

# Moving from Public Health Outbreak Response to Mitigation for a Regional Outbreak of Highly-Resistant New Delhi Metallo-β-Lactamase (NDM)-Producing *Acinetobacter baumannii* in California, May 2020–July 2022

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## BACKGROUND

CDPH and 12 local health departments (LHD) provided ongoing support in response to a regional outbreak of highly-resistant NDM-producing *Acinetobacter baumannii* (NDM AB) since May 2020. In October 2021, we shifted from resource-intensive outbreak response to more sustainable mitigation activities in affected healthcare facilities, and began prevention activities to limit NDM AB spread to interconnected healthcare facilities (those with patient sharing networks with outbreak facilities).

## METHODS

We defined a case as a patient with an NDM AB clinical isolate, or NDM-positive colonization screening and epidemiologic linkage. In October 2021, we transitioned from response to mitigation activities in all outbreak facilities (Table 1). We continued or initiated general prevention activities at both outbreak and interconnected facilities. Primary responsibility shifted from the state public health department to LHD for some activities (i.e., point prevalence surveys (PPS), screening, and discharge notifications).

## METHODS CONTINUED

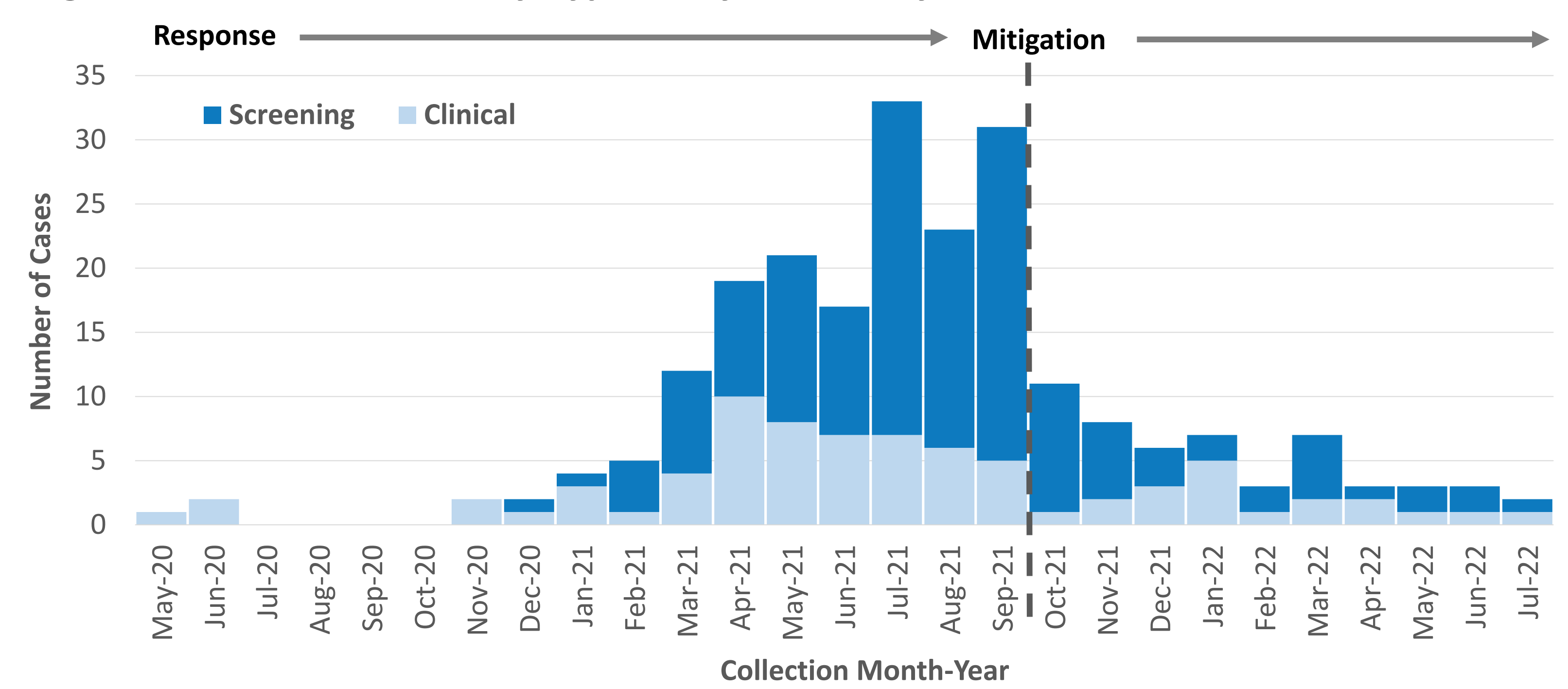
Table 1. NDM AB Regional Outbreak Response and Mitigation Activities

