APIC turns 50

An interview with the APIC DEI task force
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A
s I write this message, we are all still making our way through the height of the Omicron wave. I don’t know about you, but each day I must take my brain and escape to a place separate from infection prevention to help me rejuvenate. For me, that’s accomplished by reading. I share this with you because one of the best stories I’ve read lately actually illuminated many parallels to our world and, in the process, provided me with great hope for the future of infection prevention.

The book, titled *The Code Breaker* by Walter Isaacson, tells the story of Jennifer Doudna, the 2020 Nobel Prize winner in chemistry and co-discoverer of CRISPR technology. The first parallel was that, as a young person, Jennifer had a realization that she wanted to discover more about the basic building blocks of life but didn’t quite see a clear path for study or what her future career path could be. But, given her tenacious personality, she found her way to become a PhD biochemist and one of the most remarkable discoverers of our time. Our sphere of work faces much the same challenge—there hasn’t been a clear path to enter the field of infection prevention, much less a clear career ladder. But we have been born from those who are also of a tenacious spirit, and despite a 50-year circuitous journey, we are now clarifying who we are and who we will become. Amidst the COVID battle, a team of bright and committed infection preventionists (IPs) have been developing an academic pathway framework for future IPs. You’ll learn more when you read about APIC’s strategic priorities in this issue of *Prevention Strategist.*

This book also tells the tale of woman’s advancement into a scientific field that, at the time, had few of her gender—one person’s diversity, equity, and inclusion journey. She made her way forward through perseverance, with intelligence and with an attitude of purposeful collegiality. Again, it brought to mind for me that we are on the same path as a collective profession, learning what DEI means for us and making purposeful and intentional changes that will ensure a future we can be proud of. This issue of *Prevention Strategist* will introduce you to our DEI Task Force; again, colleagues who have been working to make us better even while they’ve been performing their “day jobs” dealing with COVID.

This story opened my eyes to the amazing future that lies ahead for combating illness, particularly infectious diseases and cancer. The advances we’re seeing emerge in the biotechnological realm will forever change vaccine development and performance, which is key to preventing infections. What I loved about reading this story was not only the amazing discoveries but also the tale of collaboration, mentorship, and yes—even the healthy benefit of competition toward discovery. I have seen this with IPs since I first started practicing 30 years ago—we mentor each other, we share information, and we collaborate to develop effective methods to prevent infection. Going forward, APIC aims to prioritize IP-led research so that, along with our basic science colleagues, we will one day become the leaders in implementation science.

Another parallel in Isaacson’s story about Doudna: This book was written in real time during the COVID crisis and describes work that was undertaken to combat the virus and respond to its wily challenges in the moment. When Doudna reached out to a colleague about collaborating, he responded with a quote from *The Lord of the Rings:*

> “I wish it need not have happened in my time,” said Frodo. “So do I,” said Gandalf. “... All we have to decide is what to do with the time that is given us.”

And so, they set to work. Oh, my goodness, have we not been in that same place these past many long months? It is an understatement to say that this has been an unprecedented time to be an IP; and despite the long hours and the grueling work, I am thankful we have been there. Imagine the additional lives lost without our collective efforts. I am thankful for you, for us as a profession, and for APIC as our collective presence—past, present, and future.

Onward and upward,

Linda Dickey, RN, MPH, CIC, FAPIC
2022 APIC President
After 2 years of coping with the COVID-19 pandemic, one could argue that the year 2021 felt much the same as 2020. Can we expect the same for 2022? For the infection preventionists (IPs) who have worked tirelessly through this pandemic, I believe that they would say things indeed have changed. We have seen variants of concern, and challenges with vaccine escape. We have been challenged with limited resources and over-capacity hospitals. But we have also benefited from collaborations with other healthcare professionals to better understand disease transmission and the effectiveness of infection prevention and infection control strategies. We have shared novel prevention strategies and innovative ways to safely deliver care—not only in acute care settings but also in a variety of congregate living and ambulatory care settings. How we conduct business has changed, as well. We have shifted our perspective on working from home, online learning, and remote testing. Yes, the “twenties” have shaken us up, and through this pandemic we are gaining a new perspective.

The Certification Board of Infection Control and Epidemiology (CBIC) is listening, and what we are hearing and seeing is helping us with our perspective. We are expanding our volunteers to the Test Committee in order to keep pace with new evidence, updates, and changes in practice. In the past 6 months, CBIC completed a practice analysis survey for the long-term care sector, and in the coming weeks, CBIC Board members will determine how those results will inform certification. A special thank you to those who volunteered their time to support this important practice analysis. We have continued to review suggested educational offerings for their eligibility as an infection prevention unit (IPU) towards recertification.

This year is also the time for a review of our strategic goals and the development of a new 3-year strategic plan. To gain perspective, we need to reconnect with our mission: to provide pathways to assess and maintain infection prevention competency, and our vision: healthcare without infection through verifiable competency. The strategic review and the development of new strategic goals and objectives will occur in the fall of 2022, for implementation in 2023.

I wish to acknowledge the exceptional efforts of our past president, Janet Glowicz. Through her leadership, CBIC managed to “stay the course,” never losing sight of our vision.

