



# ANTIMICROBIAL STEWARDSHIP PRACTICES REPORTED BY CALIFORNIA HOSPITALS FOLLOWING NEW LEGISLATIVE REQUIREMENTS: ANALYSIS OF NATIONAL HEALTHCARE SAFETY NETWORK ANNUAL SURVEY DATA, 2014-2015

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## BACKGROUND

- In 2015, Senate Bill (SB) 1311 mandated California hospitals to institute an antimicrobial stewardship policy in accordance with guidelines established by the federal government and professional organizations, develop a physician supervised multidisciplinary antimicrobial stewardship committee with at least one physician or pharmacist with prior stewardship training, and report antimicrobial stewardship activities to appropriate hospital committees.

## METHODS

- We matched hospitals' responses to National Healthcare Safety Network (NHSN) Annual Survey questions with CDC Core Elements of Hospital Antibiotic Stewardship Programs (ASP) to assess ASP implementation progress among California hospitals in 2014 and 2015 (Table).
- We performed bivariate analyses to evaluate associations among infrastructure core elements (i.e., leadership, accountability, drug expertise) and implementation core elements (i.e., action, tracking, reporting, education).
- McNemar's test was used for paired, binary comparisons, and the Wilcoxon signed rank test was used to examine changes in the distribution of ASP by the number of core elements in place (i.e., zero to seven) between 2014 and 2015.

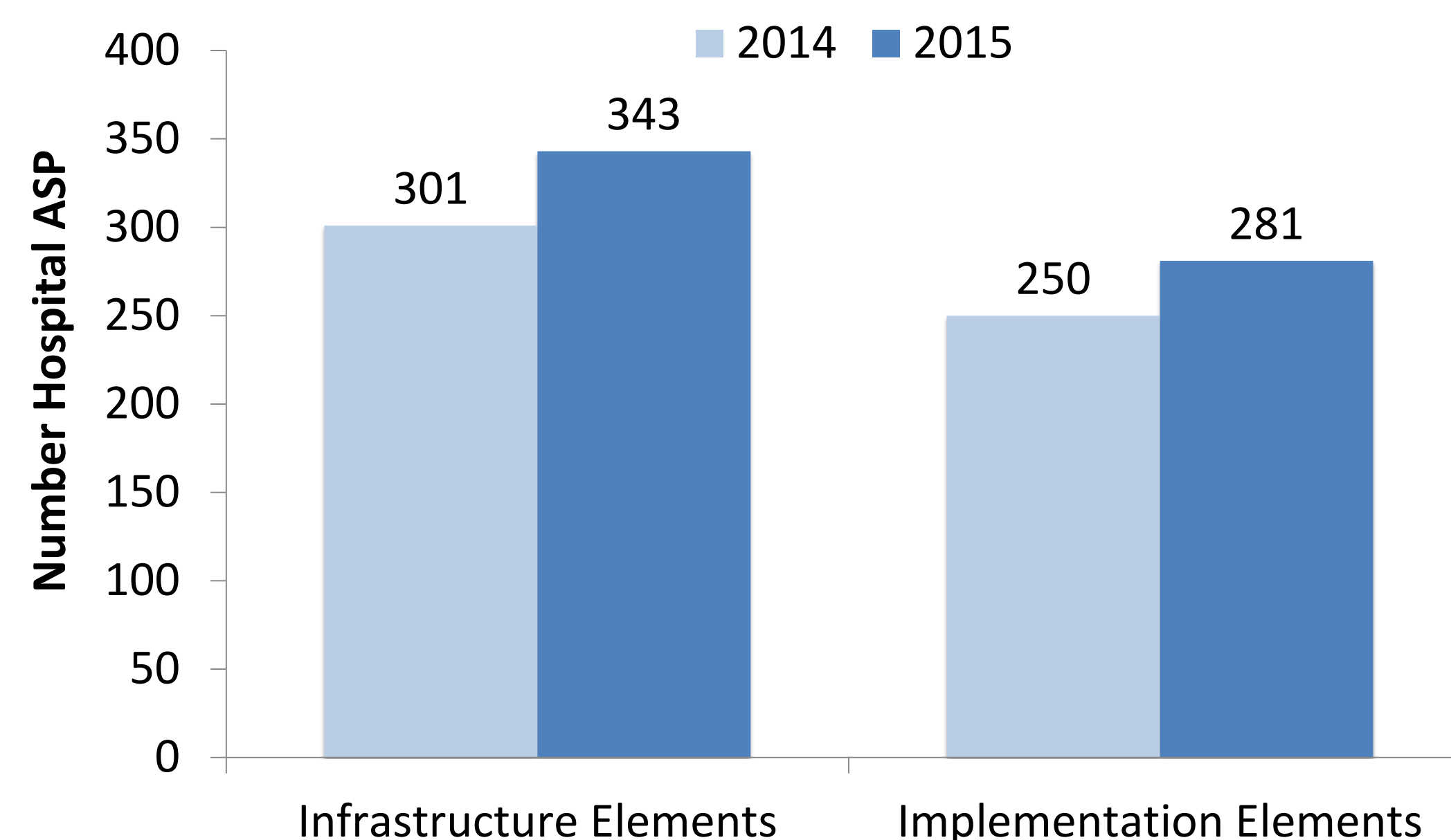
## RESULTS

Table. Changes in Core Element Implementation, 2014-2015

Core Element	Number (%) Hospitals		Difference (%)	Percent Change
	2014	2015		
<b>Infrastructure Elements</b>				
1. Leadership	313 (81.1)	349 (90.4)	36 (9.3)	11.5
2. Accountability	354 (91.7)	375 (97.2)	21 (5.5)	5.9
3. Drug Expertise	368 (95.3)	381 (98.7)	13 (3.4)	3.5
<b>Implementation Elements</b>				
4. Action	379 (98.2)	378 (97.9)	-1 (-0.3)	-0.3
5. Tracking	336 (87.1)	351 (90.9)	15 (3.9)	4.5
6. Reporting	317 (82.1)	336 (87.1)	19 (4.9)	6.0
7. Education	277 (71.8)	316 (81.9)	39 (10.1)	14.1

