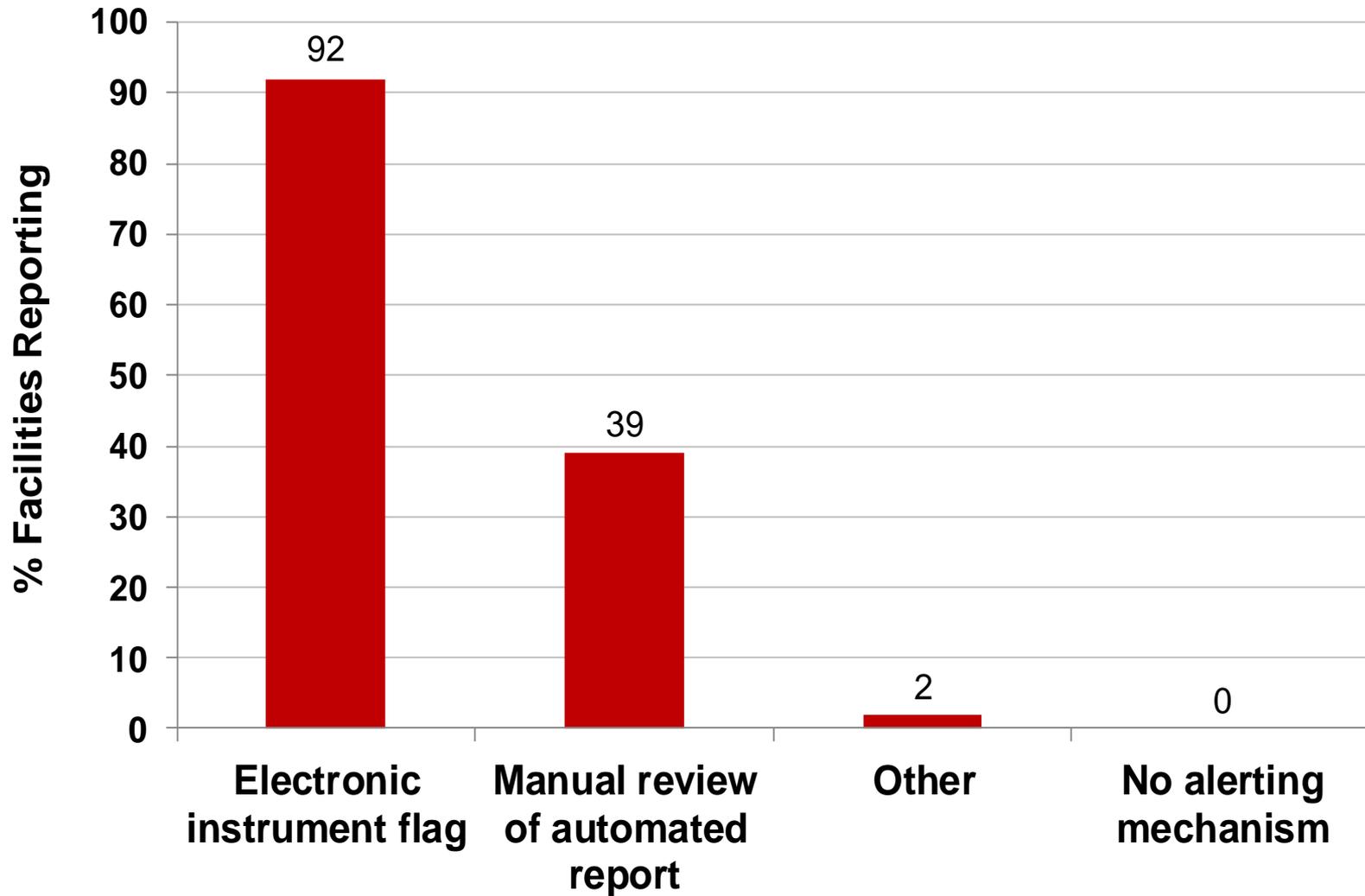
# Laboratory CRE confirmatory testing (n=50)



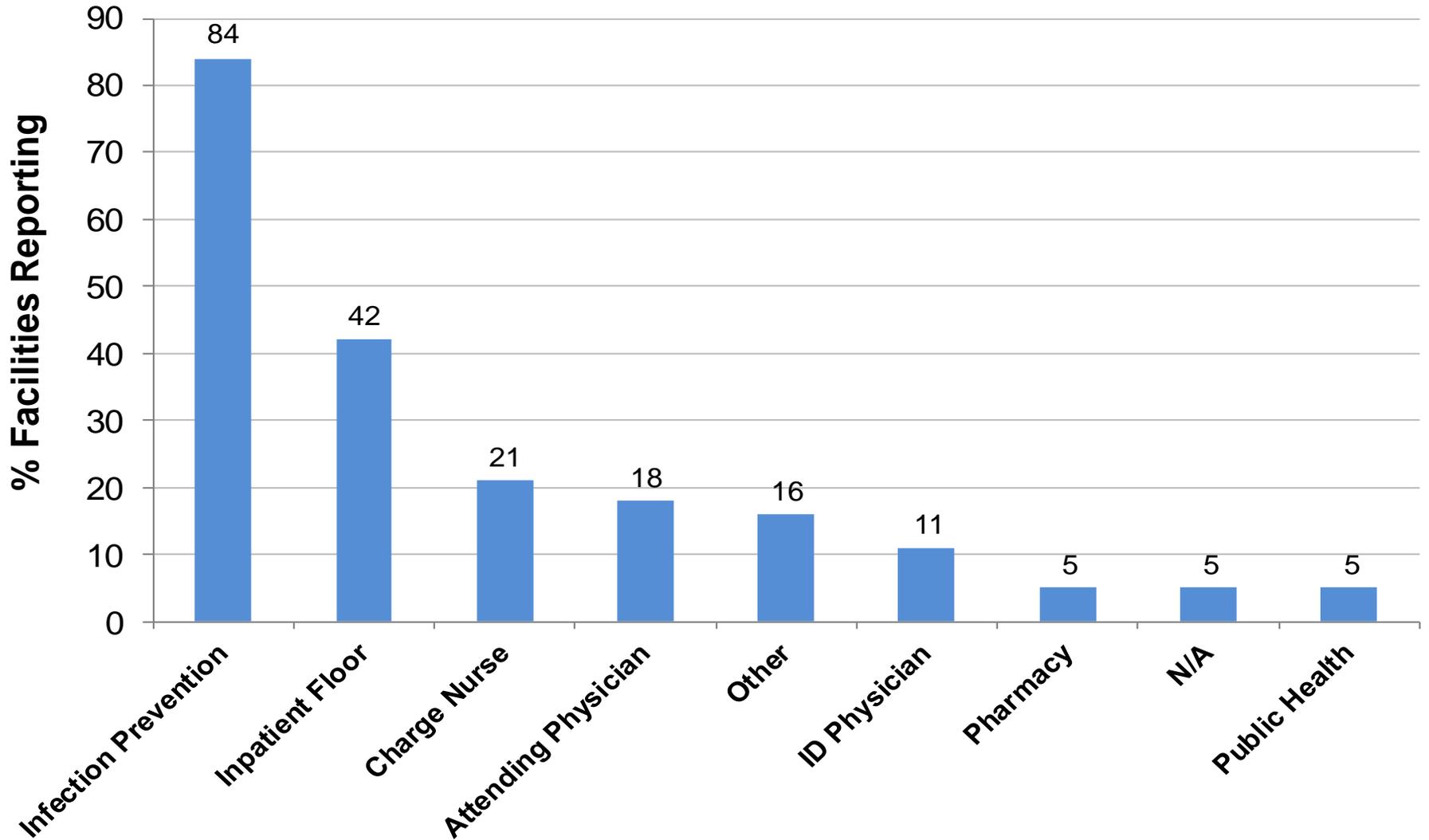
# Indicators prompting lab to suspect CRE (n=49)