On behalf of the CBIC Board, I want to thank all IPs who have chosen certification as part of their own professional goals. A special acknowledgment to those who received certification or re-certification in 2021. This is no small achievement in the midst of a pandemic!

And to all IPs, thank you for the important work you are doing today and will do throughout the rest of 2022. Take care and stay safe.

Sandra Callery, RN, MHSc, CIC
2022 CBIC President
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APIC Leadership for 2022

President

Linda Dickey, RN, MPH, CIC, CPHQ, FAPIC
Senior Director for Quality, Patient Safety and Infection Prevention
UCI Health
Spokane, Washington/Orange, California

Linda Dickey is currently serving as Senior Director for Quality, Patient Safety and Infection Prevention at UCI Health and as an independent contractor for the Facilities Guidelines Institute (FGI). Linda has previously served on the FGI’s Health Guidelines Revision Committee to develop design criteria for healthcare facilities and taught for over 15 years for the American Society for Healthcare Engineering (ASHE) in courses related to healthcare design, construction, and water management. Additionally, she has served on the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) committee to establish the standard for Legionella management. Linda’s clinical experience is in adult critical care, and she has over 25 years of experience in epidemiology and infection prevention, quality, and patient safety. She earned a nursing degree from the University of South Carolina and her Master of Public Health from the University of South Florida and is certified in both Infection Prevention and Healthcare Quality.

President-elect

Patricia (Pat) Metcalf Jackson, RN, BSN, CIC, FAPIC
Infection Prevention Consultant
Dallas, Texas

Pat Jackson is an independent infection prevention consultant based in Dallas, Texas. She has been an infection preventionist for the past 27 years. She has worked in both adult and pediatric healthcare facilities but considers pediatrics to be her area of expertise. Pat served as the President of the Dallas-Fort Worth APIC chapter and was awarded the Chapter Leadership Award in 2000. She most recently served APIC in elected roles as Treasurer and member of the Board of Directors. Pat’s passion is mentoring new IPs. She served as an original author on APICs Roadmap for the Novice Infection Preventionist and spent many years as a faculty member to APIC’s epidemiology training courses. In 2008 she was designated by APIC as a Hero of Infection Prevention. Another interest of Pat’s is public policy and advocacy. She has been a member of APIC’s Public Policy Committee and served on the state of Texas HAI Advisory Committee. Pat earned her Bachelor of Science degree from Baylor University and is certified in infection control (CIC). She has earned the Fellow of APIC designation and was a member of the inaugural class.

Immediate Past President

Ann Marie Pettis, RN, BSN, CIC, FAPIC
Director, Infection Prevention
University of Rochester Medical Center
Rochester, New York

Treasurer

Carol McLay, DrPH MPH, RN, CIC, FAPIC
Infection Control International
Lewisville, North Carolina

Secretary

Erica J. Washington, MPH, CPH, CIC, CPHQ, FAPIC
Program Coordinator, Infections/Antibiotic Resistance
Louisiana Office of Public Health
Infectious Disease Epidemiology Section
New Orleans, Louisiana
Jessica Dangles began her role as Executive Director with the Certification Board of Infection Control and Epidemiology (CBIC) on January 24, 2022. Under her leadership, CBIC will continue to assess and maintain infection prevention competency through the certification in infection prevention and control (CIC®). Jessica has extensive experience with non-profit organizations and measuring standards of excellence in healthcare. She began her career in certification at the National Council of State Boards of Nursing, working on the nurse licensure examination NCLEX. From there she accepted a position at the American Osteopathic Association, serving as the Certification Director for the American Osteopathic board of Family Physicians, Emergency Medicine and Pediatrics. Most recently, she was the Accreditation Standards Manager at the American College of Surgeons. Jessica holds a Bachelor of Arts in Women and Gender Studies, a Master of Science in Human Resources, a Project Management Professional (PMP) certification, and is currently pursuing her Master of Business Administration.
APIC’s Strategic Plan 2022 and Beyond

Vision: A safer world through the prevention of infection
Mission: To advance the science and practice of infection prevention and control

With the arrival of APIC’s new CEO, Devin Jopp, and new imperatives brought to light through COVID-19, the 2021 APIC Board of Directors felt it was time to and staff reality brought forth APIC’s 2021 Board of Directors. Along with its new vision and mission, APIC is proud to share a new strategic plan for 2022 and beyond.

Strategic Priority #1 Champion the scientific advancement and practice of infection prevention and control
a) Prioritize, promote, and support infection prevention research
b) Advance research competency among IP professionals
c) Develop and disseminate evidence-based best practice guidance for infection prevention and control
d) Influence the policy and regulatory environment to advance infection prevention

Strategic Priority #2 Elevate Infection Preventionists as essential advocates, leaders, and experts
a) Engage and influence key leaders on the value of the IPC field and profession
b) Strengthen leadership capabilities to enhance the influence of IPs
c) Modernize IP staffing guidance to influence employers
d) Influence the policy and regulatory environment to advance infection prevention

Strategic Priority #3 Foster development of the next generation infection prevention and control workforce
a) Develop and promote pathways to enter the field of IPC
b) Develop a nationally recognized career advancement pathway
c) Develop strategies to attract new talent
d) Develop strategies to retain existing IPs

APIC/OSU Survey of IP Well-Being
APIC and the Ohio State University partnered on a survey to assess the well-being and perceptions of workplace wellness support of infection preventionists. More than 6,000 APIC members were surveyed between May and July 2021. The results will be published in an upcoming issue of AJIC.

