

# Resources Needed by Critical Access Hospitals to Address Identified Infection Prevention and Control Program Gaps

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## BACKGROUND

- Critical Access Hospitals (CAH) usually have limited resources and their infection prevention and control (IPC) programs face significant challenges and gaps.
- Since little is known about the resources needed by CAHs to strengthen their IPC program, a National Infection Control Strengthening (NICS) needs assessment survey was deployed to CAHs across HHS Region VII (Kansas, Iowa, Nebraska and Missouri).
- The assessment sought to identify needs and direct the development of resources to mitigate IPC program gaps in small and rural hospitals, including CAHs.

## METHODS

- The needs assessment survey was developed by infection preventionists' on the NICS project, leveraging data obtained from the Infection Control Assessment and Response (ICAR) gap analyses from surveys conducted in NE CAHs during 2015-2017.
- A 49-question Research Electronic Data Capture (REDCap) survey was distributed via email to infection preventionists in Region VII CAHs.
- The survey had 4 sections with questions focused on IPC program infrastructure, competency-based training, audit and feedback, and identification and isolation of high-risk pathogens/serious communicable diseases.
- An expected answer for every question was a "yes" indicating best practice recommendations. An IPC practice score was assigned to each CAH by totaling "yes" responses. A "no" or "not sure" response was considered an IPC gap. Respondents who selected "no" were asked to identify resources that would assist in mitigating identified gaps (by selecting from a list of options or identifying others not on list).
- Descriptive analyses evaluated frequency of gaps and most cited resources. Welch's t-test, was used to study differences in IPC practice scores between states.

**Table 2.** Needs/Resources for the commonly identified Infection Prevention and Control Gaps (>50% "No" and "Not Sure")