Activity	Response <sup>1</sup>	Mitigation
<b>Target</b>	Outbreak facilities <sup>2</sup>	Facilities with any cases; initiate response activities in new outbreak facilities
<b>Onsite infection prevention and control (IPC) assessment</b>	Initial and follow-up assessments as needed	Assessments as needed
<b>Precautions in skilled nursing facilities (SNF)</b>	Contact Precautions	Transition to Enhanced Standard Precautions <sup>3</sup>
<b>Point prevalence survey</b>	Every 2 weeks in affected unit(s) until 2 consecutive negative PPS	Every 1-3 months among high-risk <sup>4</sup> patients and residents
<b>Admission, discharge screening, and notification</b>	Outbreak facilities notify admitting facilities when transferring patients; receiving facilities screen patients on admission and place on empiric Contact Precautions until confirmed negative	
<b>Isolate testing</b>	All facilities obtain carbapenemase testing for carbapenem-resistant AB clinical isolates	
<b>Education and outreach</b>	<ul style="list-style-type: none"> <li>During onsite IPC assessments</li> <li>Webinars to infection preventionists, other healthcare facility and local public health staff</li> <li>Hands-on IPC training for facility staff</li> <li>Facility participation in statewide antimicrobial stewardship and multidrug-resistant organism prevention collaboratives</li> </ul>	
<b>Prevention collaborative</b>		Hands-on training for environmental services (EVS) staff at outbreak and interconnected SNF in index county

<sup>1</sup>For more information on CDPH recommendations for carbapenem-resistant AB (CRAB) response activities, see [CDPH CRAB Quicksheet](#) (PDF) ([www.cdph.ca.gov/Programs/CHCQ/HAI/CDPH%20Document%20Library/CRO\\_Quicksheet\\_Oct2020.pdf](http://www.cdph.ca.gov/Programs/CHCQ/HAI/CDPH%20Document%20Library/CRO_Quicksheet_Oct2020.pdf))  
<sup>2</sup>Facilities with 1+ newly-identified case during PPS in response to a known case OR 2+ cases identified within 4 weeks of each other in the same unit or epidemiologically-linked  
<sup>3</sup>[CDPH Enhanced Standard Precautions guidance](#) ([www.cdph.ca.gov/Programs/CHCQ/HAI/Pages/ESP.aspx](http://www.cdph.ca.gov/Programs/CHCQ/HAI/Pages/ESP.aspx))  
<sup>4</sup>Total dependence for activities of daily living, presence of wounds or indwelling devices, or ventilated