The response rate was 15.5% (N = 926), and included the following representation:

- Female 93.5%
- Non-Hispanic White 86.8%
- Married/in a relationship 82.5%
- Had a bachelor’s 41.2% or master’s 42.3%
- Between the ages of 35 and 64 77.1%
- Worked 9-10 hours/day 58.2%
- Worked in an acute care setting 68.1%

Only a small proportion of professionals met the CDC recommended healthy lifestyle behavior guidelines:

- Slept ≥ 7 hours/night 34%
- Participated in ≥ 150+ min of physical activity/week 18.8%
- Consumed ≥ 5 servings of fruit + veg/day 7.3%

Compared to those whose workplaces provided a little/no support, professionals whose workplaces supported wellness very much/moderately had a 67% higher odds of obtaining ≥ 7 hours of sleep/night

Negative mental health outcomes were substantial, including:

- Burnout 65%
- Stress 70%
- Low proQoL 83%
- Depression 22%
- And anxiety 30%

Bernadette Melnyk, et al. Associations among infection prevention professionals’ mental/physical health, lifestyle behaviors, shift length, race, and workplace wellness support during COVID-19
IPC Acuity Scale

The sheer volume of work generated by the COVID-19 created a need for organizations to evaluate IP workloads and prioritize the best use of their specialized skills.

In conjunction with your organizational leadership and your infection prevention and control committee, APIC supports evaluation of which tasks may be delegated to other staff or temporarily put on hold during intense surges of the pandemic.

APIC’s COVID-19 Task Force created the IPC Acuity Scale for Crisis Situations (https://apic.org/wp-content/uploads/2022/01/Factsheet_AcuityScale-Final-4.pdf), to be used alongside your facility’s risk assessment, to assist in properly prioritizing patient safety, and also to convey to healthcare leaders how important it is for IPs to prioritize patient safety work during pandemic surges.

Infection Prevention and Control (IPC) Acuity Scale for Crisis Situations

**EMPHASIZE: Make high priority**
- Updating and providing education/supervision for personal protective equipment (PPE) donning/doffing and supporting changes in infection prevention practices in response to new guidelines/emergencies
- Surveillance activities for higher, higher risk, and lower-risk healthcare-associated infections (HAIs)
- Investigating cluster/urgent events (floods, foodborne outbreaks, etc.), providing response, guidance, and reporting (COVID and non-COVID)
- Attending COVID-19 vaccine/pandemic planning and community meetings and providing IPC input on COVID-related protocols
- Audits to support staff provide infection prevention strategies, including inICU, surgical areas, etc.
- Immunization program and employee vaccination (COVID-19, influenza)
- Alerting new PPE and sharps disposal products (especially when supply chain issues emerge)
- Hospital inpatient and inpatient/ambulatory care design input for high-acuity projects that cannot be delayed
- Regulatory support during survey, unannounced inspections

**REDUCE EMPHASIS: Consider delegating to trained non-IP staff**
- Rounding on utilization of PPE and low-level disinfection practices
- Vaccine clinic staffing
- Administrative and/or data analysis tasks related to IPC surveillance (e.g., consider outsourcing surveillance with IP validation or having the IP perform the surveillance and utilize data analysts to build charts, graphs, etc.)
- Data entry for reportable conditions
- IPC rounds

**DECREASE EMPHASIS: Consider setting aside during crisis**
- Attendance at committee meetings unrelated to emergency, unless deemed critical
- Employee-to-employee contact tracing
- Performance improvement teams with infection prevention leadership unrelated to emergency, unless deemed critical
- Antimicrobial stewardship responsibilities specific to infection prevention
- Observational audits
- Surveillance activities for lower-risk, lower-impact healthcare-associated infections (HAIs)
- Participating in non-infection prevention-related environment of care (EOC) rounds, routine policy and procedure review

*If the facility has well-trained non-IP staff to conduct this activity, it may be moved to the yellow category.

APIC’s Best Sellers

**PUBLICATIONS TO IMPROVE YOUR PRACTICE, AND WELLNESS RESOURCES FOR YOU**

**APIC/JCR Infection Prevention & Control Workbook, 4th Ed.**
- Member: $149
- Non-member: $169

**Infection Preventionist’s Guide to Long-Term Care**
- Member: $119
- Non-member: $149

**Certification Study Guide**
- Member: $99
- Non-member: $119

**Ready Reference for Microbes**
- Member: $39
- Non-member: $69

**IPC Essentials for Ambulatory Care Workbook**
- Member: $79
- Non-member: $89

**The Infection Preventionist’s Guide to the Lab**
- Member: $119
- Non-member: $149

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APIC Makes the Case for Increased IPC Resources with Release of New White Paper

As the world enters the third year of the COVID-19 pandemic, APIC issued an urgent call-to-action to shore up the nation’s infection prevention and control (IPC) infrastructure.

