Innovation in Infection Prevention: How research by IPs for IPs can advance the field

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Association for Professionals in Infection Control and Epidemiology

APIC Orange County
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Sara Reese, PhD, MPH, CIC, AL-CIP, FAPIC
Director of Research, APIC

Disclosures

- The speaker has no disclosures

Objectives

- Explain how the Center for Research, Practice and Innovation within APIC can help you as a frontline IP.
- Describe the benefits associated with joining the APIC Research Network and becoming a ”researching IP”
- Evaluate APIC’s 2024 Research Agenda to determine where you can contribute to the field of infection prevention
- Evaluate studies performed by frontline IPs for IPs that advanced the field of infection prevention

APIC's Center for Research, Practice, and Innovation (CRPI)

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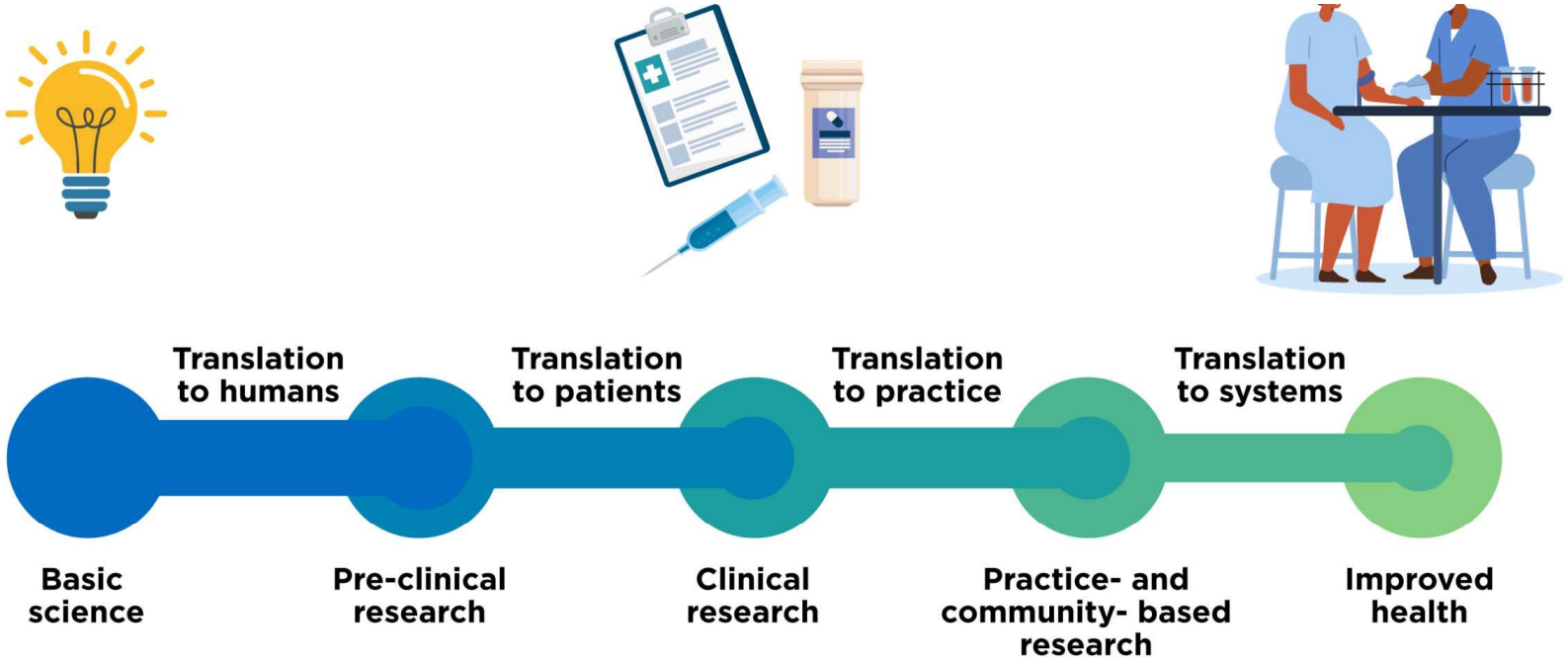
APIC's Center for Research, Practice and Innovation (CRPI)



CRPI

APIC aims to play a leading role in establishing research networks that foster collaborative scientific research across multiple entities.