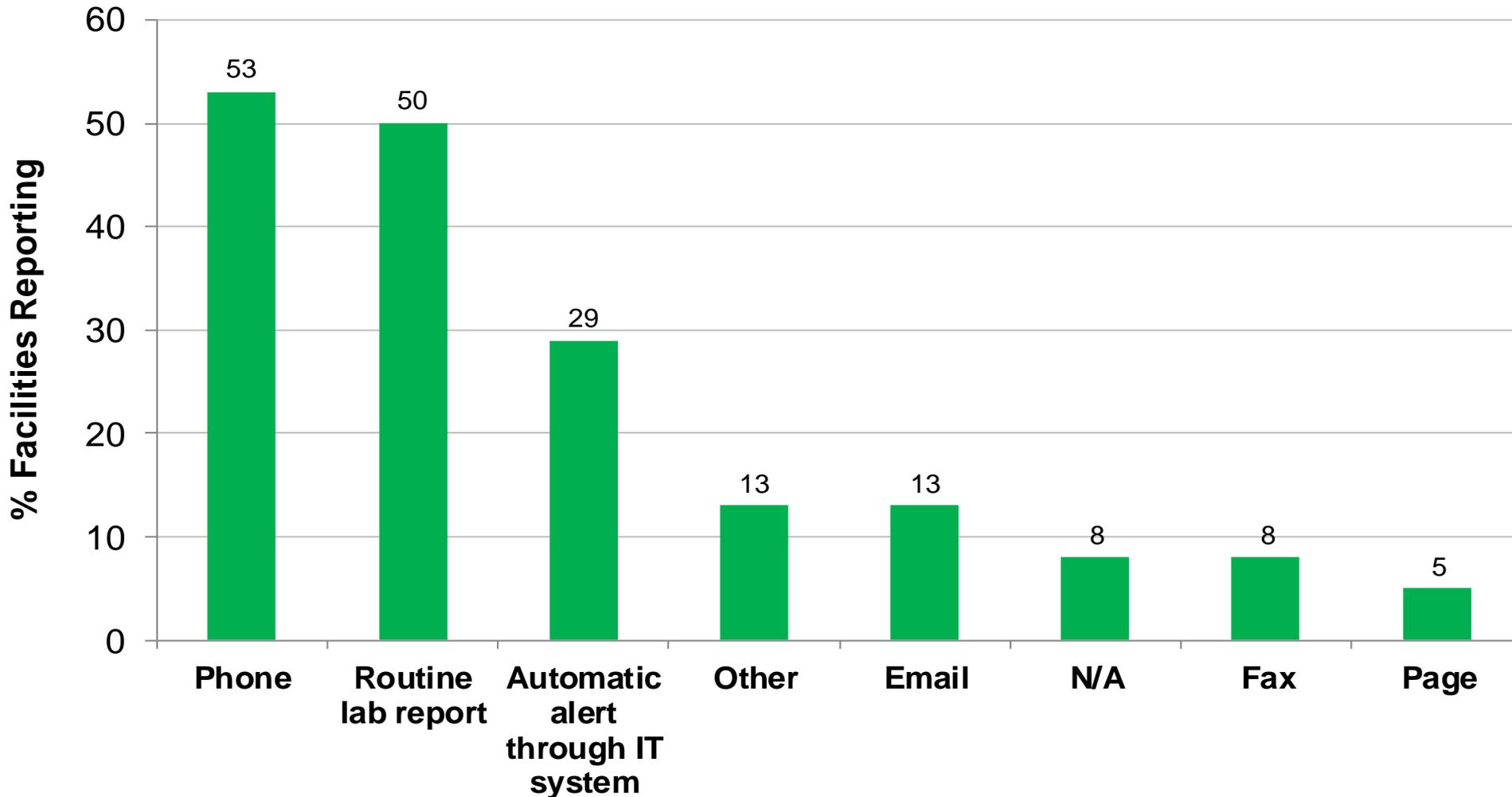
# Alerting mechanism to bench staff (n=49)



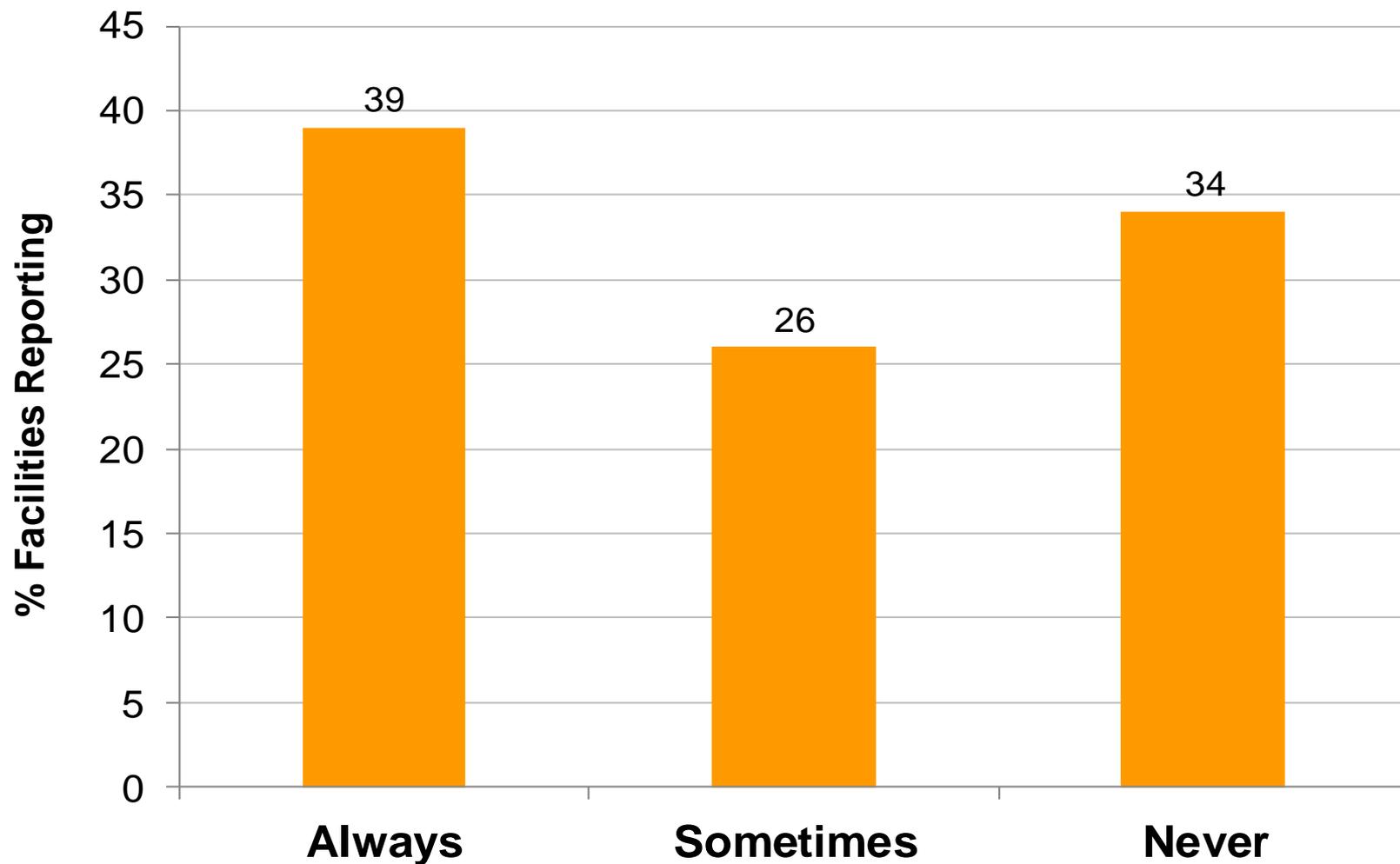
# Whom does the lab notify when a CRE is isolated (n=38)