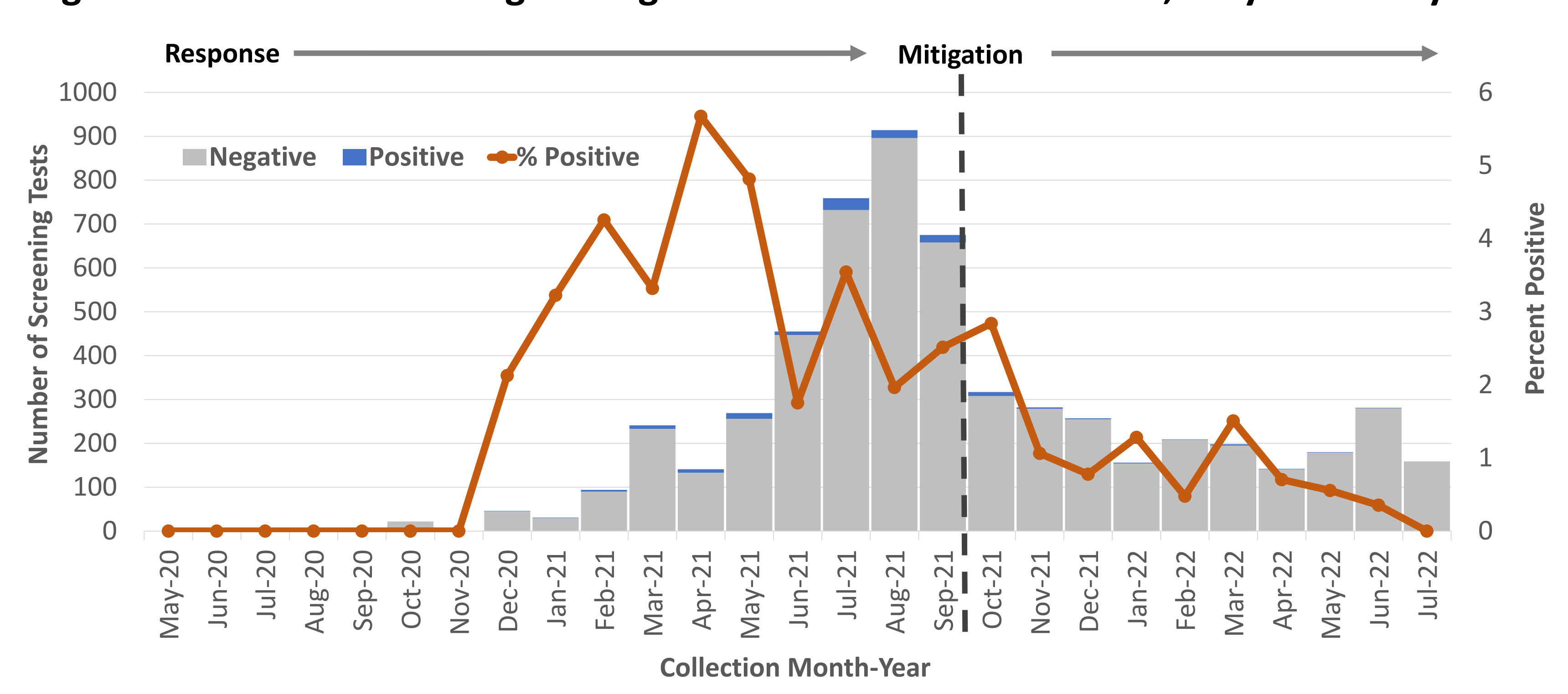
## RESULTS

Figure 1. NDM AB Cases by Type, May 2020–July 2022



- We identified 170 NDM AB cases (33% clinical) during May 2020–September 2021, and 53 cases (36% clinical) during October 2021–July 2022.

Figure 2. NDM AB Screening Testing Results and Percent Positive, May 2020–July 2022