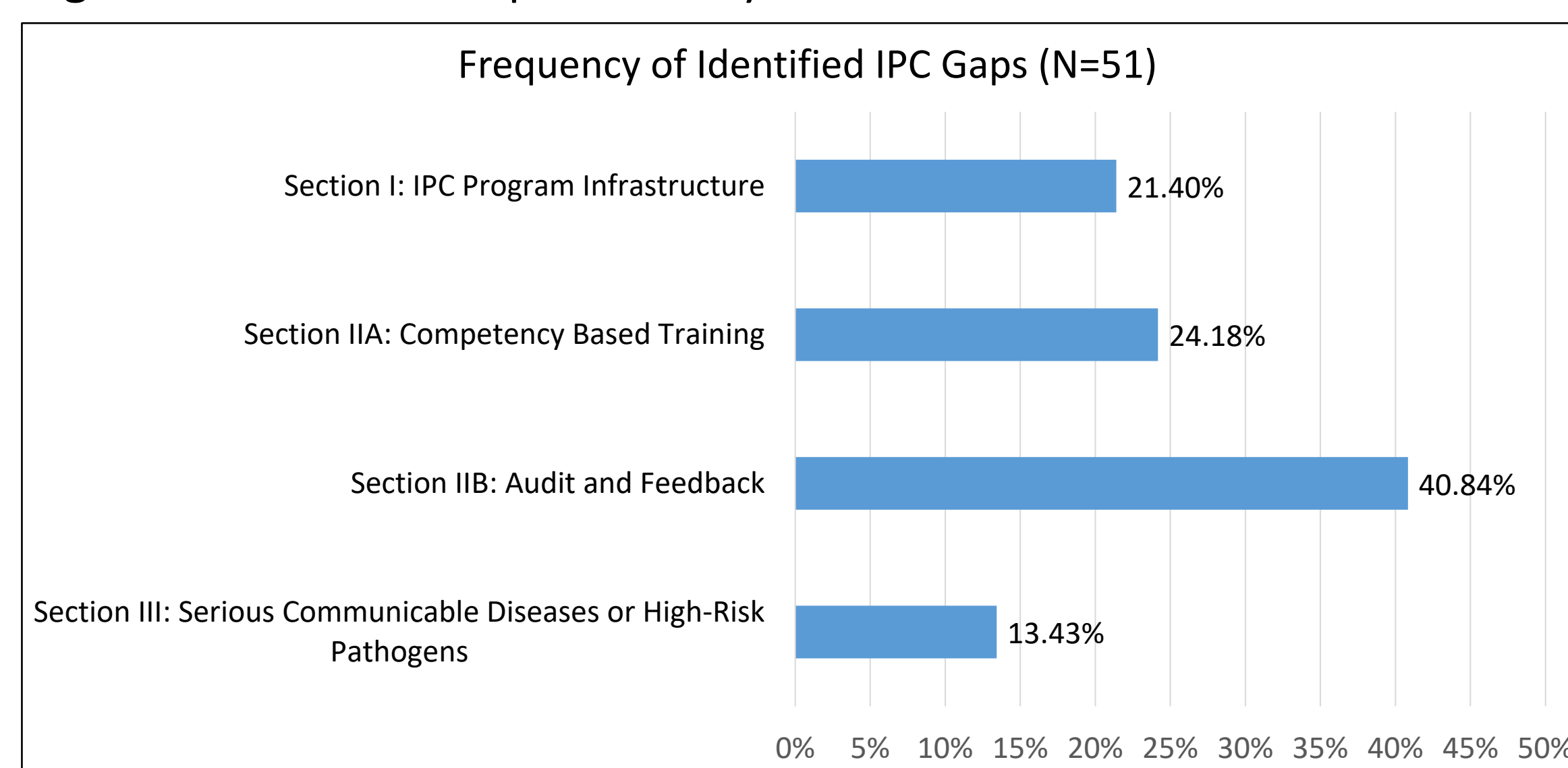
Commonly Identified Gap*	Gap Frequency	Top 3 Cited/Most Requested Resources**
Absence of a drug diversion program	78%	<ul style="list-style-type: none"> <li>A policy/protocol template inclusive of steps to follow in an investigation of drug tampering</li> <li>An educational resource to train personnel on drug diversion</li> <li>A guide for creating and implementing a drug diversion program</li> </ul>
Lack of audits and feedback for safe injection practices	74%	<ul style="list-style-type: none"> <li>Standardized safe injection practices audit tool (template or mobile app to assist audits)</li> <li>Educational resources to train personnel on how to provide and receive feedback</li> <li>Educational resources to train personnel to perform audits</li> </ul>
Lack of audits and feedback for insertion and maintenance for Central Venous Catheters (CVCs)	74%	<ul style="list-style-type: none"> <li>Standardized CVC insertion and maintenance audit tool (template or mobile app to assist audits)</li> <li>Educational resources to train personnel on how to provide and receive feedback</li> <li>Educational resources to train personnel to perform audits</li> </ul>
Failure to conduct a risk assessment for the laboratory, identify what tests can safely be offered to provide appropriate clinical care for a Person Under Investigation (PUI)	74%	<ul style="list-style-type: none"> <li>Risk Assessment Template</li> <li>Mitigation toolkit</li> <li>Stable workforce (e.g., mitigation strategies for staff turnover)</li> <li>Access to ongoing equipment readiness guidance</li> </ul>
Lack of audits and feedback for insertion and maintenance of (indwelling) urinary catheters	60%	<ul style="list-style-type: none"> <li>Standardized urinary catheter insertion and maintenance audit tool</li> <li>Educational resources to train personnel on how to provide and receive feedback</li> <li>Educational resources to train personnel to perform audits</li> </ul>
Lack of audits and feedback on adherence to reprocessing procedures for critical devices	58%	<ul style="list-style-type: none"> <li>Standardized audit tool for reprocessing critical devices (template or mobile app to assist audits)</li> <li>Educational resources to train personnel on how to provide and receive feedback</li> <li>Educational resource to train personnel to perform audits</li> </ul>
Lack of audits and feedback on adherence to recommended IC practices for Surgical Site Infection (SSI) prevention	58%	<ul style="list-style-type: none"> <li>Standardized audit tool for IP practices related to SSI prevention</li> <li>Educational resource to train personnel on how to provide and receive feedback</li> <li>Dedicated FTE for performing audits</li> </ul>
Lack of audits and feedback on adherence to cleaning and disinfection procedures	56%	<ul style="list-style-type: none"> <li>Standardized cleaning and disinfection procedure audit tool</li> <li>Educational resource to train personnel on how to perform audits provide and receive feedback</li> <li>Dedicated FTE for performing audits</li> </ul>
Lack of audits and feedback on adherence to reprocessing procedures for semi-critical devices	56%	<ul style="list-style-type: none"> <li>Standardized audit tool for reprocessing semi-critical devices</li> <li>Dedicated FTE for performing audits</li> <li>A tool or database for storing audit and feedback data</li> </ul>
Facility procedures lacking consultation with the Infection Prevention program upon purchase of new equipment or products	53%	<ul style="list-style-type: none"> <li>A procedure template for new products/purchases that incorporates IP program consultation</li> <li>Focus of regulatory authorities during surveys</li> <li>Leadership buy-in</li> </ul>
Lack of audits and feedback on adherence to recommended infection control practices for <i>Clostridioides difficile</i> infection (CDI) prevention	51%	<ul style="list-style-type: none"> <li>Standardized audit tool for IP practices related to CDI prevention</li> <li>Educational resources to train personnel on how to perform audits and provide and receive feedback</li> <li>Dedicated FTE for performing audits</li> </ul>