Written by APIC’s COVID-19 Task Force, BETWEEN A ROCK AND A HARD PLACE: Recommendations for Balancing Patient Safety and Pandemic Response provides an extensive set of strategies to increase the IPC workforce, strengthen prevention programs, and build resiliency for future pandemics.

“APIC is issuing this call-to-action as we all recall the nightmare of extensive supply shortages and overworked healthcare workers,” said APIC 2022 President Linda Dickey, RN, MPH, CIC, FAPIC. “Especially troubling to APIC is how many preventable infections were transmitted inside hospitals during COVID because that resilience was not built into our healthcare system.”

In the report, APIC urges policymakers to allocate funding to build IPC surge capacity to ensure the continuity of safe patient care during a pandemic. “For the U.S. to create a safer, more resilient healthcare system, policymakers should make the substantial investments recommended by the hands-on infection prevention experts who had a unique vantage point as the pandemic overwhelmed hospitals, nursing homes and clinics nationwide,” said Dickey.

For more information on the report, see “Capitol Comments,” on p. 17. To read the white paper visit: https://apic.org/between-a-rock-and-hard-place-march-2022/.

NHSN Case Study Published in AJIC

The National Healthcare Safety Network (NHSN) has partnered with APIC and the American Journal of Infection Control (AJIC) since 2010 to offer infection preventionists case study vignettes with accompanying quizzes and primary-sourced answers and explanations related to surveillance using NHSN. These case studies focus on some of the recurring themes and inquiries received by NHSN staff from IPs throughout the healthcare system. The latest case study is currently in press at AJIC (available here: DOI: https://doi.org/10.1016/j.ajic.2022.02.028) and focuses on infection window period (IWP) selection, event determination and location of attribution and pathogen assignment. Assess and improve your surveillance competency through these valuable learning opportunities!

HAI Fast Forward

The Centers for Disease Control and Prevention recently reported that after years of steady reductions in healthcare-associated infections (HAIs), significantly higher rates of four serious infection types were observed in U.S. hospitals in 2020 compared to 2019. The increases in HAI rates nearly erase a decade of progress and highlight the need for healthcare facilities to strengthen their IPC programs. To address this urgent imperative, APIC is launching HAI Fast Forward, a multi-pronged campaign designed to help IPC teams reduce HAIs to pre-pandemic levels and increase the resources and capacity devoted to these efforts. For more information, visit https://apic.org/hai-fast-forward.
Apic Celebrates 50 Years of Supporting IPC Professionals

APIC celebrates its 50th anniversary in 2022! Throughout the year, APIC will showcase its historic milestones while also celebrating the rich history of the IPC profession. Join us as we generate excitement about the future of the profession, stimulate interest in joining—and remaining—in the profession, and create enthusiasm around the future of APIC.

### Look for these events and happenings throughout the year:

- Updated timeline at [apic.org](http://apic.org)
- ‘Voices of APIC’ on [apic.org](http://apic.org)
- Special issue of AJIC
- Videos on social media
- Fireside chats and distinguished speakers series
- Chapter celebrations
- Time capsule
- Limited-time merchandise
- Events at APIC 2022

### An APIC Timeline—1969–1978

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1969</td>
<td>Carole DeMille from Massachusetts General Hospital, along with Betsy Pantelick from Yale New Haven, Pat Lynch, and others, who were known as the “Dirty Dozen,” met at the CDC training program (1200G) for nurse epidemiologists. It was this group of pioneers who were instrumental in the development of the role of the infection control professional (ICP).</td>
</tr>
<tr>
<td>1970</td>
<td>APIC forms.</td>
</tr>
<tr>
<td>1972</td>
<td>APIC publishes first issue of newsletter.</td>
</tr>
<tr>
<td>1973</td>
<td>First national conference of APIC is held.</td>
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The CDC establishes the National Nosocomial Infections Surveillance (NNIS) System; now named the National Healthcare Safety Network (NHSN) and used by nearly all infection preventionists across the country to report and track nosocomial infections. Agencies such as the Centers for Medicare & Medicaid Services (CMS) use the data to observe hospital performance and inform payment decisions, and agencies such as local health departments use the data to determine where to focus their prevention efforts.
CDC undertook a nationwide study known as the Study on the Efficacy of Nosocomial Infection Control, or the SENIC Project. This study was a very thorough assessment of infection control effectiveness in 338 hospitals with and without CDC-style infection control programs. Final study results determined that hospitals with infection control programs experienced significantly lower rates of HAIs than did their counterparts without these programs.

Ebola: Between 1 September and 24 October 1976, 318 cases of acute viral hemorrhagic fever occurred in northern Zaire.

Legionella was discovered after an outbreak in 1976 among people who went to a Philadelphia convention of the American Legion. Those who were affected suffered from a type of pneumonia that eventually became known as Legionnaires’ disease.

APIC participated in the first international conference on the role of the “Infection Control Nurse” sponsored by the World Health Organization in Denmark.

First IC standards by JCAHO.