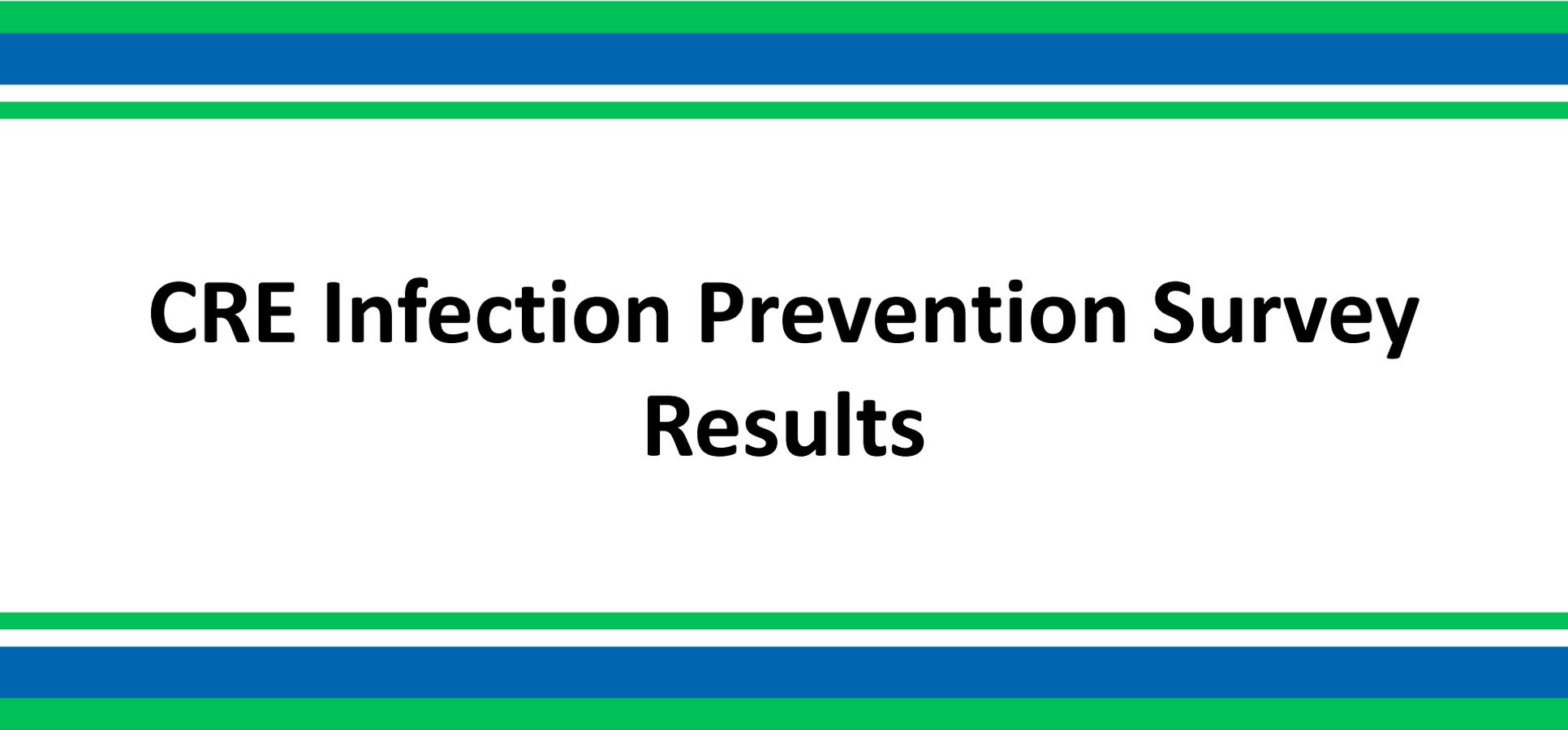


# How is a confirmed CRE reported to Infection Prevention (n=38)



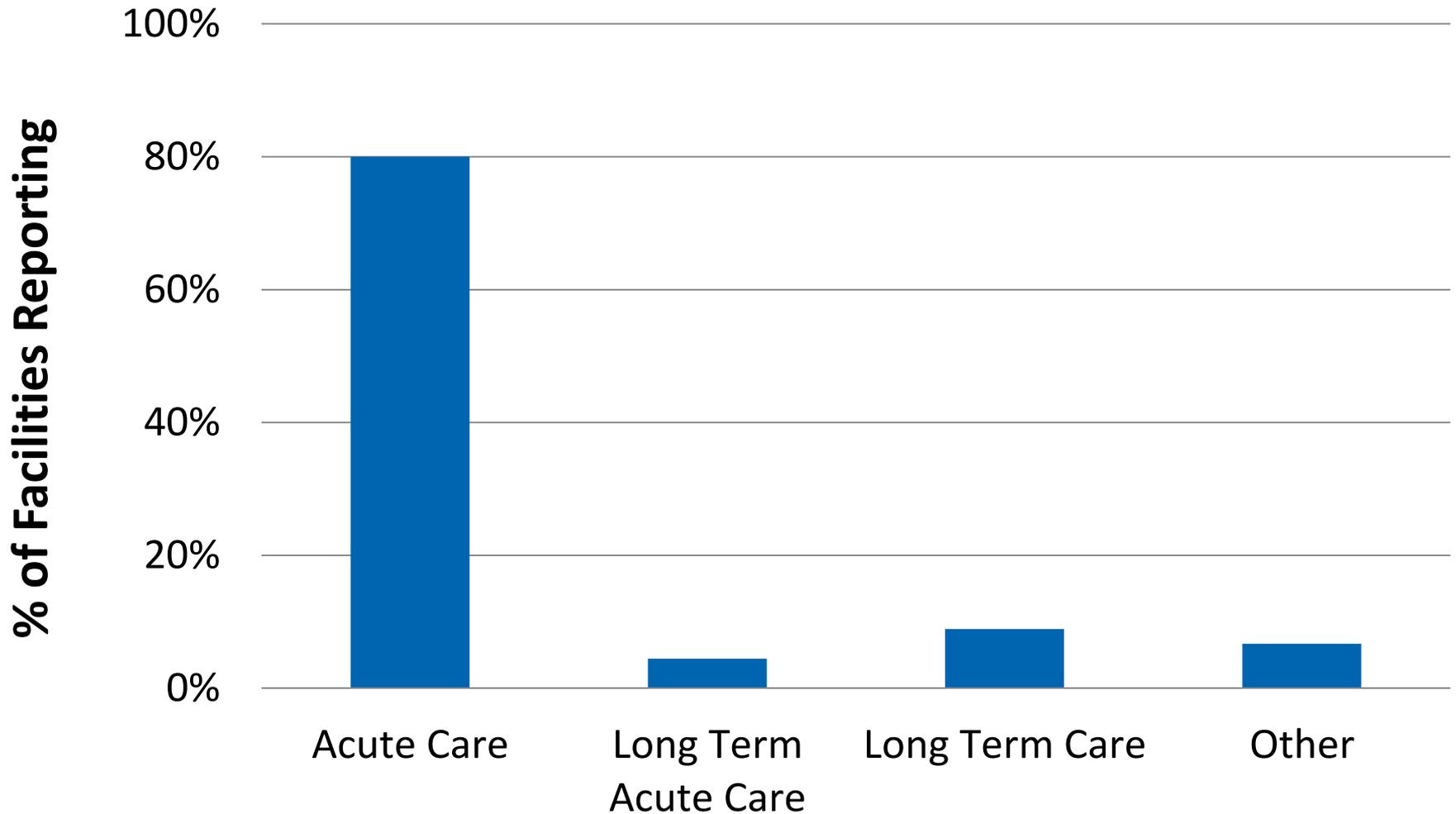
# Is Infection Prevention notified when a CRE is suspected (not yet lab-confirmed) (n=38)