Note: FTE, full-time equivalent; IP, infection prevention.  
\*Commonly identified gaps refer to those infection prevention and control practices that were marked "No" & "Not Sure" by >50% of the respondents.  
\*\*The top 3 cited/most requested resources are based on the responses provided by CAHs that do not have a procedure/process in place.

**Table 1.** Characteristics of the hospitals participated in the online survey

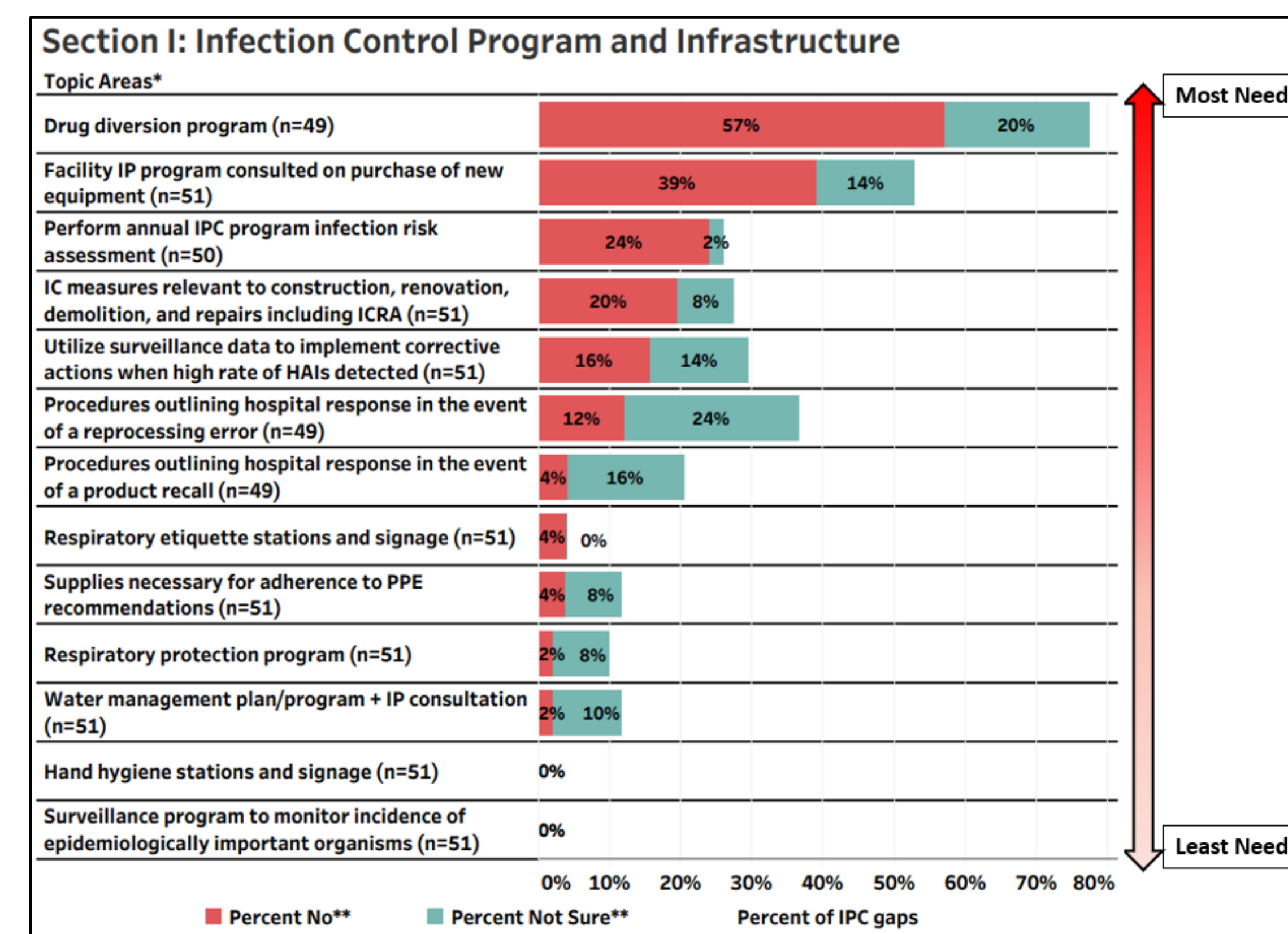
Characteristics	N=51
Number (%) CAH (Critical Access Hospital)	50 (98.04%)
Number (%) ACH (Acute Care Hospital)	1 (1.96%)
Number (%) completed all sections of the survey	38 (74.5%)
Number (%) participated hospitals in Nebraska	34 (66.66%)
Number (%) participated hospitals in Iowa	16 (31.37%)
Number (%) participated hospitals in Kansas	1 (1.96%)
Number (%) participated hospitals in Missouri	0 (0%)
Bed size: Median (Range)	25 (10 – 25)
IPC Practice Score: Median (Range)	31 (13-48)