CRPI aims to prioritize infection preventionist-informed research by building a dedicated team of scientists, researchers, and fellows

Produce original research focus on advancing infection prevention and control practice

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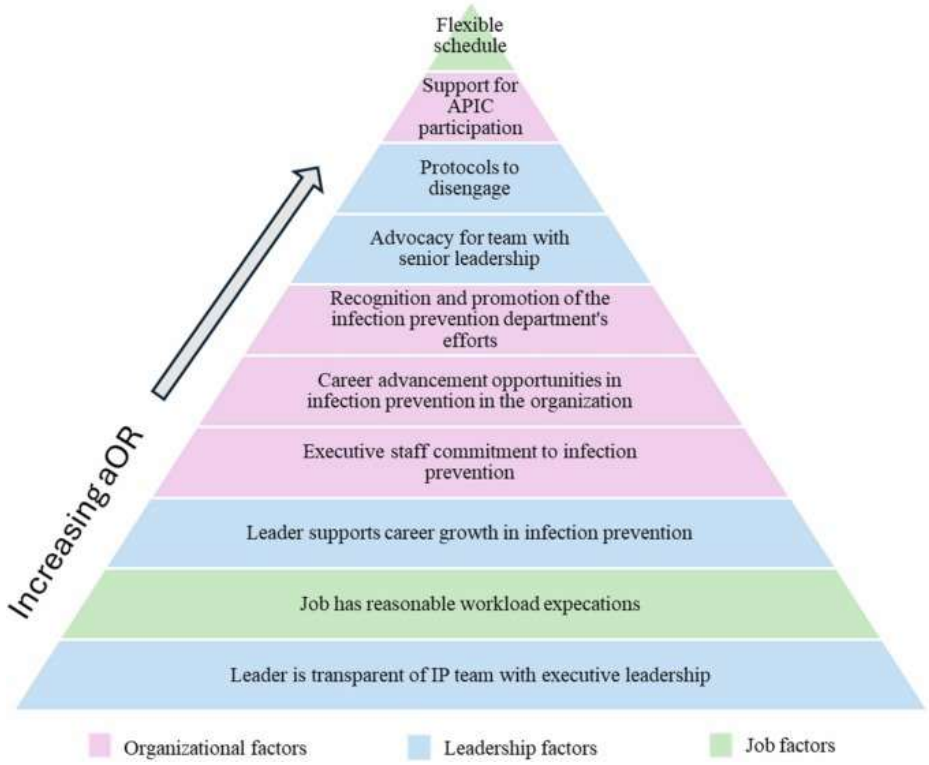
CRPI Research Projects

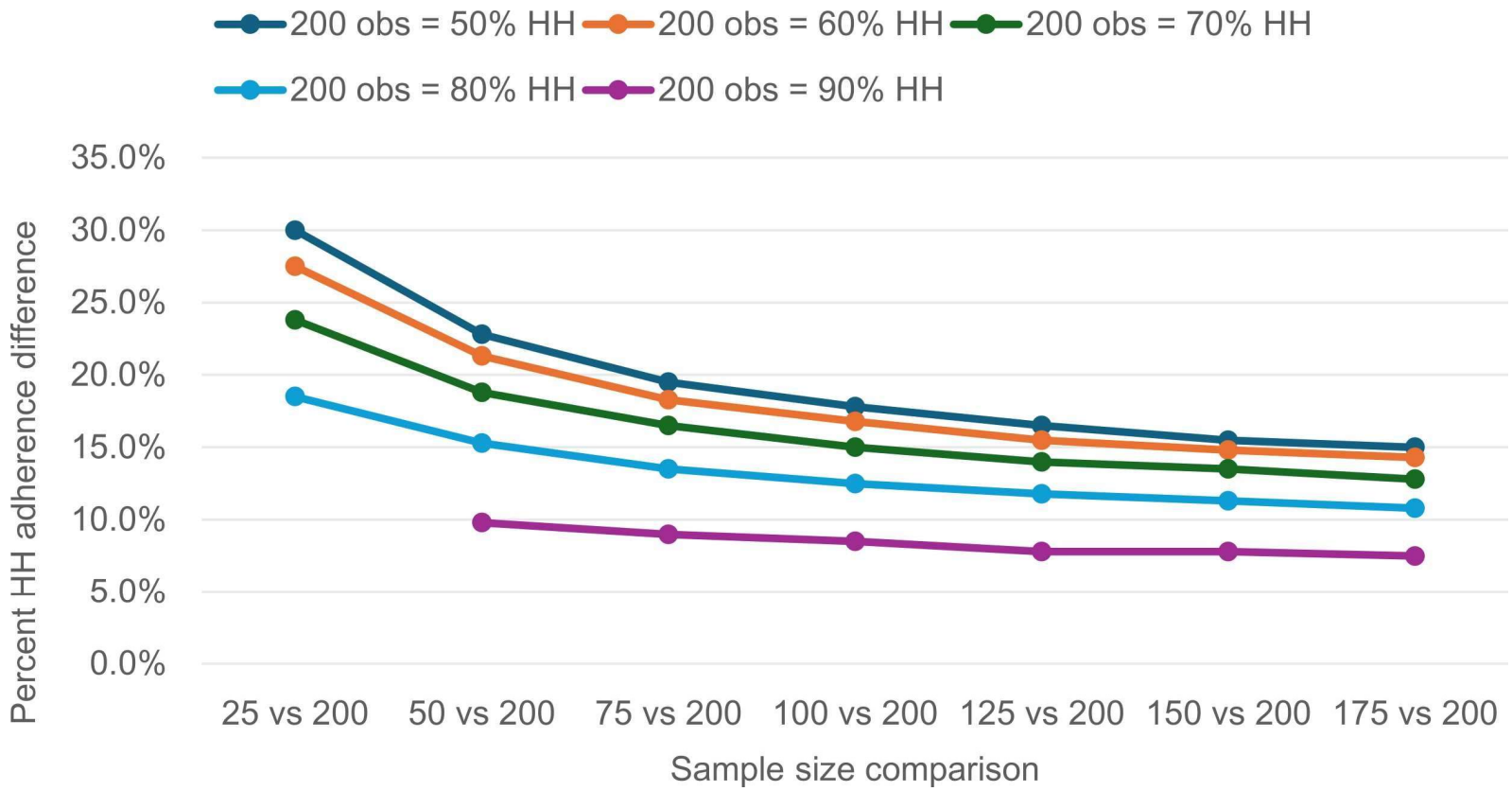
- 2024:
  - IP retention and attrition
  - Hand hygiene – how many observations is enough
  - APIC Research Agenda
  - Abstract writing mentorship program
- 2025:
  - IP Burn Out assessment
  - 2025 MegaSurvey
  - APIC Research Network
    - Mentorship program
    - Call for proposals
  - New and Improved APIC acute care staffing calculator
- 2026
  - MegaSurvey – results!
    - Comparison to 2015, 2020 and 2025
    - Compensation report
    - Antimicrobial stewardship programs
    - IPs and artificial intelligence
    - Training methods for IPs
  - IP reporting structure and outcomes
  - Ambulatory staffing calculator

