

Frequently Identified Gaps in Antibiotic Stewardship Programs in Critical Access Hospitals

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BACKGROUND

- More than 2 million people are estimated to be infected by antibiotic-resistant organisms which result in over 14,000 deaths annually
- CDC recommends improvement in infection control (IC) measures and antibiotic prescribing practices as keys to prevent transmission of these resistant pathogens
- The Nebraska (NE) Infection Control Assessment and Promotion Program (ICAP) is supported by the NE DHHS Healthcare-Acquired Infection Program and CDC to assess and improve infection prevention and control programs in NE
- In addition to surveying IC practices, NE ICAP assessed the level of antimicrobial stewardship (AS) activities in NE critical access hospitals (CAH)
- The objective of the study was to evaluate the level of AS activities and factors associated with the implementation of these activities in CAH in NE

METHODS

- NE ICAP conducted on-site surveys on IC and AS practices in 36 CAH from October 2015 to February 2017
- The CDC Infection Prevention and Control Assessment Tool for Acute Care Hospitals (Figure 1) was used to assess each facility's perceptions on the level of implementation of the CDC AS core elements (CE)
- CE were categorized as administrative [CE 1-3: leadership support (LS), accountability, drug expertise (DE)] and interventional (CE 4-7: action, tracking, reporting, education)
- Characteristics of CAH and frequency of AS CE implementation were analyzed using descriptive statistics
- Associations between CAH characteristics and level of CE implementation were determined by Fisher's exact, Mann-Whitney, and Kruskal-Wallis tests

Figure 1. Questions on Antimicrobial Stewardship Program in the CDC Infection Prevention and Control Assessment Tool for Acute Care Hospitals

Elements to be assessed	Assessment	Notes/Areas for Improvement
<p>iii. Systems to Detect, Prevent, and Respond to Healthcare-Associated Infections and Multidrug-Resistant Organisms (MDROs)</p> <p>b. Hospital has an antibiotic stewardship program that meets the 7 CDC core elements listed below (a-g).</p> <p>Note: The antibiotic stewardship program should be assessed in consultation with personnel knowledgeable about antibiotic stewardship activities (e.g., physician or pharmacist stewardship lead). Responses can be obtained from or cross-checked with the NSIC Annual Hospital Survey Antibiotic Stewardship Practice questions (Q 23-34) if available.</p> <p>Verify the following:</p> <p>a. Hospital leadership commitment</p> <ul style="list-style-type: none"> Hospital has a written statement of support from leadership that supports efforts to improve antibiotic use (antibiotic stewardship) AND/OR Hospital provides salary support for dedicated time for antibiotic stewardship activities. <p>b. Program leadership (accountability)</p> <ul style="list-style-type: none"> There is a leader responsible for outcomes of stewardship activities at the hospital. <p>c. Drug expertise</p> <ul style="list-style-type: none"> There is at least one pharmacist responsible for improving antibiotic use at the hospital. 	<p>○ Yes ○ No</p> <p>a. ○ Yes ○ No</p> <p>b. ○ Yes ○ No</p> <p>c. ○ Yes ○ No</p>	
<p>d. Act (at least one prescribing improvement action below)</p> <ul style="list-style-type: none"> Hospital has a policy that requires prescribers to document an indication for all antibiotics in the medical record or during order entry. Hospital has hospital-specific treatment recommendations, based on national guidelines and local susceptibility, to assist with antibiotic selection for common clinical conditions. There is a formal procedure for all clinicians to review the appropriateness of all antibiotics at or after 48 hours from the initial orders (e.g., antibiotic time out). Hospital has specified antibiotic agents that need to be approved by a physician or pharmacist prior to dispensing at the hospital. Physician or pharmacist reviews courses of therapy for specified antibiotic agents and communicates results with prescribers. <p>e. Track</p> <ul style="list-style-type: none"> Hospital monitors antibiotic use (consumption). <p>f. Report</p> <ul style="list-style-type: none"> Prescribers receive feedback by the stewardship program about how they can improve their antibiotic prescribing. <p>g. Educate</p> <ul style="list-style-type: none"> Stewardship program provides education to clinicians and other relevant staff on improving antibiotic use. 	<p>d. ○ Yes ○ No</p> <p>e. ○ Yes ○ No</p> <p>f. ○ Yes ○ No</p> <p>g. ○ Yes ○ No</p>	