**Figure 1.** Overall IPC Gap Percent by Section\*

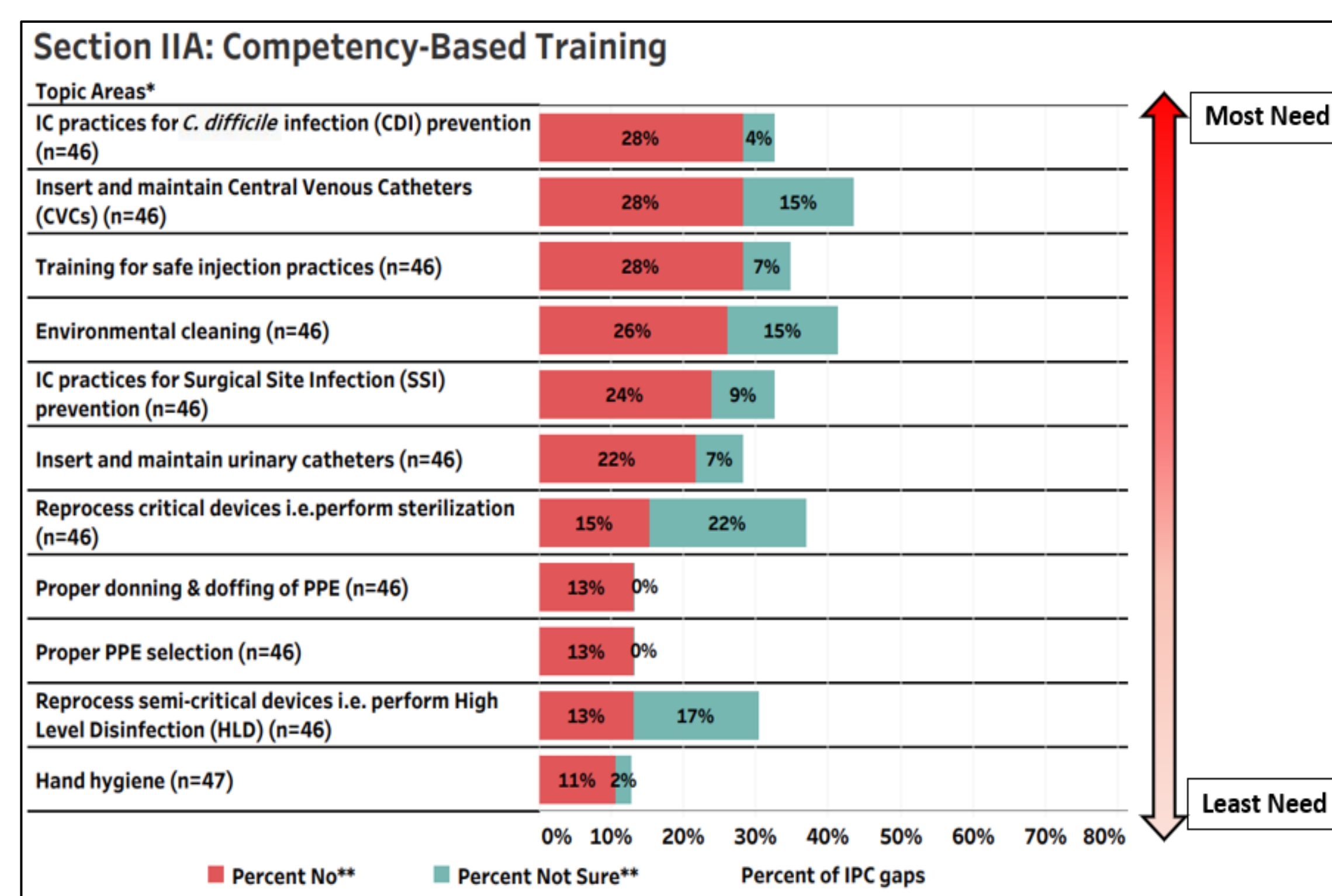


\*Frequency calculated based on average "no" and "not sure" responses