IP retention and attrition



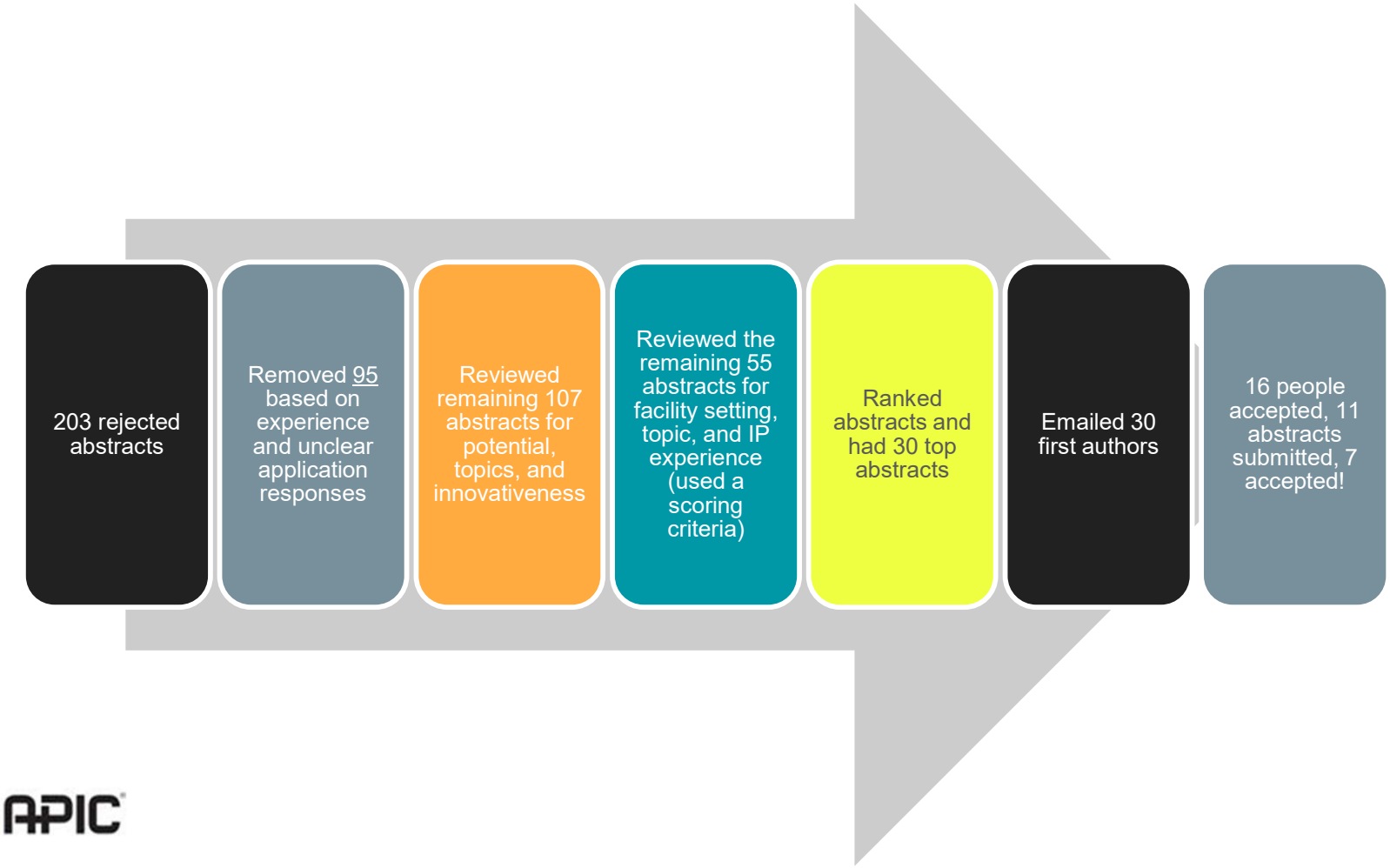
Reese SM, Shackelford A, Knepper B, Merrill K, Nicholson F, Baghagho E, Doran B, Stoltzfus H, Crapanzano-Sigafoos R. Retaining your infection preventionist: Top 10 factors that lead to retention in the US. Am J Infect Control. 2025 Sep;53(9):925-931.
Reese SM, Shackelford A, Merrill K, Nicholson F, Baghagho E, Doran B, Stoltzfus H, Crapanzano-Sigafoos R. Why do infection preventionists leave a job? A qualitative evaluation of infection preventionist attrition in health care. Am J Infect Control. 2025 Sep;53(9):919-924.