RESULTS

Table 1. Characteristics of Critical Access Hospitals (N = 36)

Characteristics	Median (Range)
Number of licensed beds	20 (10 – 25)
Number of infection preventionist FTE	0.34 (0.05 – 1.00)
Number of infection preventionist FTE / 25 beds	0.44 (0.10 – 1.56)

Abbreviation: FTE = full-time equivalent

Figure 2. Frequency of Implementation of Antimicrobial Stewardship Core Elements in Critical Access Hospitals (N = 36)

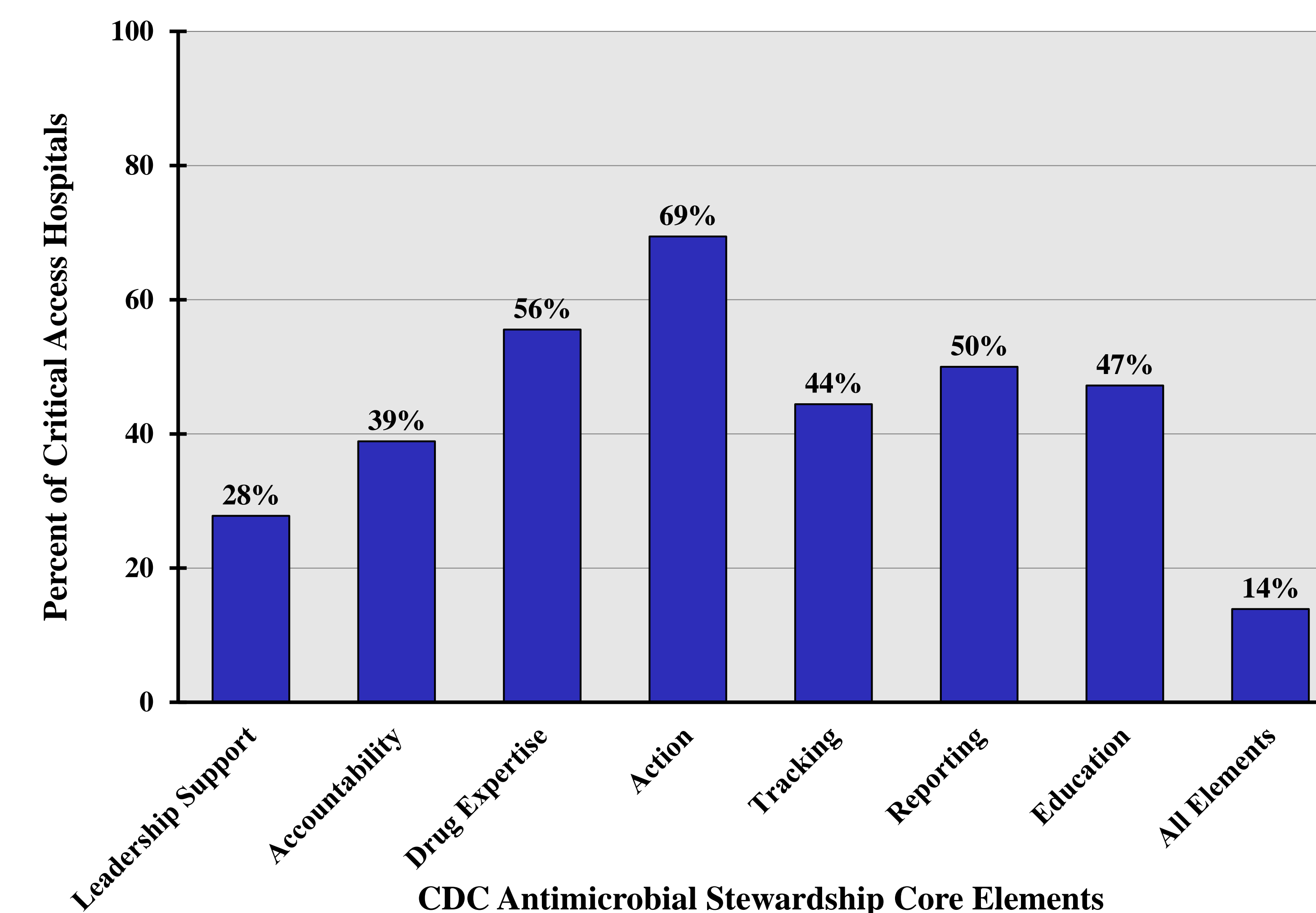
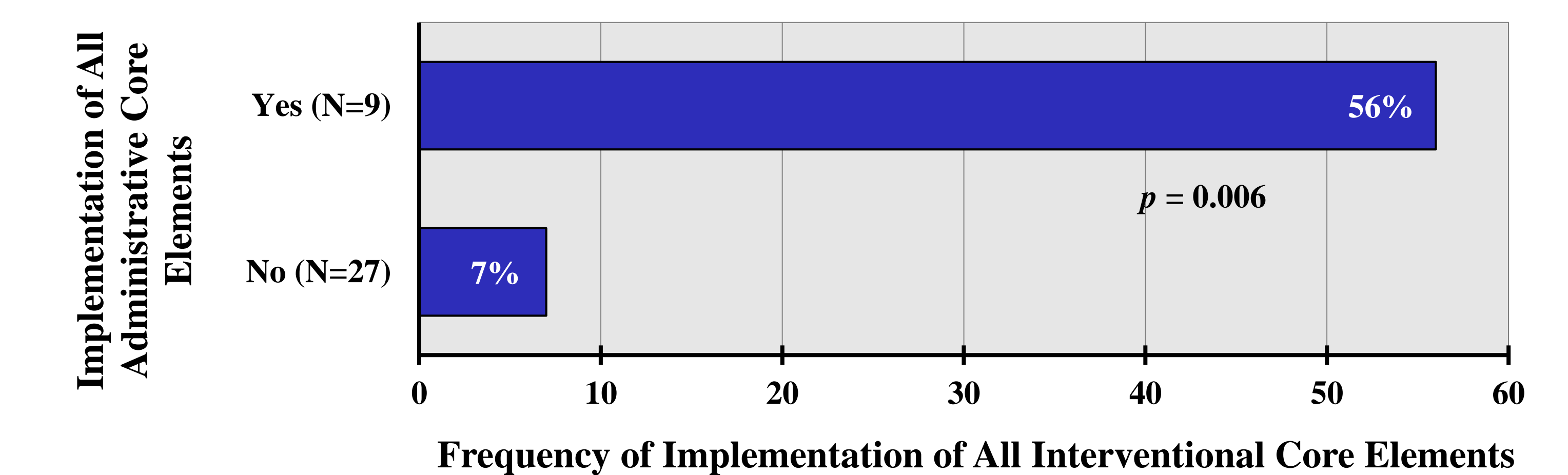