of all the questions for that specific section

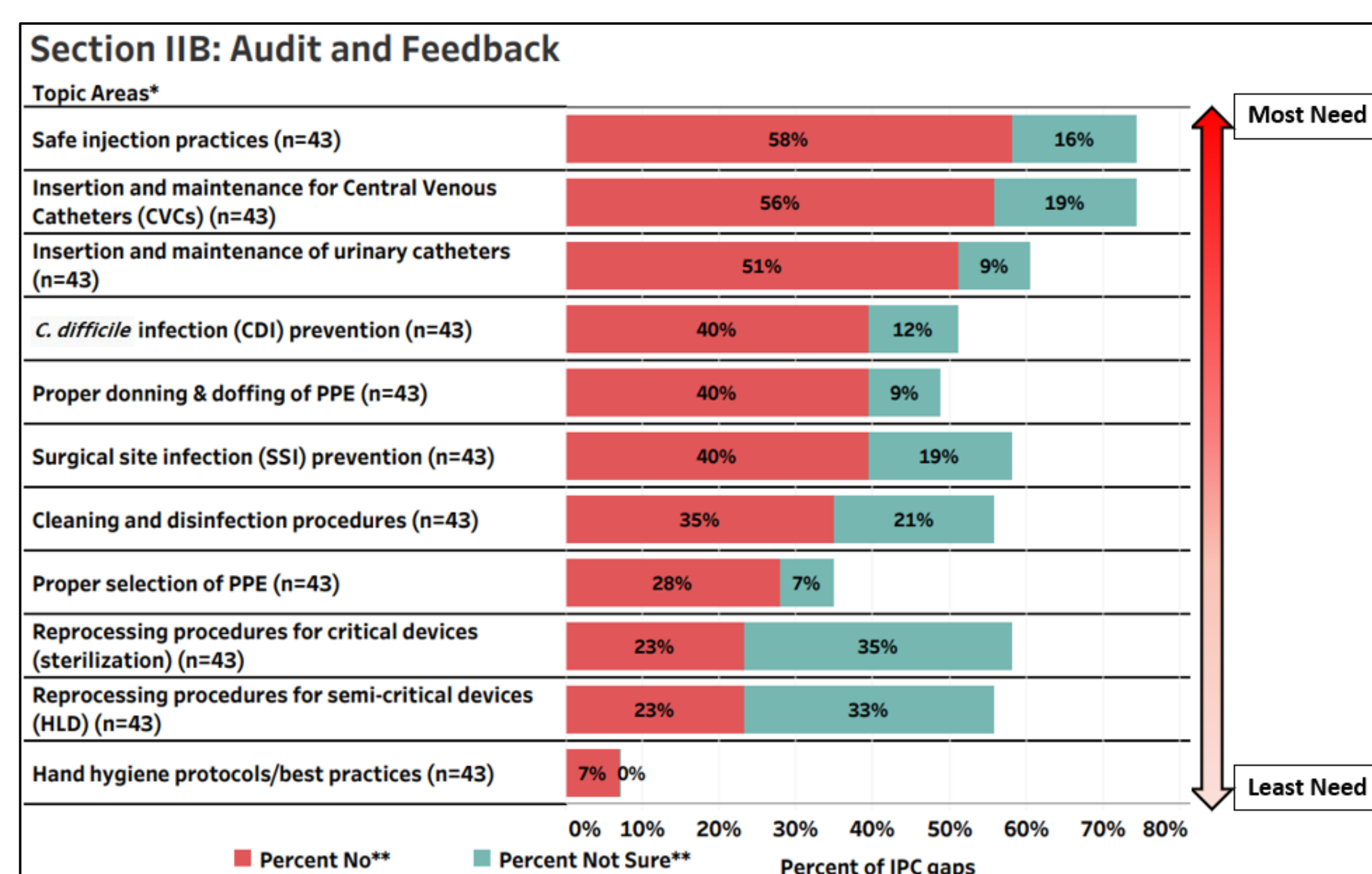
**Figure 2a.** Frequency of IPC Gaps Related to Program and Infrastructure