How many hand hygiene observations are enough?



Reese SM, Knepper BC, Crapanzano-Sigafoos R. Right-sizing expectations for hand hygiene observation collection. Am J Infect Control. 2025 Feb;53(2):175-180.

Abstract mentorship program



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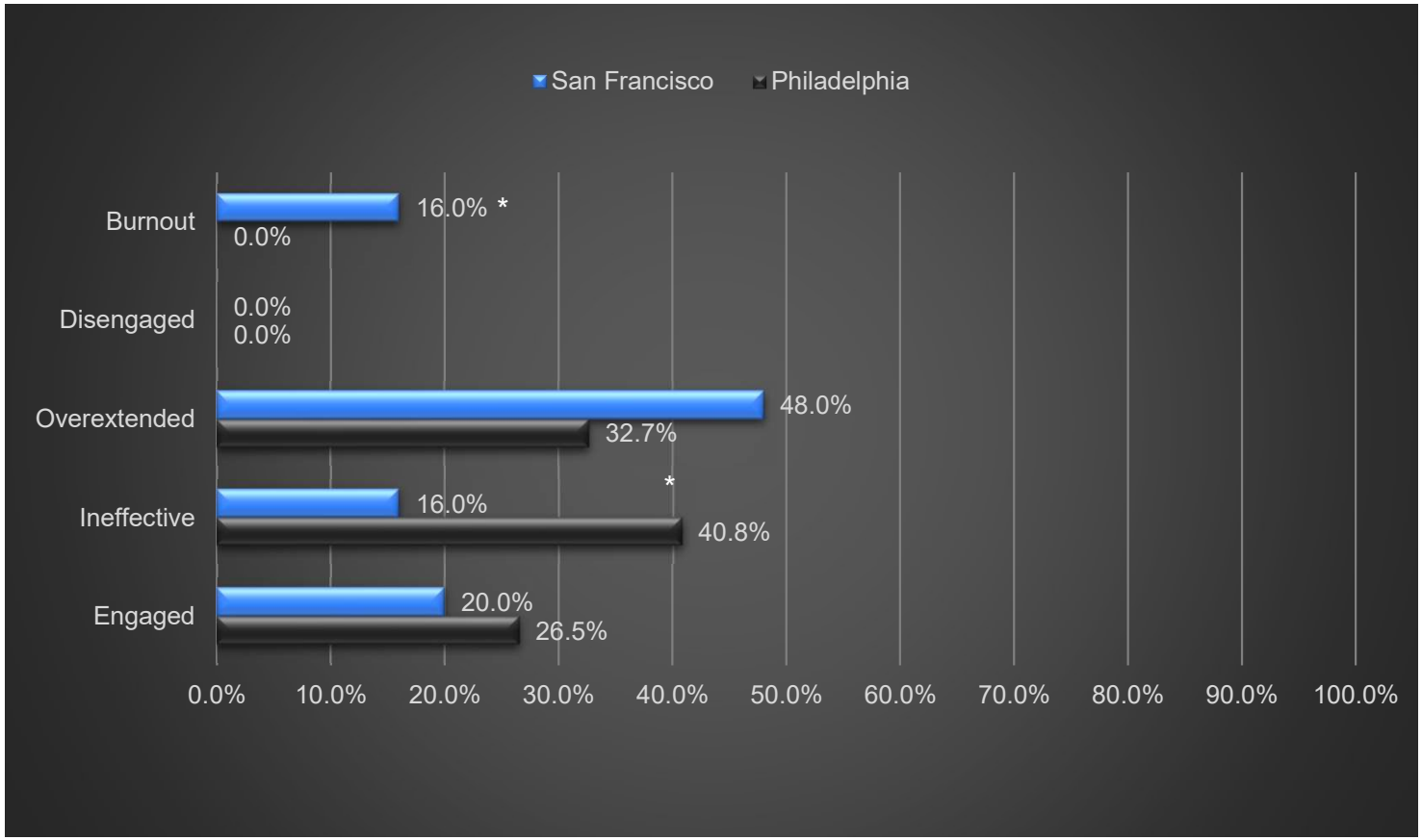
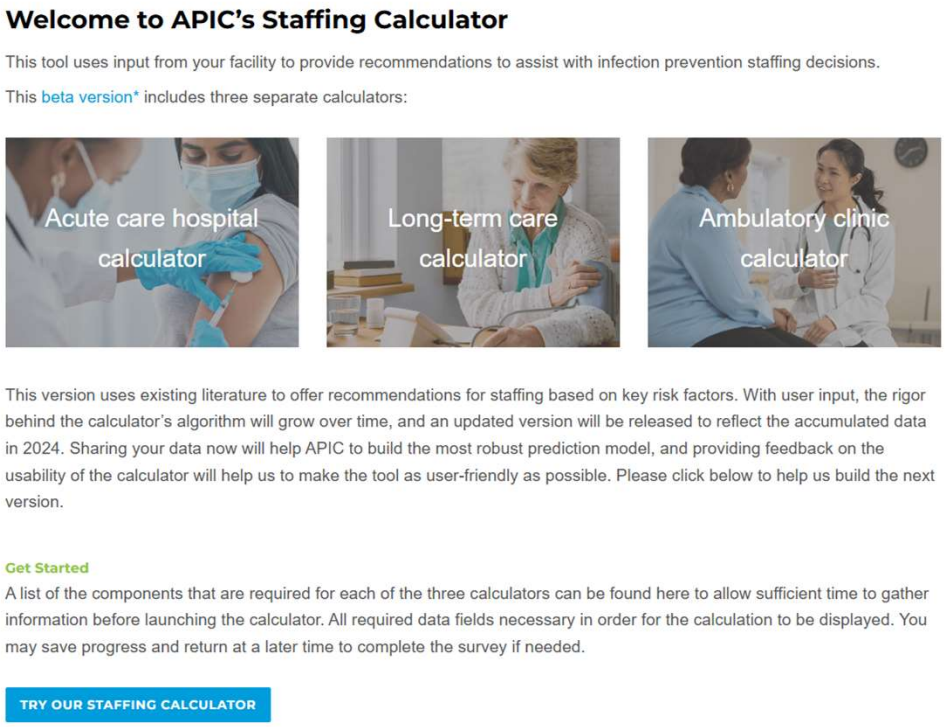
IP4 project (IP Burn out assessment)