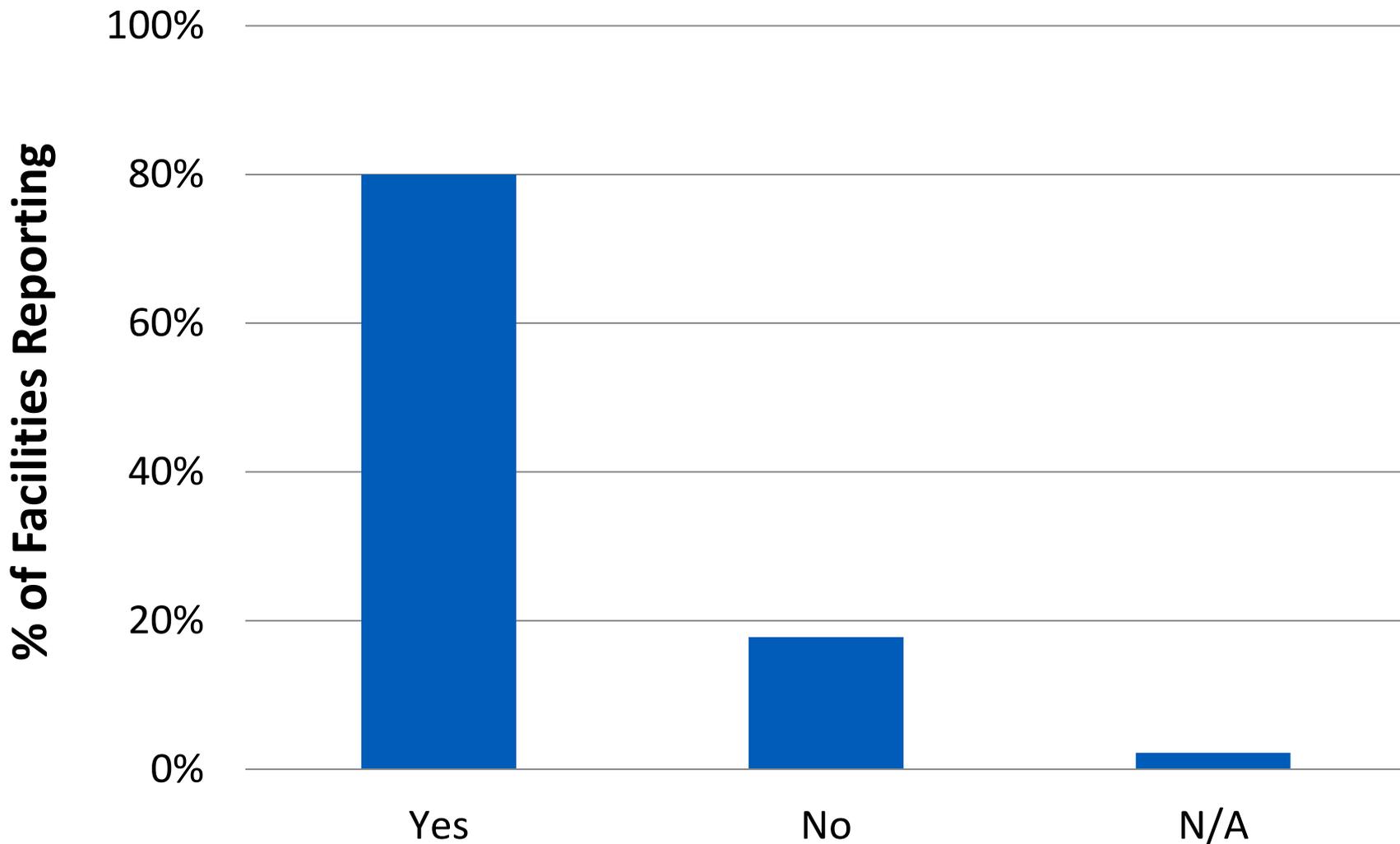


# **CRE Infection Prevention Survey Results**

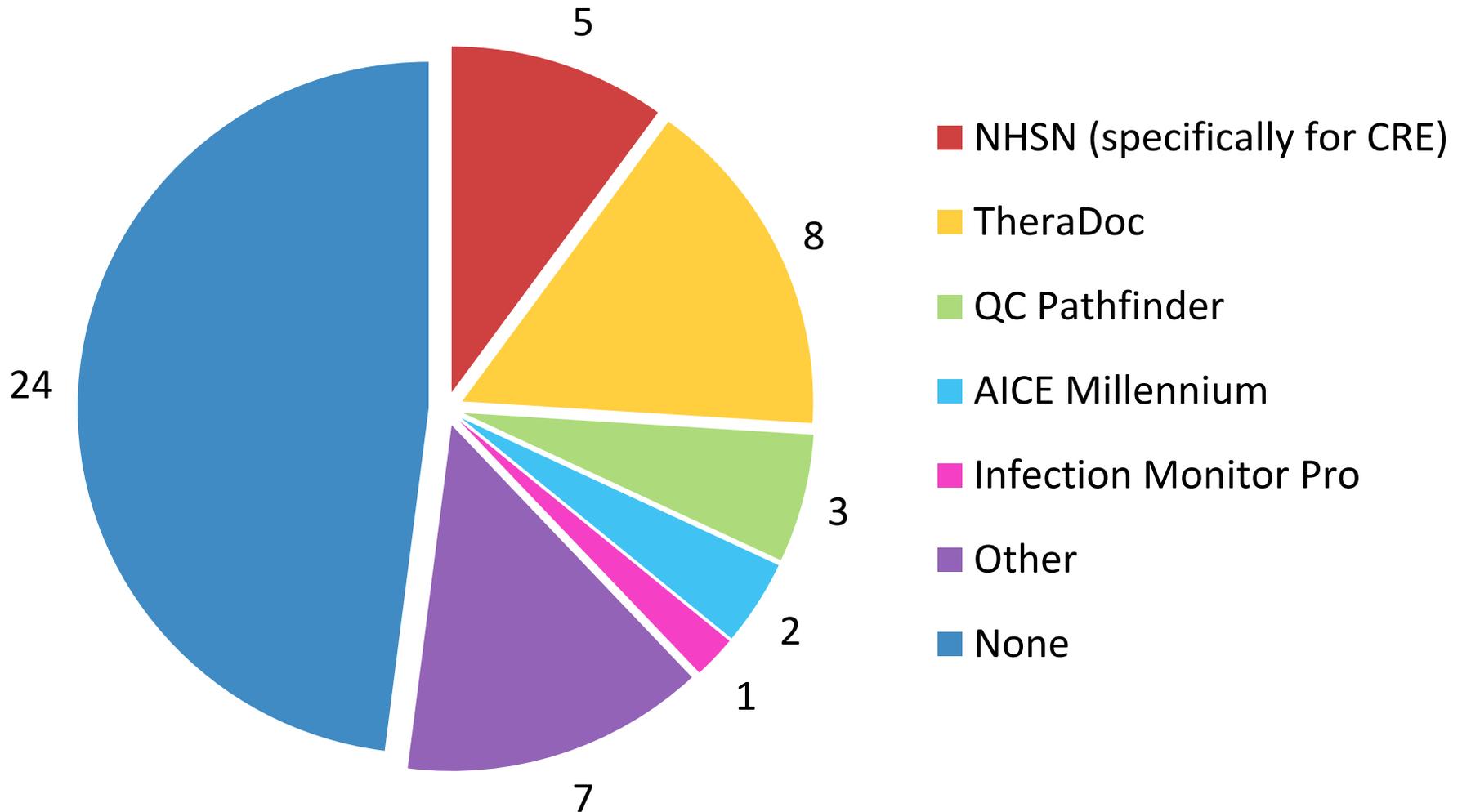
# Facility Type (n=45)



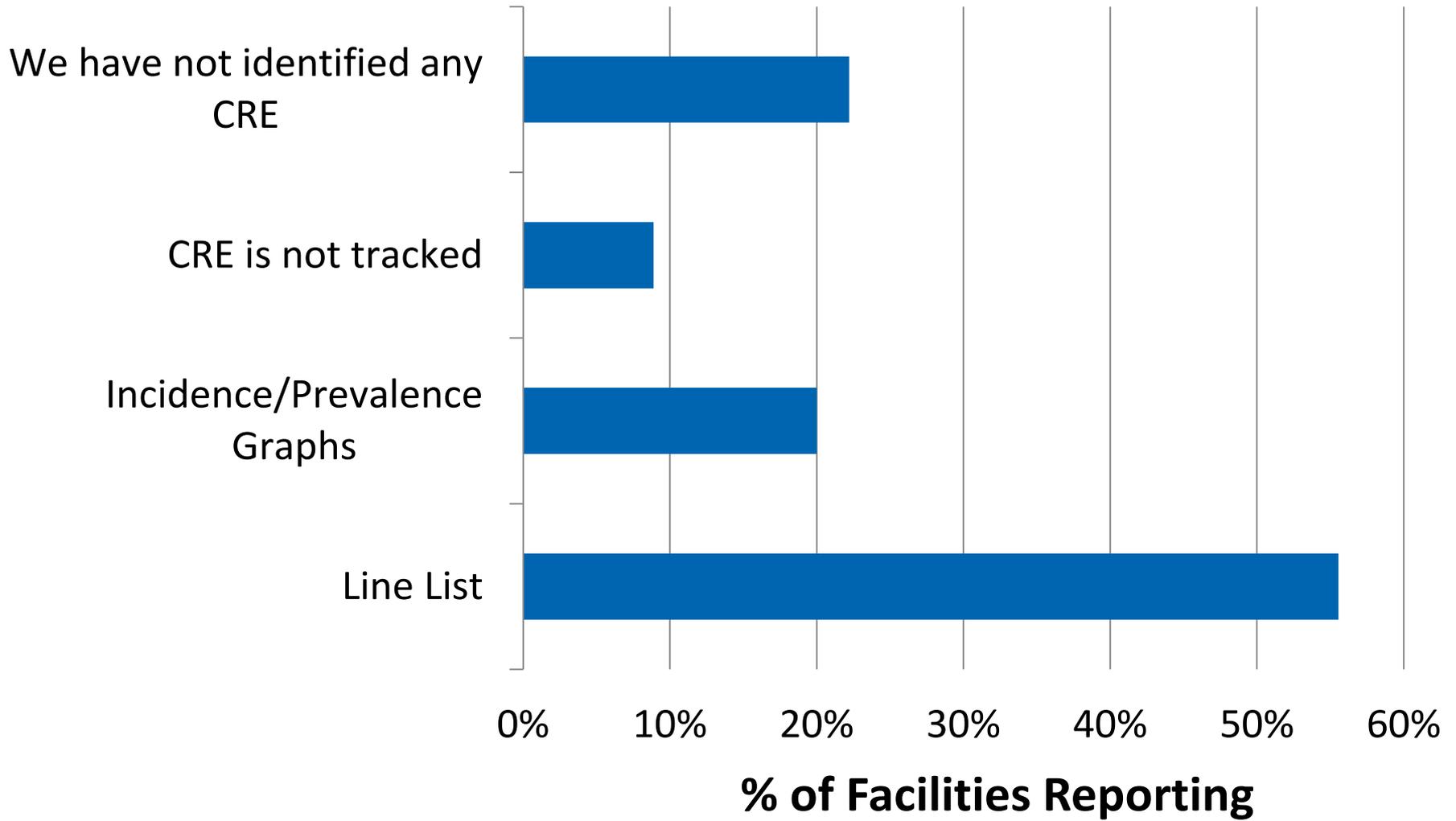
# Does your facility receive patients from or discharge patients to a LTAC hospital (n=45)



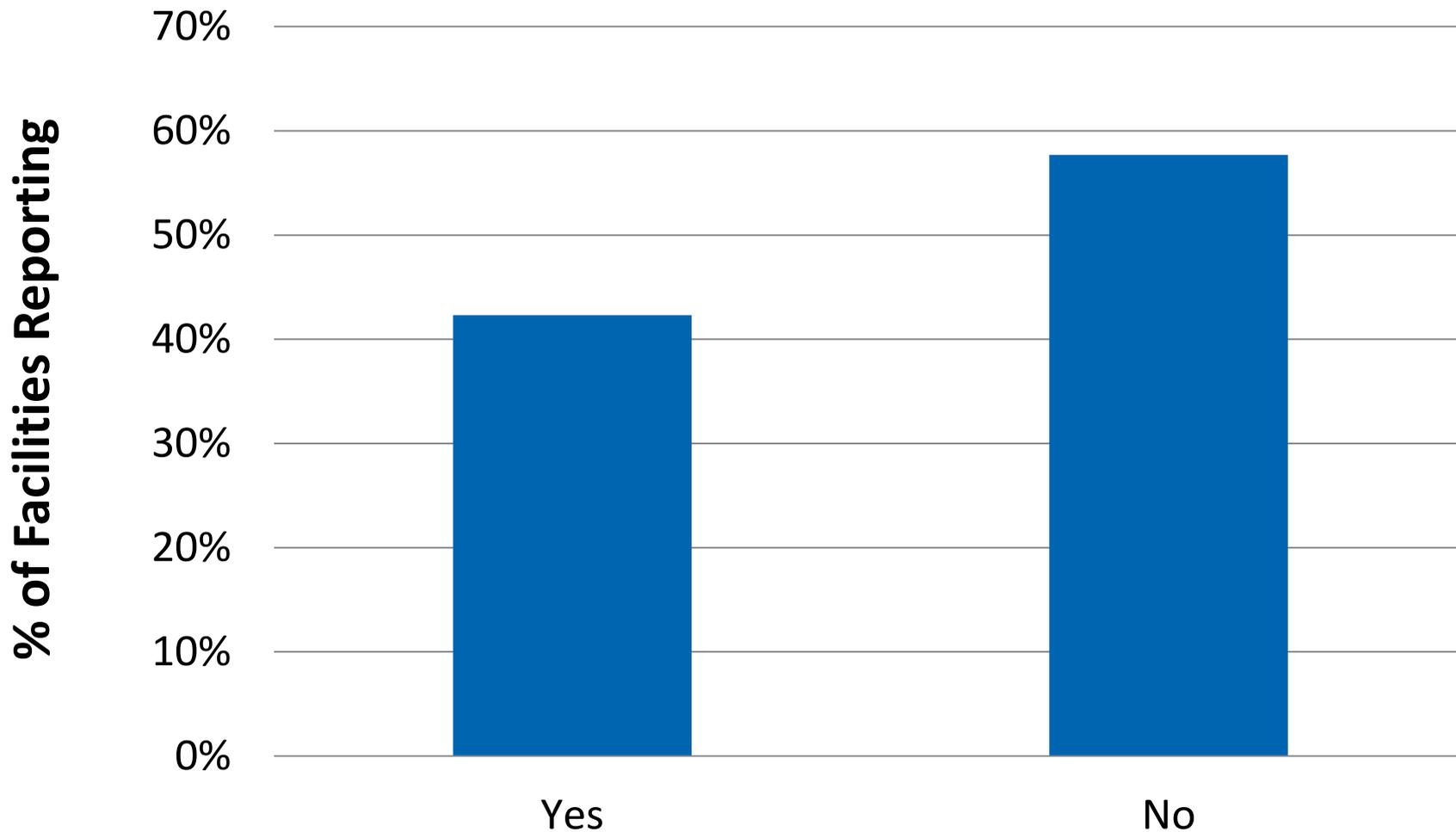
# IT Systems used to track CRE (n=45)