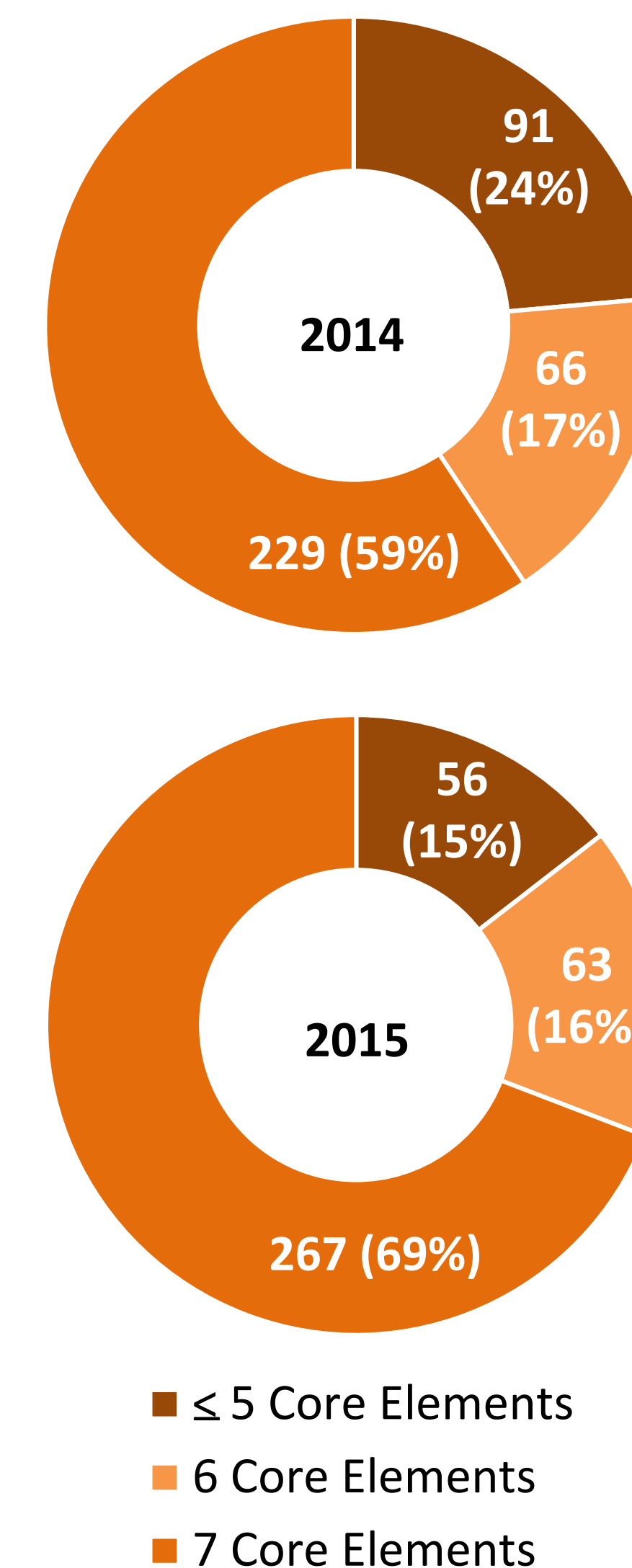
- Hospital ASP with all infrastructure core elements in 2015 were more likely to have instituted all implementation core elements compared with ASP without all infrastructure core elements in place (unadjusted risk ratio: 2.4 [95%CI: 1.5, 3.7]; p < 0.001) (Figure 1).

Figure 1. Number of Hospitals (N = 386) Reporting All Infrastructure/Implementation Elements in 2014 Compared with 2015



- 386 of 388 California hospitals (99.5%) submitted complete Annual Surveys in both 2014 and 2015.
- The proportion of hospitals with all seven core elements rose from 59.3% in 2014 to 69.2% in 2015 (p < 0.001; Figure 2).
- Implementation of core element "education" increased the most between 2014 and 2015 (Table); however, "education" was the least implemented core element among ASP in 2015.

Figure 2. Distribution of ASP (N=386) by Number of Core Elements, 2014-2015



## LIMITATIONS

- NHSN Annual Survey data do not provide a direct measure for California hospitals' implementation of SB 1311 as the core elements do not completely correspond with the requirements of the law.
- Annual Survey data were self-reported by hospitals and were not externally validated.
- We do not know the level of ASP committee participation when hospitals completed the Annual Surveys.

## DISCUSSION

- We observed a significant increase in the number of California hospitals that reported implementation of all seven CDC Core Elements of Hospital ASP following enactment of Senate Bill 1311 in 2015.
- The extent to which California's legislative requirements have affected hospital ASP is beyond the scope of this analysis. However, in combination with recommendations from professional and government organizations, it is likely that this legislation had a catalyzing effect on California's ASP progress.
- We are using these analyses to inform outreach efforts that prioritize hospitals with less developed antimicrobial stewardship programs.

The authors have nothing to disclose. Please direct questions and comments to [Kyle.Rizzo@cdph.ca.gov](mailto:Kyle.Rizzo@cdph.ca.gov).