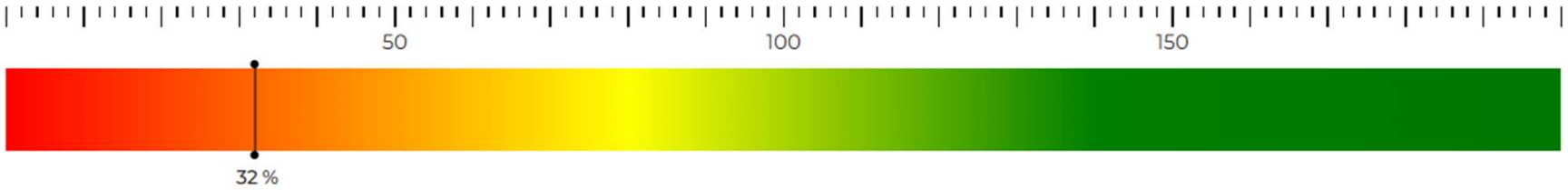
Doran B, Cook M, Geary L, Ellis D, Zabriskie K, Bell J, Levine A, Naik S, Gilman M, Reese SM. A tale of two APIC chapters: A pilot study measuring burnout in infection preventionists using the Maslach Burnout Inventory (MBI). Am J Infect Control. 2026 Feb;54(2):185-191.

APIC's New and Improved Staffing Calculator

- Updated in December 2025!
  - New questions: ICRAs, regulatory impacts, different questions for different sized hospitals!
  - New calculations: different ratios depending on the size of the hospital
  - Different staffing models
    - Provides different services based on staffing for IP program
  - SBAR for leadership when hospital is staffed less than expected
  - Free for APIC members!
- Based on results from the beta version – identified increased HAIs for programs staffed below than expected: Bartles R, Reese S, Gumbar A. Closing the gap on infection prevention staffing recommendations: Results from the beta version of the APIC staffing calculator. Am J Infect Control. 2024 Dec;52(12):1345-1350.