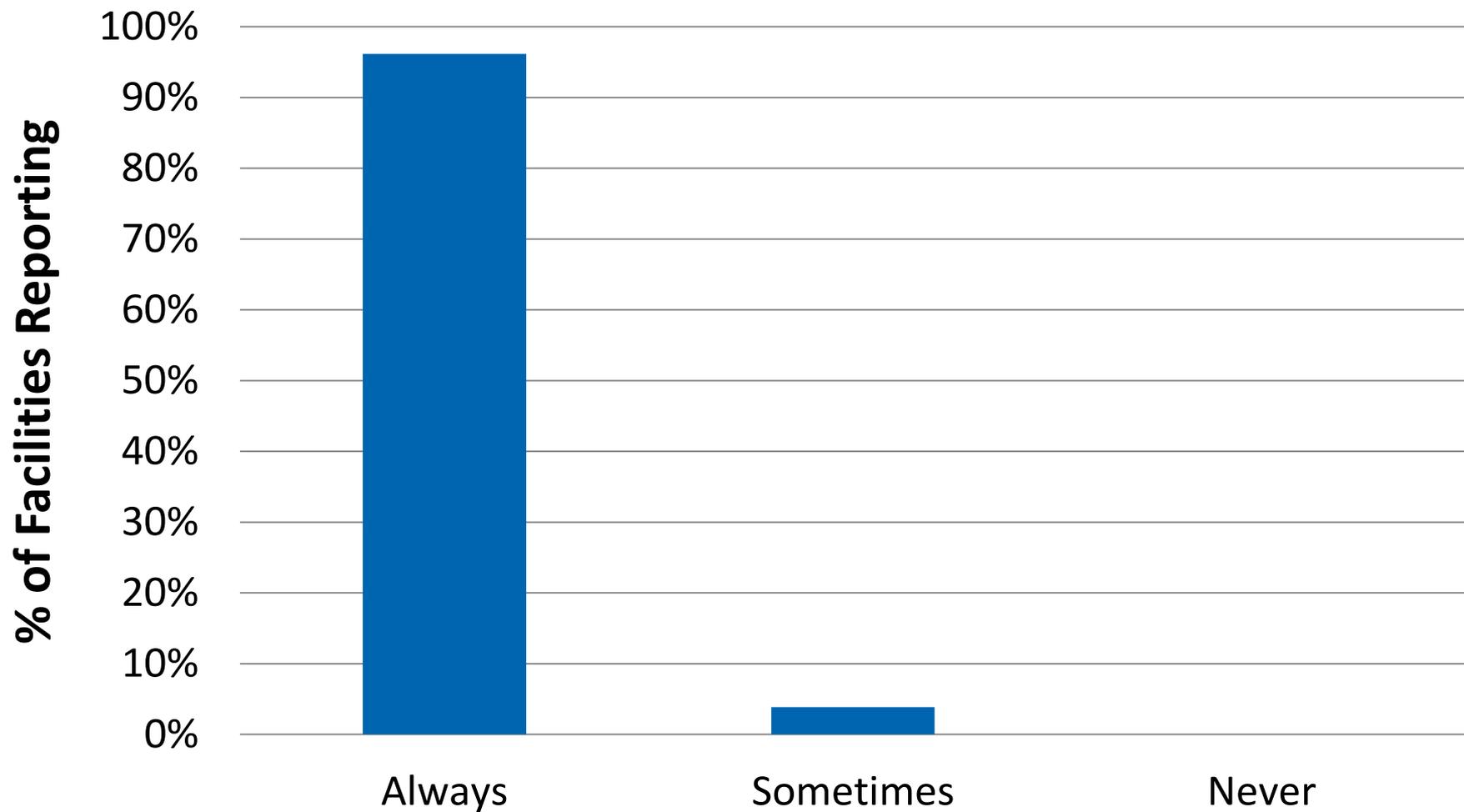
# How does your facility track and report cases of CRE (n=45)



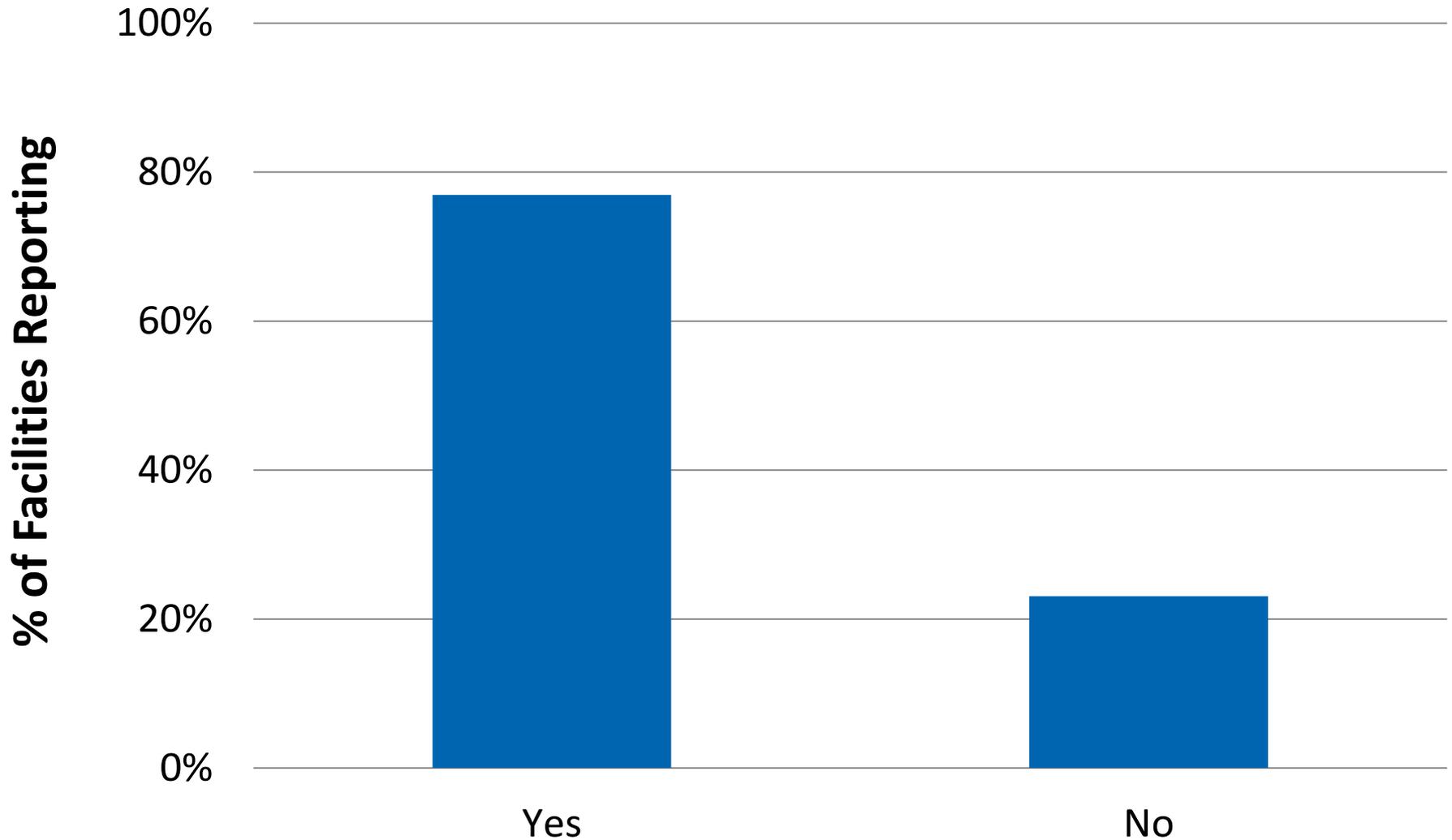
# Do you review CRE cases and keep track of patient risk factors (n=26)