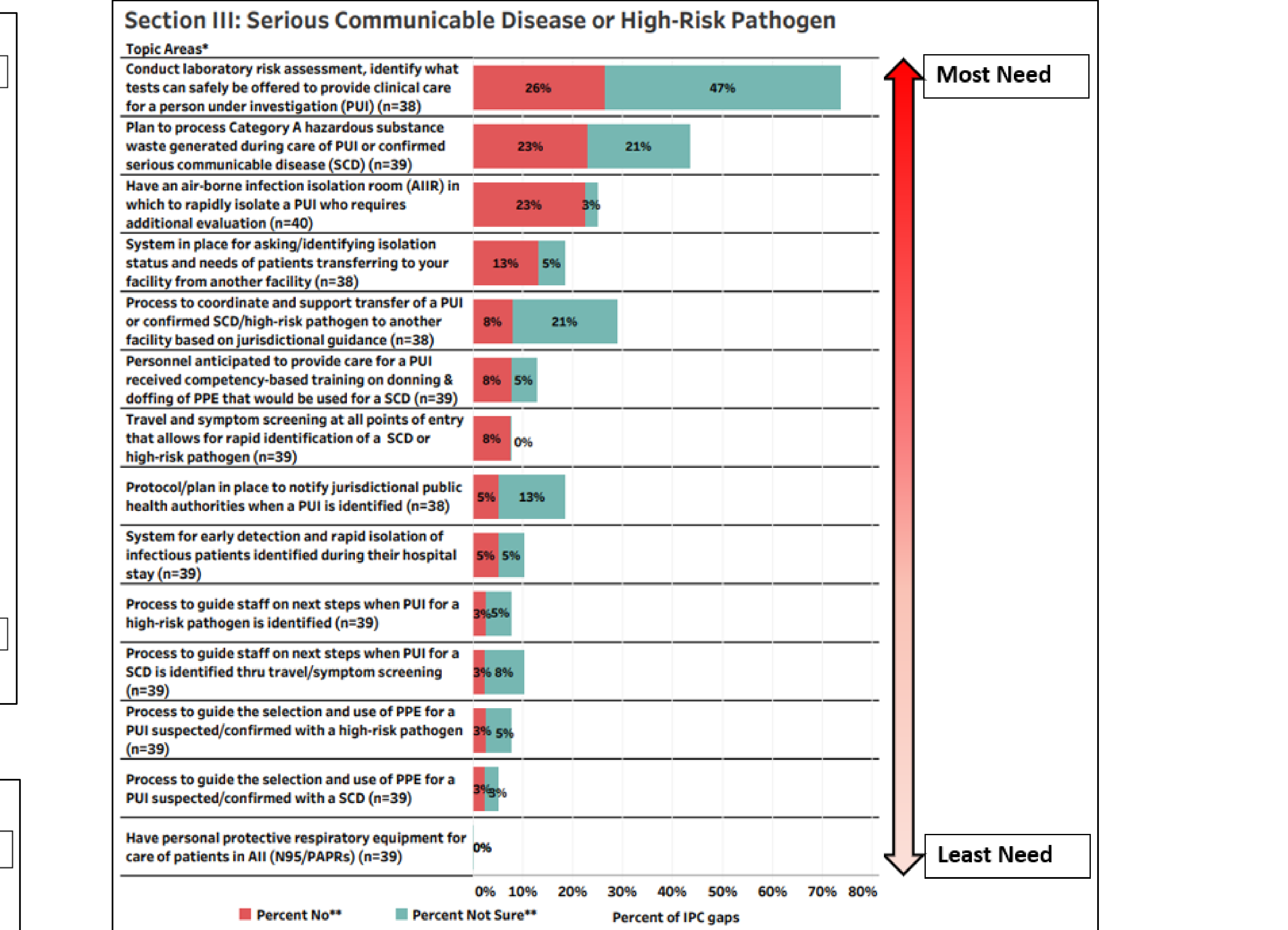
**Figure 2b.** Frequency of IPC Gaps Related to Competency-Based Training