Results



Staffing ratio lower than expected

You report a current staffing ratio of 1 IP per **250** beds.

Based on your responses, you have a recommended staffing ratio of 1 IP per **80** beds.

Staffing Recommendations

Infection Preventionists

- You reported a staffing ratio of **1** FTE to **250** licensed beds.
- In comparison with other facilities with similar complexity, risk, and resources, your responses indicate that your facility staffing is lower than expected by **2.1** FTE.

	Resourced Constrained Recommended FTEs 75%	Standard model Recommended FTEs 100%	Fully resourced Recommended FTEs 125%
Recommended FTEs	2.33	3.1	3.88
Healthcare-associated infection program			
Identifies and investigate publicly reported infections	✓	✓	✓
Collects surveillance data and submit to NHSN	✓	✓	✓
Identifies and investigate other high risk/high volume infections		✓	✓
Reports HAI data to leadership with action plans for increasing trends		✓	✓
Completes case reviews on publicly reported infections and high risk/high volume infections			✓
Utilizes data analysis and visualization tools (i.e., dashboards, predictive models) to help with staffing, bed management, PPE procurement, isolation and infection prevention activities.			✓

APIC Research Agenda

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APIC Research Agenda

- History of APIC's Research Agendas
- Development process of the 2024 Research Agenda
- APIC's research priorities
- Future directions in research

History of APIC's Research Agendas

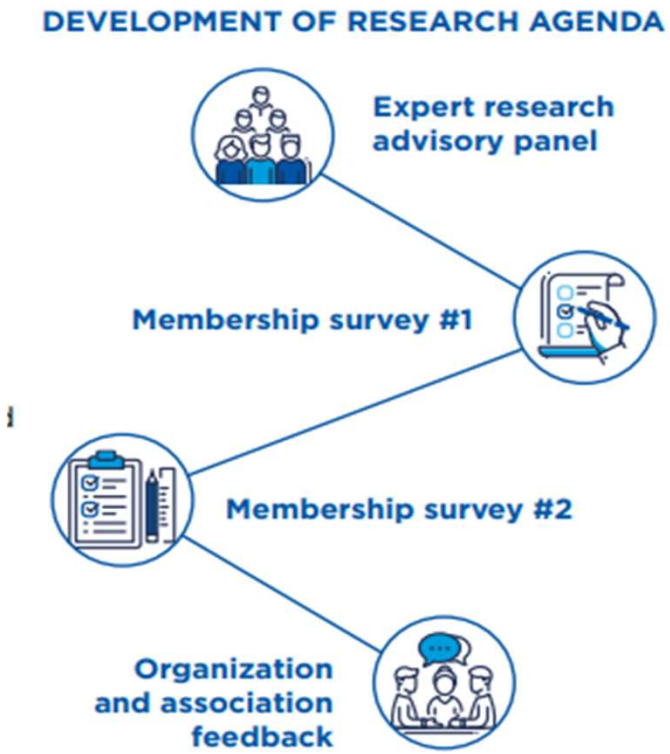
2000

- Developed by an international multidisciplinary panel of experts
- 21 specific research priorities identified
- Application of behavioral and management sciences
- Development of meaningful surveillance indicators
- Identify specific components of IP staffing
- Develop methods to improve appropriateness of abx use
- Determine risk factors for resistance
- Develop methods to improve the diagnosis, prevention and management of VAP

2012

- Started with the 21 priorities from the 2000 Research agenda
- Utilized a member survey to prioritize importance and provide new ideas
- New priorities identified:
- HAI prevention
- IP Work environment (staffing patterns and data collection techniques)

Development process of the 2024 Research Agenda



- Research summit in March 2024 of 17 researchers who identified categories, topics, subtopics, and questions
- Membership survey #1: 4-level Likert scale,126 responses to prioritize the research subtopics (61 frontline IPs, 37 IP leaders, 7 corporate IPs and others)
- Membership survey #2: Ranking of priorities, 101 responses
- Organization and association feedback
- Finalize the agenda – “APIC Research Agenda” and “Research gaps for partners”

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APIC's research priorities

- Understanding the nature of AGPs and associated infection risk
- Reducing the risk of disease transmission due to AGPs
- Air handling and movement

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APIC's research priorities

- Impact of lab test ordering practices
- Understanding lab testing practices
- MDRO testing and interventions
- Impact of prescribing practices
- Understanding prescribing practices

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APIC's research priorities

Understanding AI as an IPC tool

EMRs as IPC tools

National Healthcare Safety Network

Data and Informatics

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APIC's research priorities

- Understanding UTI prevention products and processes
- Diagnostic stewardship
- Understanding CAUTI impact
- Understanding BSI: risk factors, impacts, prevention products and processes
- Understanding VAD-related HAI burden
- Understanding VAE prevention products and processes
- Understanding VAE burden