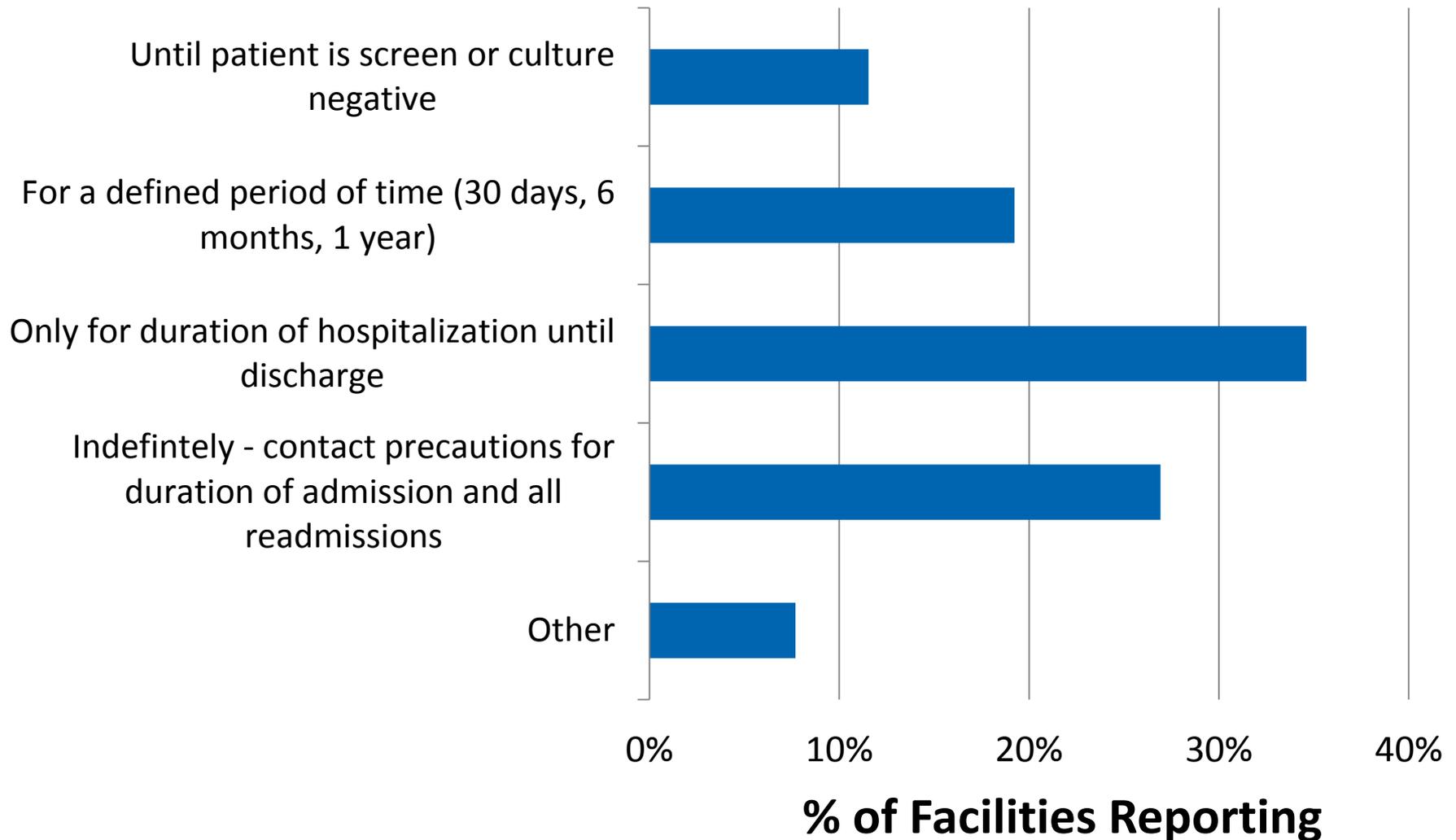
# Are CRE patients placed in contact precautions (n=26)



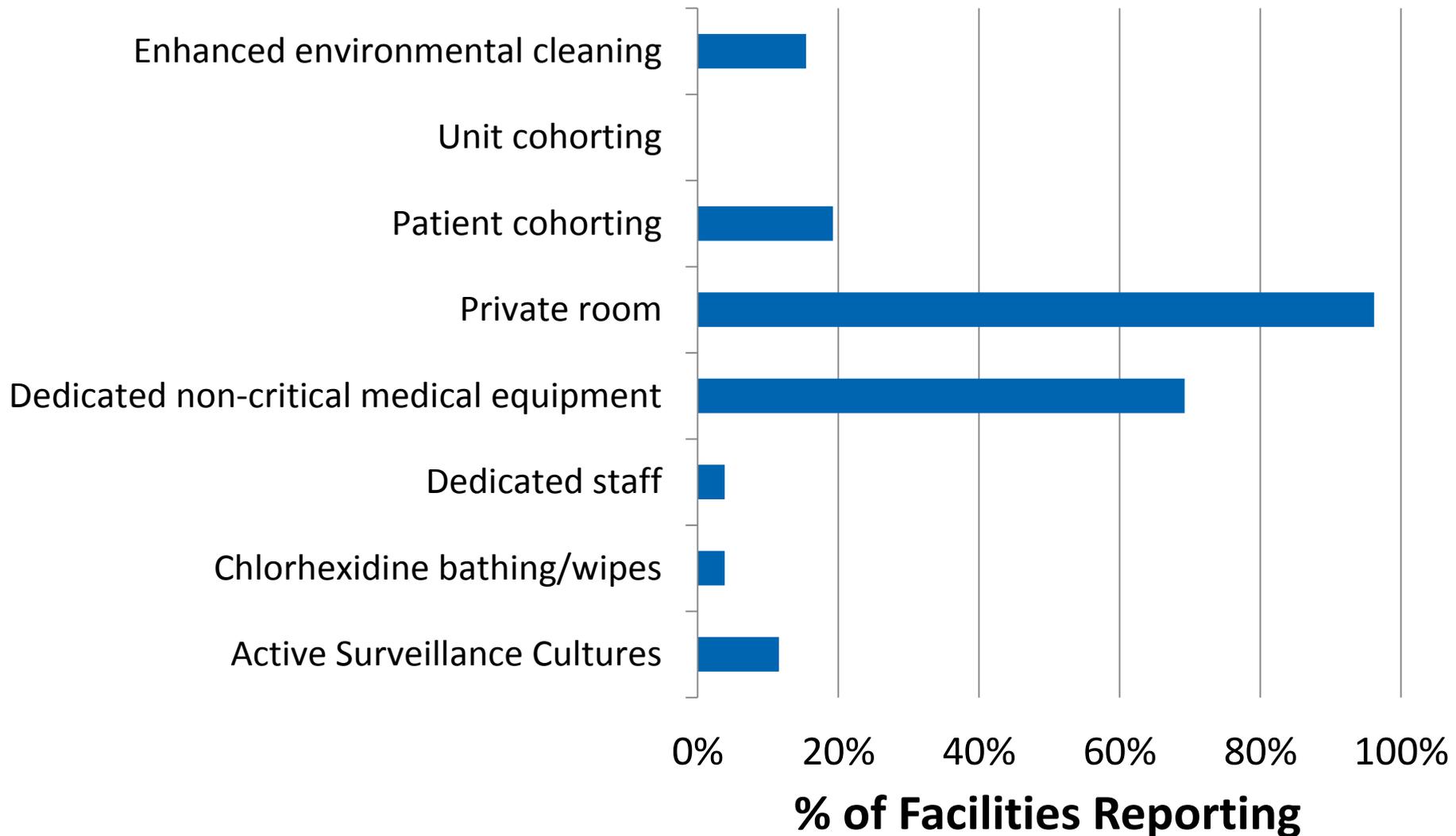
# Are suspect CRE patients (not yet lab confirmed) placed in contact precautions (n=26)