APIC newsletter becomes AJIC.
APIC recently released a white paper, led by the APIC COVID-19 Task Force, to highlight “lessons learned” from the pandemic. The purpose of the white paper is to outline areas where policymakers can help healthcare facilities and personnel improve the transition to the post-COVID future and better prepare for future infectious disease outbreaks, epidemics, or pandemics. The paper covers a variety of topics including personal protective equipment (PPE), vaccine confidence, workforce issues, surveillance data, and the role of IPs during a pandemic. By outlining the challenges faced during the pandemic, we hope to influence policymakers to support policies that bolster infection prevention and control (IPC) programs. Below is a synopsis of some of our recommendations:

**The role of IPs during a pandemic**

During pandemics, the role of IPs becomes even more critical. While an IP’s expertise regarding disease transmission is fundamental to their role, inclusion of IPs as an essential stakeholder for emergency preparedness varies from facility to facility. During the COVID-19 pandemic, some facilities failed to include their IPs in PPE decisions or failed to consult their IPs regarding policies and protocols that affected disease transmission. In many nursing
homes, IPC staff was inadequate, or was not afforded the time and resources to prevent the heavy toll on residents and healthcare works during the pandemic.

While COVID-19 cases have been front and center for the last few years, many policymakers have failed to notice the rise in healthcare-associated infection (HAI) rates that has set back reduction efforts by decades. As reported by the Centers for Disease Control and Prevention (CDC), “Significant increases in the national SIRs for CLABSI, CAUTI, VAE, and MRSA bacteremia were observed in 2020.” This trend for increased HAIs is expected to extend into 2022. With an increased workload for both IPC staff and frontline staff, the actions needed to keep patients safe unfortunately fell by the wayside.

Recommendations:

Develop next-generation universal PPE
- Congress should fund the National Institute for Occupational Safety & Health (NIOSH) to develop an off-the-shelf, one-size-fits-all respiratory device that can be used in healthcare facilities for infectious disease emergencies without the need for fit-testing. NIOSH should work with other federal agencies and form public-private partnerships with industry and universities on this research.
- Fit-testing of N95 respirators for healthcare employees requires significant IPC and employee occupational health (EOH) staff time and detracts from time spent on other essential safety tasks. A universally fitting respirator would save time and simplify pandemic preparedness planning.
- Congress should fund federal agencies to investigate the feasibility of transitioning away from some types of disposable or single-use PPE and implementing more options for cleanable and reusable PPE.

Normalize the use of masks by the general public during times of increased infectious disease threats
- Federal, state, and local governments should recommend the use of masks for the public to prevent the spread of respiratory viruses.
- Congress should direct federal agencies to develop standards for masks for the public and conduct research to determine the types of masks and filtration levels that are effective for different types of infectious diseases.
- The federal government should share this research with the public to build trust in the use of masks for respiratory protection during infectious disease outbreaks. This information will also inform protocols in high-risk community settings like schools and assisted living.

Address supply chain failures
- Federal agencies must develop better systems to manage, track, and rapidly supply all types of PPE during times of increased need. These systems must provide greater diversity in production locations, improved state and local distribution methods, and expanded ease of access.
- For adequate pandemic preparedness, federal and state officials must anticipate high demand for essential supplies, while also continuing to meet ongoing healthcare needs.
- Federal agencies should anticipate and plan for the general public’s need for supplies of face coverings, surface disinfection and cleaning materials, and hand hygiene products to avoid competition for essential supplies needed by healthcare personnel and facilities during a pandemic.
- Government recommendations should document in what situations reuse, extended use, and decontamination of PPE are safe options for healthcare personnel.

Include personnel with IPC expertise on healthcare system incident command and emergency response teams
- The Centers for Medicare & Medicaid Services (CMS) should require that IPs serve on healthcare facility incident command and emergency preparedness teams.
- CMS should require that IPs be consulted on all policies or protocols that affect disease transmission within the healthcare facility or agency, such as patient placement, patient and/or employee cohorting, PPE use and selection, workflow reviews, airflow or ventilation issues, patient isolation, and direct patient care practices in healthcare facilities.
- CMS should require that an IP lead, or be a member of, every team that develops the crisis standards of care protocols related to PPE, anti-infective therapy, and vaccinations for the healthcare facility or agency.
- CMS should require that an IP be involved in developing the infectious disease surveillance program for the healthcare facility or agency, including decisions about surveillance testing plans for patients, employees, and visitors.
• CMS should require that an IP, likely in collaboration with the healthcare facility’s statistical/analytical teams, be responsible for analyzing and reporting pandemic surveillance program data for the healthcare facility.

Put properly trained personnel in long-term care, nursing homes, and other high-risk settings
• CMS should require that each nursing home have at least one full-time dedicated IP located on site. Individuals serving in the position of IP in nursing homes should be certified in IPC whenever possible and should have ongoing continuing education requirements.
• CMS should require that additional nursing home staff be trained in the foundations of IPC to reinforce the facility’s plan for surge capacity in the event of an infectious disease outbreak.
• CMS should require that routine mandatory surveillance for HAIs be expanded in nursing homes to promote improvement in IPC.
  ❍ More than 186,000 long-term care residents and staff members died from COVID-19 between the start of the pandemic through August 2021.
  ❍ Even before the high incidence of COVID-19 cases, there was widespread concern about the adequacy of IPC programs in long-term care settings, with the CDC noting that 1 million to 3 million serious infections occur every year in these facilities.