Table 2. Influence of Individual Administrative Core Elements on Implementation of the Remaining Antimicrobial Stewardship Core Elements

CDC AS Core Elements	Implemented? (n)	Median No. of Remaining Core Elements Implemented	p-value
Leadership Support	Yes (10) No (26)	5.5 2.0	<0.001
Accountability	Yes (14) No (22)	5.0 2.0	<0.001
Drug Expertise	Yes (20) No (16)	4.5 1.0	0.002

Figure 3. Frequency of Implementation of All Interventional Core Elements Stratified by Implementation of Administrative Core Elements



DISCUSSION

- CAH surveyed had ≤25 beds and employed a median of <0.5 FTE of infection preventionist (Table 1)
- Implementation of all CDC AS CE remained uncommon (14%), with action and LS being the most and least commonly implemented CE, respectively (Figure 2)
- CAH with LS, accountability or DE implemented a higher median number of the remaining CE compared to those without LS, accountability or DE (Table 2)
- When all three administrative CE were in place, a significantly higher number of CAH also implemented all four interventional CE compared to those without all administrative CE (Figure 3)

CONCLUSIONS

- Implementation of administrative core elements (leadership support, accountability, and drug expertise) are important for implementation of the remaining four interventional core elements (action, tracking, reporting, and education) which have direct impact on antimicrobial prescribing practices
- Although leadership support was the least frequently implemented core element, when present, it was associated with implementation of most of the remaining core elements
- Acquiring leadership support will facilitate implementation of additional antimicrobial stewardship efforts in critical access hospitals

DISCLOSURE

The authors of this study have nothing to disclose related to the content of this poster.

REFERENCES

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