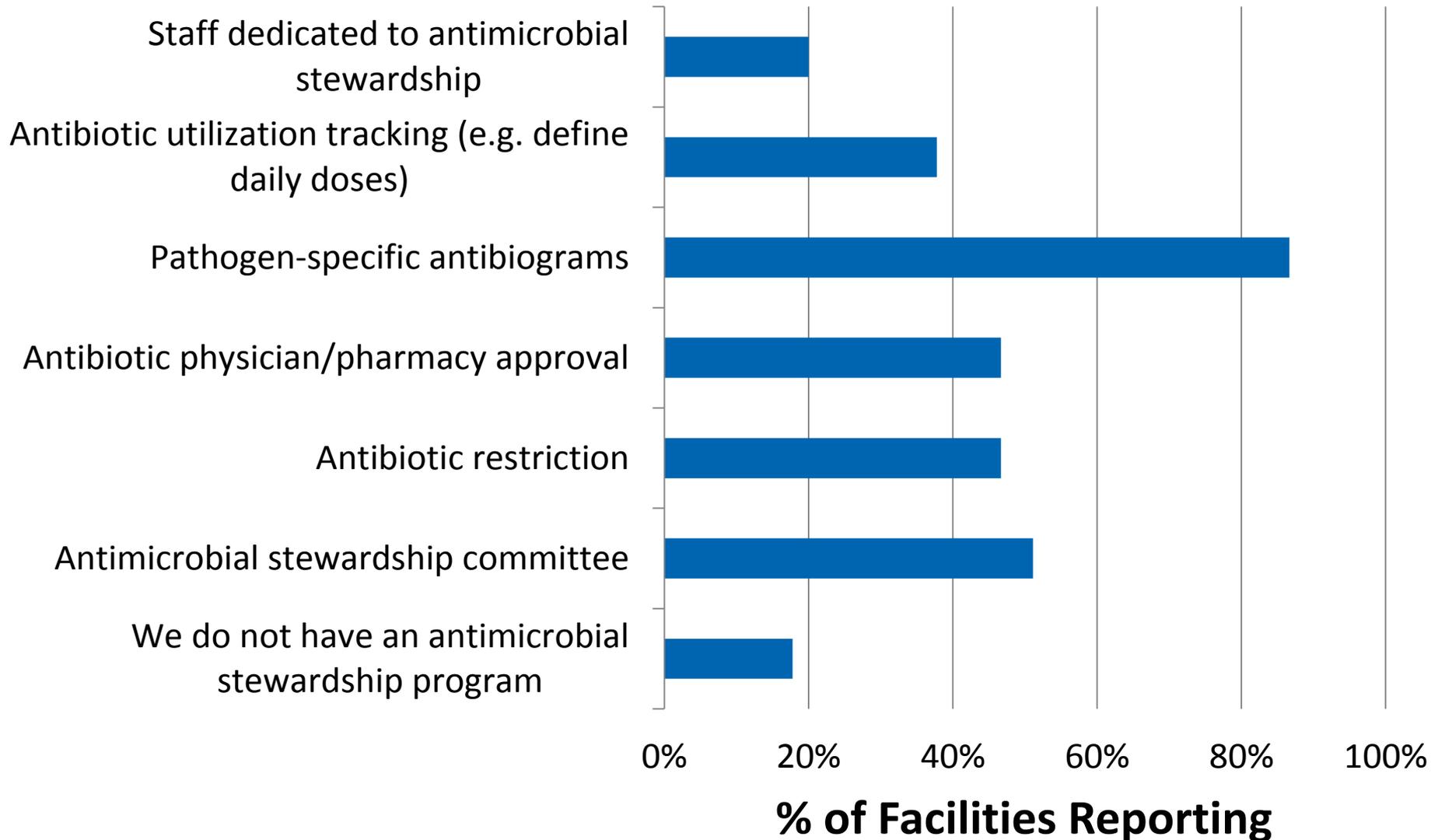
# How long are CRE cases kept in contact precautions or coded to be on contact precautions (n=26)



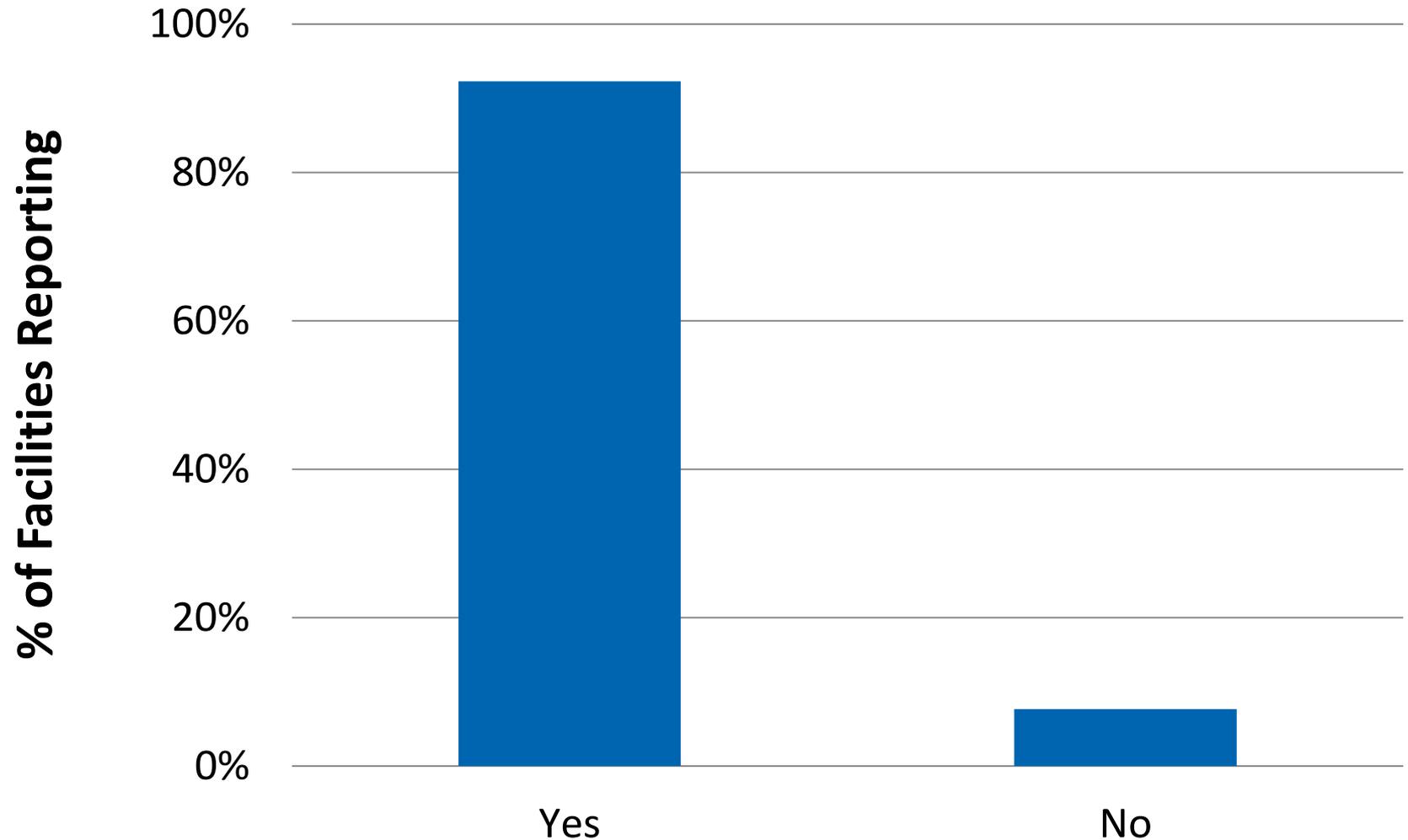
# What infection prevention measures are you implementing for CRE patients (n=26)



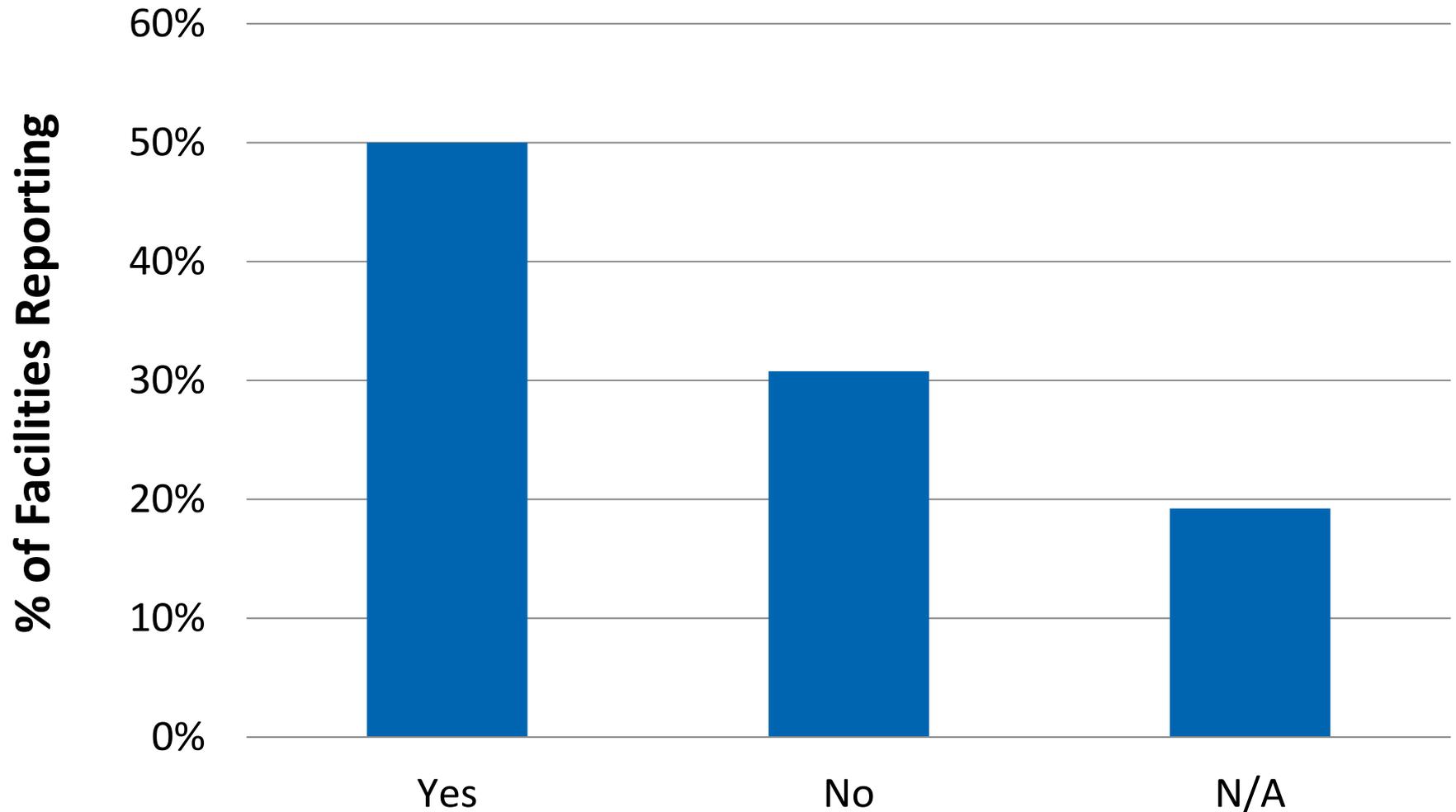
# Which antimicrobial stewardship components does your facility utilize (n=45)