**Figure 2c.** Frequency of IPC Gaps Related to Audit and Feedback



**Figure 2d.** Frequency of IPC Gaps Related to Serious Communicable diseases/ High-Risk Pathogen



Figures 2a, 2b, 2c and 2d:  
\*Topic areas represent the questions asked on the survey; "n" represents count of all yes, no, and not sure responses combined for each IPC practice.  
\*\*The graphs include only the "No" and "Not Sure" response data of the participating facilities in Region VII. A "No" response indicates that the facility doesn't have the specific procedure/process/program currently in place while a "Not Sure" response indicates that the respondent is unsure of having a specific procedure/process/program in place.

## RESULTS

- Of 259 total licensed CAHs in Region VII, 50 CAHs and 1 small NE hospital (not licensed as CAH but included in the analyses as CAH) participated in the survey. The CAH response rate accounted to 19.30%.
- Majority (n=38) responded to all sections with IPC scores ranging from 13 to 48 (Table 1). Overall, IPC practice gaps were most frequently identified in Audit and Feedback section (Figure 1), but varying level of gaps was present for different IPC practices in all 4 sections (Figures 2a, 2b, 2c and 2d). There was no significant difference between IPC practice scores of CAHs in NE and IA (average score 33 vs 36; p = 0.38)
- Most of the "commonly identified IPC practice gaps" (defined as > 50% of "no" and "not sure" responses) in CAHs were related to audit and feedback practices (Table 2). Additional commonly identified gaps included lack of drug diversion program, absence of input from IPC team prior to purchasing equipment and failure to conduct risk assessment for the laboratory.
- Most CAHs cited a standardized audit tool and staff training materials as much needed resources (Table 2).
- After analysis of the survey results, a summary report was developed and sent to survey participants. The report included web-based links to resources for the most cited needs for each of the survey sections.

## CONCLUSION

- CAHs included in this sample clearly demonstrated that there is a pressing need for resources and mitigation strategies to strengthen audit and feedback practices across multiple practice areas within their IPC programs. Ongoing focus on additional resource development to support infection preventionists in CAHs is essential to advance IPC programs in this setting.
- Small sample size and lack of demographic data are the major limitations of the study. There is a need for future studies with larger sample size to identify the needs for IPC programs in CAHs across the US.

## DISCLOSURE

The authors have no relevant conflicts of interest with regard to the content of this poster.

## ACKNOWLEDGEMENT

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