Build and implement infection prevention and control surge capacity
• Congress should allocate funds for healthcare facilities to build IPC capacity to ensure the continuity of safe patient care during a pandemic and to have enough frontline IPs during an infectious disease emergency, such as a pandemic.
• Given the high demand for IPC skills during a pandemic, healthcare facilities should allocate additional support and resources to traditional surveillance activities to ensure that tracking for HAIs and monitoring for adherence to best practices continue during healthcare surges, such as a pandemic.
• Congress should provide resources for healthcare facility IPC and EOH teams to conduct contact tracing and employee exposure testing and implement employee vaccination programs when needed.
• Congress should provide funding to healthcare facility IPC and EOH teams to better prepare for future events through the following strategies:
  ❍ Implement “train-the-trainer” programs to rapidly expand the number of staff who can be tapped during a pandemic for IPC duties such as training staff for more intensive PPE use and contact tracing.
  ❍ Structure staffing plans to prepare for entry screenings, increased absentee rates, and potential work restrictions.
  ❍ Design vaccination sites to prioritize protection of vaccine recipients and speed of vaccination.
• Policymakers should provide adequate funding to accommodate healthcare surges during a pandemic and avoid temporary eliminations of nonurgent medical procedures. Temporary elimination of nonurgent medical procedures to prevent a healthcare surge during a pandemic may lead to worse outcomes for individual patients and longer-term public health issues.

Increase capacity for testing and contact tracing
• Policymakers should ensure that healthcare facilities, public health agencies, primary care providers, and the public have adequate access to appropriate testing to avoid transmission from people with unidentified infections.
• Policymakers should fund rapid and accurate contact tracing conducted by public health agencies and healthcare facilities to control disease spread during a pandemic.

Ensure rapid data sharing and interoperability around infection surveillance data
• Congress should invest in solutions to ensure rapid healthcare data collection and facilitate sharing of data between healthcare provider electronic health records (EHRs), public health agencies, federal agencies, and the public to optimize testing, contact tracing, and other public health strategies to prevent disease transmission.

Public health agencies are hindered in their ability to collect and analyze public health information by a lack of information technology infrastructure and the lack of universal or compatible data formatting, information systems, and even standards in healthcare data.
• In the absence of a national health system and a universal or compatible EHR system to connect public health agencies to healthcare organizations and testing facilities, public health reporting can overwhelm the current capacity and hamper efforts to prevent disease transmission.
• During a pandemic, there needs to be access to a national vaccine registry with clear privacy protections that allows the appropriate tracking and sharing of data between providers and public health agencies.

Establish strategies and actions to build vaccine confidence
• Congress should direct the federal government to devote resources for ongoing public health education about the benefits and effectiveness of vaccines in preventing infectious diseases.
• Specifically, Congress should fund research on “infodemiology” and share multi-level strategies that can be implemented to combat misinformation campaigns.
• During a pandemic, policymakers should fund healthcare facility IPC and EOH departments to address vaccine hesitancy among healthcare workers.

If you are interested in learning more about this white paper, or APIC advocacy efforts to push for these recommendations, please visit www.apic.org or email legislation@apic.org.

Reference

Lisa Tomlinson, MA, CAE, is APIC vice president, Government Affairs and Practice Guidance; Nancy Hailpern is APIC director, Regulatory Affairs; and Richard Capparell is APIC associate director, Legislative Affairs.
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PIC Consulting Services opened its doors in 2008 when my previous colleagues Patty Leeman and Nick Hill saw a demand in the marketplace—a demand for experienced infection preventionists to assist with a host of problems in healthcare facilities. Since then, the organization has grown from nine consultants to more than 380 consultants at the end of the 2021 fiscal year. We started out providing National Healthcare Safety Network (NHSN) data validation services to just two clients in 2009, and in 2021, we serviced 109 clients, which includes assessments at more than 1,200 facilities across the continuum of care. We went from earning $200,000 in the fourth year of business to paying out more than $3.5 million dollars to consultants for their working time last year.

Consultant Corner

What’s new with APIC Consulting Services

BY LESLIE E. KRETZU

Over the years, we responded to changing client needs by added service lines. Originally handling brief risk assessments, policy reviews, and NHSN data validations, the number of project lines has increased to accommodate interim IP staffing, system-wide assessments, IP onboarding, and more. As a result of COVID-19, our consultants created re-opening strategies for businesses and universities, launched new cleaning and disinfection protocols for long-term care facilities, and provided consulting expertise in real time through remote participation in infection control meetings, as mentors, and even through an IPC hotline. Growth is a team effort, and we could not have achieved this scale without our talented, passionate consultants and staff, our clients, and the broader APIC team.

In the next several months, we plan to hire consultants for three types of projects:

1. With IPC resources being channeled to fight the global COVID-19 pandemic for the past two years, it is no surprise that facilities are seeing a major uptick in healthcare-associated infections. We anticipate the need for in-person and remote assessments combined with tailored training to address assessment-identified IPC gaps at healthcare facilities from health systems to long-term care. APIC Consulting Services is looking to grow our roster of post-acute care IPC subject matter experts, with specialties in dialysis, home health, behavioral health, and assisted living.