# When a CRE patient is discharged, is his/her CRE status shared with the admitting facility? (n=26)



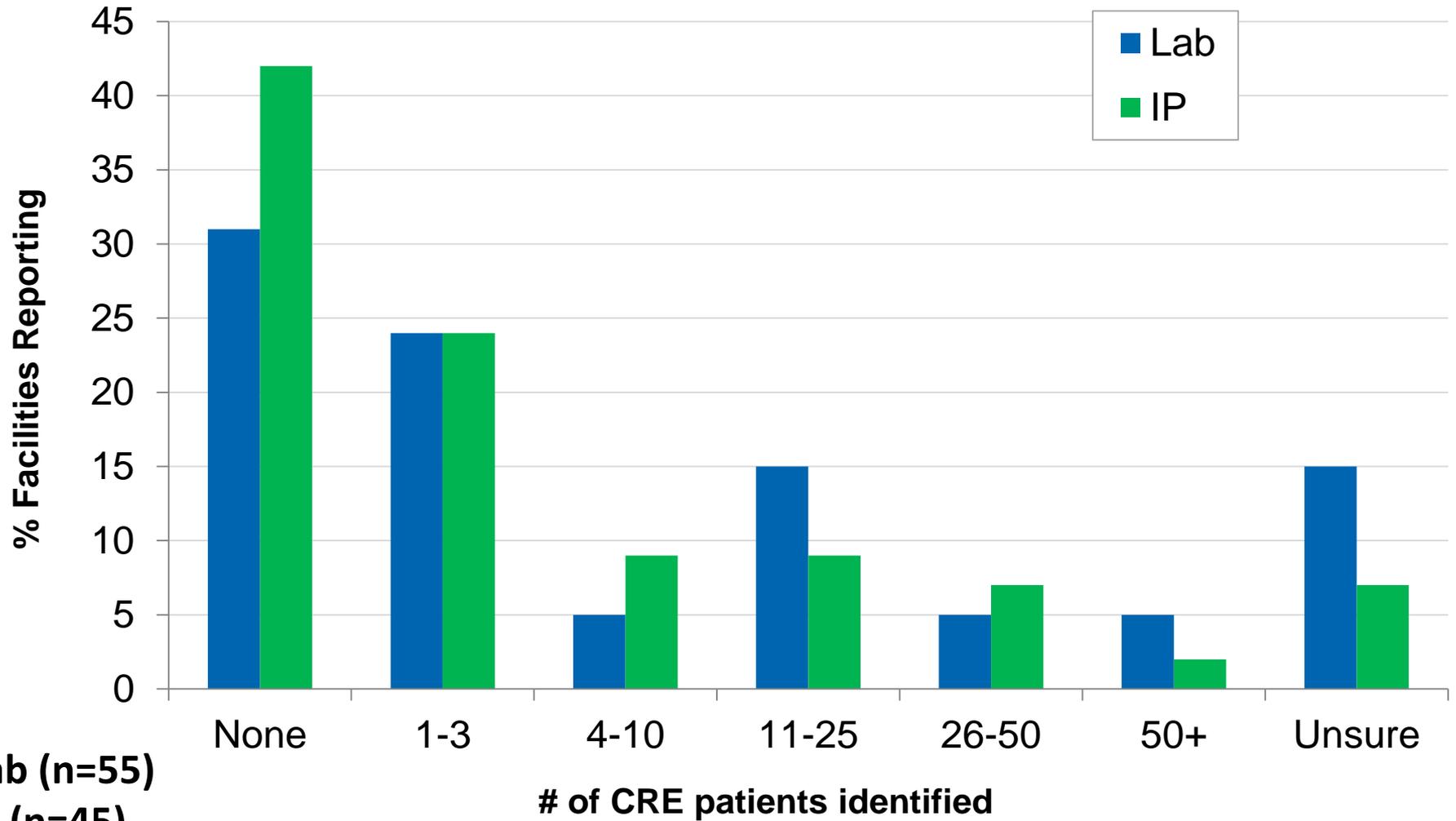
# Do you provide any infection prevention guidance to the facility admitting the CRE patient (n=26)



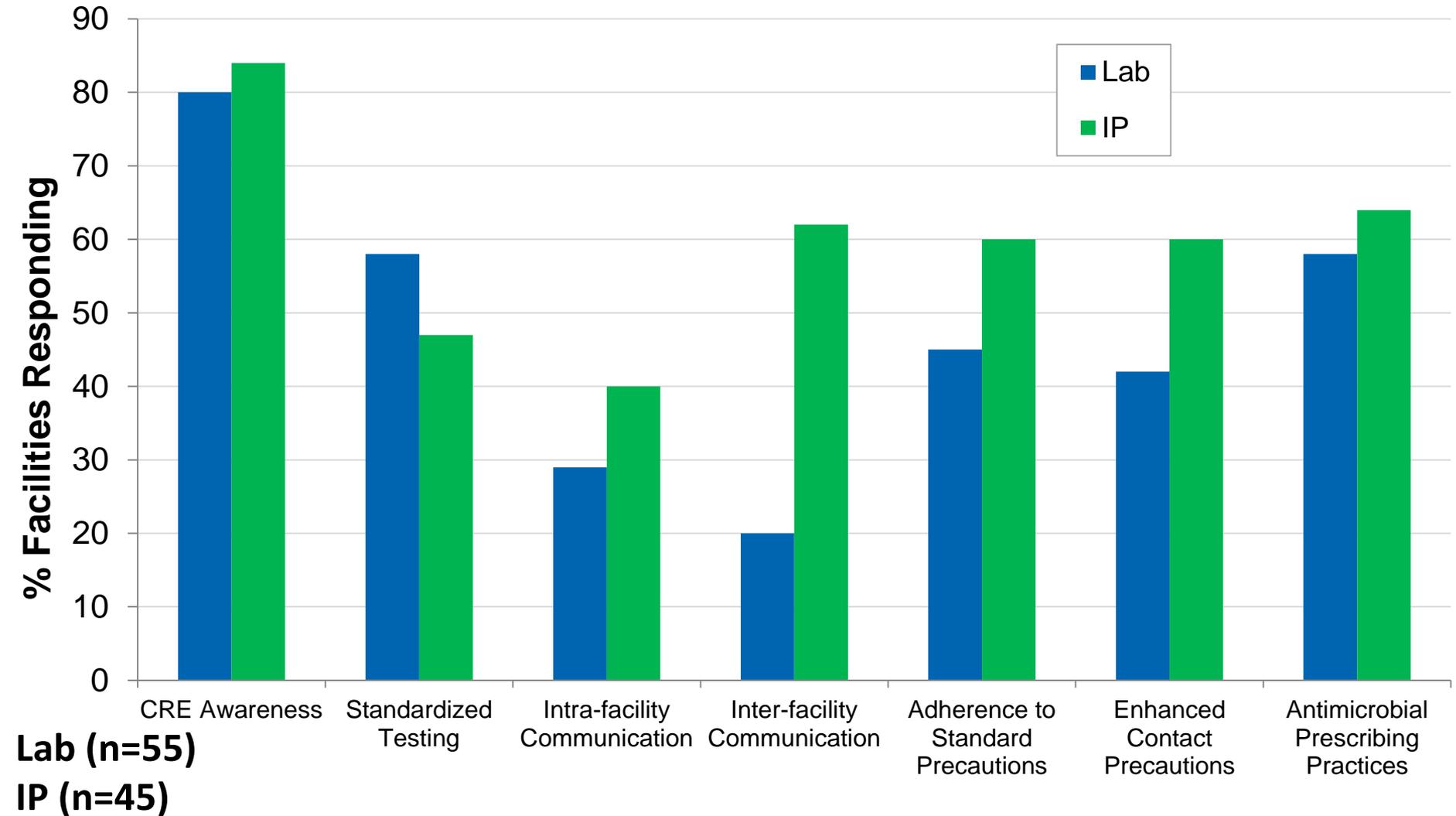
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# **Combined Responses**

# Approximate number of patients identified with CRE in 2011



# Potential Focus of the CRE Surveillance and Prevention Initiative



# In Summary

- CRE has been identified throughout Michigan
- >50% of survey respondents reported identifying at least one CRE patient in 2011
- Laboratory detection is not standardized, owing to differences in AST testing systems, panel configurations and interpretive breakpoints used
- Nearly one-third of facilities reported not performing any form of CRE confirmatory testing

# In Summary

- Contact precautions are universally used for CRE patients
  - However, the duration of contact precautions is highly variable
- Additional prevention measures, beyond contact precautions and isolation are not widely implemented



**Implementing a coordinated, public health driven, surveillance and prevention initiative can prevent CRE from becoming hyper-endemic in Michigan**



**Thank you!**





# Questions or Comments?



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