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APIC's research priorities

- Emergency response protocols
- Responding to product disruptions

APIC's research priorities

- Understanding disinfectants
- Impacts of room cleaning and disinfection to HAI
- Understanding monitoring processes
- No-touch surface disinfectants/whole room solutions
- Understanding roles in equipment cleaning
- Impact of equipment cleaning and disinfection to HAI
- Disinfecting high touch items

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APIC's research priorities

- Understanding the impact of SDOH to IPC practices
- Impact of SDOH to HAI
- Impact of resource allocation

APIC's research priorities

- Efficacy and feasibility of instructions for use (IFUs)
- Understanding HLD processes and protocols
- Understanding sterilization processes and protocols

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APIC's research priorities

- Impact of certification
- Understanding certification
- IPC program staffing
- IPC program design and management
- Competency
- Compensation

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APIC's research priorities

- Hand hygiene
- Implementation
- Effectiveness
- Respirators
- Human factors
- Vaccine impact
- Vaccine hesitancy

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APIC's research priorities

- Understanding products and processes - endoscopes
- Understanding products and processes - surgeries
- Surgical antimicrobial prophylaxis

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Future directions

What's next with the Research Agenda?

- CRPI will use the agenda as the strategic vision for research over the next 5 to 10 years
- Key focus areas for APIC Annual Conference and educational offerings
- APIC Research Network – prioritize projects and initiatives that align with the agenda
- State of the Science reviews to determine progress on fulfilling the research agenda with new research

How can APIC help you?

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Join the APIC Research Network!

ARN Individual Membership: The Details

- Training and mentorship
- Access to other ARN members through APIC's online community page (a closed forum reserved for ARN members)
- Opportunity to submit collaborative research for ARN consideration
- Access to MegaSurvey data with approved research proposal

- Free for APIC Members
- Renewed every 12 months
- Maintaining membership requires participation in at least one ARN survey or collaborative research project per year.

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ARN Individual Membership: Membership Levels and Registration

Membership Sub-level	Membership Pre-Requisites by Sub-level
White belt (Novice)	• None
Green belt (Proficient)	• Current IRB training • At least one published peer-reviewed article • At least one abstract published or presented at a national conference as first author
Black belt (Expert)	• Green belt requirements + • At least 2 published peer reviewed papers as lead author, • At least 5 published peer reviewed articles overall • At least 2 reviews for a peer reviewed journal • Evidence of serving as a lead for a research study (either as a principal investigator or research coordinator
Mentor	• Black belt requirements + • Completion of APIC mentor training • Evidence of supporting novices/other facilities through mentorship (TBD)

ARN Research Mentorship Opportunities

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ARN Call for Proposals

Submit your ideas: October 1–27, 2025

Who can apply?

All ARN members are eligible to submit a proposal.
(Mentors available for White and Green belts)

Proposal Requirements

- Background & Significance
- Aims & Goals
- Methods & Analytic Plan

Examples of Proposal Projects

- Survey of ARN Members
- Multi-facility quality improvement projects
- Multi-facility research projects
- Use of the MegaSurvey dataset
- Use of the IP Retention dataset

Submit your Proposal

Submission window: Oct 1-27, 2025

Available datasets

MegaSurvey data

- Roles: Frontline IPs from a variety of settings, corporate IPs, consultants, public health IPs, researchers, industry IPs
- Frontline IP questions: Settings, roles and responsibilities, staffing, team composition, on-call structure, antimicrobial stewardship program, surveillance program, external and internal stakeholder relationships
- Non-frontline IPs: role specific questions
- Training, compensation, professional background questions for all respondents

IP Retention data

- Organizational, leadership, job and personal factors that impact retention with demographic data

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ARN Member Demographics

	All members	Texas members
Belt color		
White	306	22
Green	92	6
Black/Mentor	36	0
Incomplete assessments	16	1
Setting		
Academic	5.2%	17.9%
Acute care	85.0%	75.0%
Public Health	6.3%	14.3%
Total	450	28

Join the ARN now!

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IP Research – by IPs for IPs

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IP Research – by IPs!

Major Article

Implementation of colon surgical site infection prevention bundle—The successes and challenges

Sara M Reese PhD, MPH, CIC, FAPIC [a,*], Bryan Knepper MsPH, CIC [b], Meghan Amiot RN [c], Julie Beard CST [c], Eric Campion MD [d], Heather Young MD [e,f]

[a] Department of Quality, Swedish Medical Center, Englewood, CO
[b] Department of Quality Management, Denver Health Medical Center, Denver, CO
[c] Department of Surgery, Denver Health Medical Center, Denver, CO
[d] Department of Trauma, Denver Health Medical Center, Denver, CO

Background: Surgical site infection (SSI) prevention bundles have proven successful in decreasing infections. Surgeon and nurse engagement and endorsement are essential for success. The objective of this quality improvement project was to develop, implement and sustain a colon SSI prevention bundle and determine which bundle components are most strongly associated with prevention of SSI.