2. APIC Consulting Services is in conversation with several state health departments to provide large-scale Infection Control Assessment and Response (ICAR) assessments to facilities throughout their states, as we have for the past several years. We anticipate needing in-person and remote consultants to conduct these assessments for state health departments. Some assessments are specific to COVID-19 and others are specific to the facility setting.

3. APIC Consulting Services is always recruiting full-time consultants to do interim IP assignments at competitive salaries. This work is frequently 40 hours per week and can be located across the U.S. Interim positions are for director-level program supervision to part-time, onsite or remote surveillance and reporting support. Clients reach out to APIC Consulting Services knowing we have access to the highest-caliber IPC consultants.

Specific consulting opportunities are listed in APIC’s weekly e-News email. For those interested in becoming a consultant, please attend our Consulting 101 pre-conference workshop as part of the 2022 Annual Conference programming in June.

With your help, the larger APIC Consulting grows, the more positive work we can do on behalf of public health and patient safety. We hope to work with you in 2022.

If you would like more information today about our services or any of the above opportunities, please contact APIC Consulting at info@apicconsulting.com for more information.

Leslie E. Kretzu, MA, MIPP, CAE, is the CEO of APIC Consulting Services.

“APIC Consulting Services is always recruiting full-time consultants to do interim IP assignments at competitive salaries. This work is frequently 40 hours per week and can be located across the U.S.”
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Conversation with an IP

REBECCA BARTLES, DRPH, MPH, CIC, FAPIC

Rebecca “Becca” Bartles is Executive Director of Infectious Disease Management and Prevention for Providence. Becca has practiced infection prevention for the past 17 years in a variety of healthcare settings and has numerous publications focused on infection prevention staffing and endoscopy safety. She received both her Bachelor of Science in Public Health, Health Education and her Master of Public Health in Epidemiology from East Tennessee State University. She completed her Doctorate in Public Health in 2021 with a dissertation topic of “Assessing efficacy of an evidence-based Clostridiodes difficile screening tool using electronic medical record data.” Becca also teaches courses at the University of Providence for a Master’s in Infection Prevention degree program that she founded in 2016. She has been CIC-certified since 2008 and is an APIC fellow. Most notably, though, Becca is the mother of four beautiful daughters, between the ages of 7 and 23.

What inspired you to become an infection preventionist?
I entered the field through a temporary job assignment following a move across country. I was actually supposed to be starting dental hygiene school that fall, so I wasn’t looking for a permanent position. I was hired to do transcription and secretarial work, but I quickly found that the work was incredibly interesting and that I was good at it. I found myself asking questions and beginning to make connections intuitively. After a couple of months, I was offered a full-time position in the infection prevention department contingent upon completing my bachelor’s degree, which I did a little over a year later.

What were some of your challenges when you first entered the field?
I think the toughest challenge in those days was the manual and inefficient nature of the work. This was before surveillance systems were commonplace, and we did a lot of line-by-line microbiology review from forms that arrived on the printer each morning. Documentation was done in spreadsheets, and the rate of transcription error was high. There was also much lower acceptance among healthcare personnel for the work we were doing, as many programs just weren’t mature enough to have earned that respect yet. I’m happy to say that the improvements that have been made in both of those areas over the last two decades are incredibly impressive, and the tools we have now would have been hard to imagine in those days.

What has helped you most as you have progressed in your role as an IP?
I’d venture to say that the infection prevention community is one of the most collaborative groups in healthcare. I’ve always participated in local and national APIC groups and made so many wonderful contacts through those venues. Building a network of colleagues who you can consult with on difficult issues is great for both parties and raises all ships.

How has your background helped you in the IPC profession?
Although having a background in public health/epidemiology was not common when I began my career, IPs from this field now make up an increasing portion of the workforce. The skills gained during public health training (particularly an epidemiology-focused curriculum) can help an IP to take a global view of problems when they arise and plan interventions that are highly specific and targeted. That said, our field benefits the most when IPC programs have a diverse mix of clinicians, public health professionals, and microbiologists. A team that includes all three is really able to look at an issue from all perspectives and provide the deepest level of understanding and response.

Why is obtaining (or maintaining) the CIC credential important to you?
The CIC credential is an important indicator of competency and excellence. Any IP that has taken the exam can tell you that it is by no means easy, and most spend a significant amount of time preparing for it. Passing the exam signifies that an individual is competent in the core areas required to be successful in the field, and the distinction is an important one for employers as they recruit candidates.

What is the best advice you have received?
At the risk of sounding irreverent, the best advice I’ve received came from my husband. I had major imposter syndrome my first couple of years as an IP. The learning curve was so steep, and I felt like I would never be comfortable enough to speak with authority. My husband told me almost every morning during those days, “Fake it till you make it.” I share that with my students each semester, with the message that your confidence will grow over time. None of us come into the field fully prepared for the work, and it is always appropriate to acknowledge that you might not be able to provide an answer immediately, but that you know where to go to find the information and will follow back up.