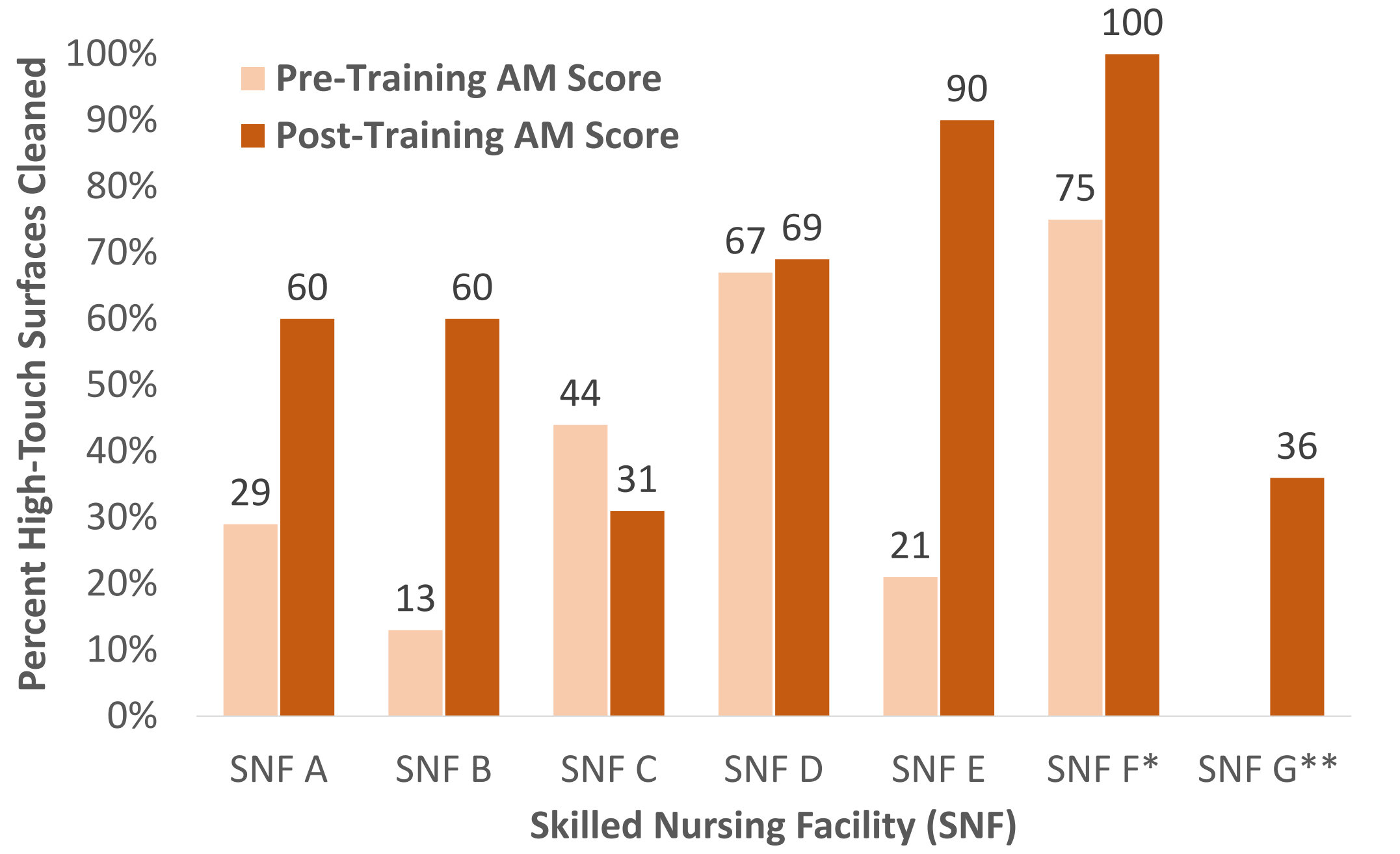


- We conducted 3647 screening tests through September 2021 with 3% positive, and 2181 tests from October 2021 with 1% positive.

## CONCLUSIONS

- We successfully transitioned from resource-intensive outbreak response to a sustainable long-term mitigation strategy for a regional, multifacility NDM AB outbreak at affected and interconnected healthcare facilities.
- Since October 2021, NDM AB case counts and screening percent positivity have continued to decrease, and IPC practice improvements have been sustained in outbreak facilities.
- Implementation of coordinated, phased public health interventions could be used for long-term management of other multidrug-resistant organism outbreaks.

Figure 3. Pre- and Post-Training EVS Fluorescent Marker Adherence Monitoring (AM) Observations



- \*SNF F pre-training AM scores self-reported \*\*SNF G pre-training AM scores unavailable
- Five of 7 SNF showed improvements in EVS cleaning and disinfection practices after participation in the prevention collaborative.

Table 2. Number of Onsite IPC Assessments Performed

Healthcare Facility Type	Response	Mitigation
Acute care hospital	4	1
Long-term acute care hospital	4	3
SNF	24	9
Ventilator-equipped SNF (vSNF)	6	10
Other	4	0
<b>Total</b>	<b>42</b>	<b>23</b>

- Public health conducted fewer mitigation compared to response onsite IPC assessments in all facility types except vSNF.



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