Methods: The bundle was developed and implemented in a 525 bed Level I trauma hospital and included pre-, intra- and postoperative components. Bundle adherence and SSI rate were continually tracked and communicated to surgeons and nursing staff throughout project. Univariate and multivariate analyses were performed to determine the components associated with lowest SSI rates.

Results: There were 280 elective and urgent/emergent colon surgeries between October 2015 and March 2018. Over 60% had preoperative components, 76.5% had intraoperative components and 55.6% had postoperative bundle components with a nonsignificant decreasing trend in SSI rate of −0.5 SSI/100 procedures per quarter. The multivariate analysis suggested that use of 2% chlorhexidine gluconate/70% alcohol skin prep, use of wound protector and change of gloves for fascial closure were associated with fewer SSI.

Discussion: The implementation of a colon SSI prevention bundle in a Level I trauma hospital with pre-, intra- and postoperative components was described. Future directions include focusing implementation efforts on bundle components that significantly prevent SSI to improve adherence.

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Major Article

Reducing central line-associated bloodstream infection with a dedicated CLABSI prevention registered nurse role

Kelsey E. Star MPH, CIC [a,*], Kaia Lindsey MPH, CIC [b], Sara M. Reese PhD, MPH, CIC, FAPIC [b], Linda Paulino RN, BSN, PCCN [a], Lily L. Hernandez RN, BSN [a], Irene Tynes RN BSN [a], Karli Eiseman RN, BSN [a], John Tynes MD, MBA [a]

Background: Following a 200% increase in the central line-associated bloodstream infection (CLABSI) standardized infection ratio in a private teaching hospital between 2019 and 2020, a program with the utilization of a CLABSI Prevention Registered Nurse was implemented to reduce CLABSIs through a variety of focused prevention efforts and education.

Methods: The CLABSI P-RN project consisted of a dedicated team of RNs that performed interventions that included an audit of all central lines daily, real-time education and remediation, bi-weekly educational handouts, and assistance with 2-person dressing changes. Audit data were utilized to identify trends in gaps in compliance with the CLABSI bundle (ie, daily bathing, dressing integrity). The CLABSI rate/1,000 central line days were tracked in preintervention, intervention, and postintervention time periods.

Results: During the intervention, the CLABSI rate decreased from 1.4 during the preintervention time period, to 0.4 during the intervention time period (*P*-value .04). Additionally, daily bathing compliance improved from 84.3% during the preintervention time period, to 90.8% during the intervention time period (*P*-value .004).

Discussion: The implementation of the CLABSI P-RN was beneficial in reducing CLABSIs.

Conclusions: An expert-trained role dedicated to central line management reduces CLABSI occurrences, reduces health care costs, and improves patient outcomes.

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MAJOR ARTICLE · Articles in Press, September 15, 2025

Reduction in Immediate Use Steam Sterilization Associated with Reduction in Surgical Site Infections

Jennifer Jaffe, MBA BSN RN CIC [a] · Linda Merz, M(ASCP)CM, MLT, CIC [b] · Kathleen McMullen, MPH CIC FAPIC FSHEA [a]

Affiliations & Notes Article Info

Abstract

Background

Immediate use steam sterilization (IUSS) is a potential risk factor for surgical site infection (SSI). A Quality Improvement (QI) project to reduce IUSS was implemented at a single hospital after a regulatory survey noted excessive use.

Methods

Components of the project included three signatures for every cycle of IUSS; Ordering of additional trays; removal of ability of surgery personnel to perform IUSS; reduction in number of IUSS sterilizers from 8 to 1. The project was fully implemented in December 2019. No other changes were made that were anticipated to impact orthopedic SSI rates.

Results

There was no IUSS use after November 2019. Prior to the project, there were 9 hip SSI (rate = 0.54 per 100 procedures) and 14 knee SSI (rate = 0.49). After the project, hip SSI decreased by 76% (2 SSI, rate = 0.13, p = <0.05) and knee SSI decreased by 18% (7 SSI, rate = 0.41, p=0.67).

Conclusion

A multidisciplinary QI project was successful at drastically reducing the use of IUSS, and a correlating statistically significant decrease in hip SSI and clinically significant decrease in knee SSI was seen for 3 years after the project was completed.

Acknowledgments

- APIC Research Advisory Panel
  - Elaine Larson
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  - Shelley Kon
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  - Bryan Knepper
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  - Monika Pogorzelska-Mariarz
  - Janet Haas
  - Emily Sickbert-Bennett
  - Rebecca Crapanzano-Sigafoos

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QUESTIONS?

Email: sreese@apic.org

Join the ARN now!

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