What advice do you have for others who are new to the field or considering the field of IPC?
For those who are considering the field, I’d advise them to do their research on what an IP actually spends their time doing (APIC’s professional practice tools are a great resource for this). The work can be incredibly gratifying, but it is not for everyone, and it’s better to recognize that sooner rather than later. For those who have already entered the field, my advice would be to give yourself grace as you learn the ropes and find a seasoned mentor. Becoming an IP means becoming an expert in almost all areas of healthcare operations, and this takes time and patience. At some point you will likely recognize just how much you don’t know, and that will be incredibly overwhelming. Push through and hang in there, and you will ultimately find yourself in a place where you are comfortable in an environment of continuous learning and growth.
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Focus on long-term care and behavioral health outbreaks

Identify the pathogen!

BY STEVEN J. SCHWEON

Hospital outbreaks are reported more often in the medical literature than occurrences in the long-term care (LTC) or behavioral health setting. By studying and learning from outbreaks in the LTC/behavioral health setting, infection preventionists (IPs) can glean additional knowledge and apply this information to hopefully prevent future infections and infection clusters in their facilities. This quarterly column helps the IP heighten awareness of appropriate interventions to prevent outbreaks.

Wallace and Thompson1 discuss the case of an 87-year-old male nursing home resident admitted to an acute care hospital with gastroenteritis. The resident had dementia and was unable to provide a food history. Nutritional support was provided by enteral feedings through a gastric tube. Of interest, there were no known staff members who cared for the resident and were ill with gastrointestinal symptoms. No other residents or family members were ill with gastroenteritis during this time.
The hospital’s microbiology department works up blood and stool specimens and identifies a Gram-negative organism. Based upon your clinical acumen, you suspect the pathogen is most likely to be:
1. *Staphylococcus aureus*
2. Norovirus
3. *Mycobacterium avium*
4. *Salmonella enterica*

The blood and stool specimens are positive for the Gram-negative, nontyphoidal *Salmonella enterica*. (Salmonella Typhi is the microorganism responsible for typhoid fever, while *Salmonella Paratyphi* is the pathogen responsible for paratyphoid fever).²

*Salmonella* is named after Dr. Daniel E. Salmon. Of interest, in 1885, pathologist Theobald Smith first isolated the salmonella bacteria from pigs ill with “hog cholera” and eventually connected this pathogen with human illness; however, the organism was named “Salmonella,” after Smith’s supervisor, Daniel E. Salmon.³

There are two species in the genus *Salmonella*: *S. enterica*, which contains six subspecies, and *S. bongori*. *Salmonella enterica* subspecies are further divided into more than 2,400 serotypes based on the somatic (O), surface (Vi), and flagellar (H) antigens.

The majority of these serotypes belong to *S. enterica* subspecies *enterica* (I). The usual habitat of *S. enterica* subspecies *enterica* (I) is warm-blooded animals, contrary to the other six *Salmonella* subspecies, which have cold-blooded animals as their usual habitats. Clinically, *Salmonella* infections are classified into typhoid fever and *Salmonella* gastroenteritis. The Centers for Disease Control and Prevention (CDC) notes there are less than 100 *Salmonella* serotypes that are known to cause human infections.⁴ *Salmonella* is ubiquitous and can survive several weeks in a dry environment and several months in water.⁷

**Transmission and symptoms** The CDC estimates *Salmonella* infection, also known as Salmonellosis, is responsible for 1.35 million infections, 26,500 hospitalizations, and 420 deaths annually in the United States.⁵ Contaminated food is the source of most of these illnesses.⁶ Transmission can also occur from drinking contaminated water, or by touching infected animals (including pets), their feces, or their environment.⁶⁷ Person-to-person transmission can occur through the fecal–oral route.⁷

Symptoms include diarrhea, fever, and stomach cramps, with onset 6 hours to 6 days after *Salmonella* ingestion and lasting from 4 to 7 days.⁶ Most individuals recover without antibiotics; antibiotic therapy is used for severe illness, or persons at risk for severe illness. Increasing antibiotic resistance can limit treatment options and highlights the importance of appropriate antimicrobial use, in both humans and animals.

Antibiotic treatment is recommended for:
- People with severe illness
- People with a weakened immune system, such as from HIV infection or chemotherapy treatment
- Adults older than 50 who have medical problems, such as heart disease
- Infants (children younger than 12 months)
- Adults age 65 or older

Source: [https://www.cdc.gov/salmonella/general/index.html](https://www.cdc.gov/salmonella/general/index.html)

Some serotypes can cause infection in the urine, blood, bones, joints, spinal fluid, and brain. Stricken individuals may develop reactive arthritis after the infection has abated, persisting for months or years.
Diagnosis requires a positive culture or genetic result from stool, body tissue, or blood.

**Precautions**

Salmonellosis is a nationally notifiable disease, through the state’s health department. The clinical laboratory will submit positive isolates to the public health laboratories for serotyping and DNA analysis, which aids with epidemiological investigations.

The CDC recommends Standard Precautions when caring for the infected individual and adding Contact Precautions for diarrheal or incontinent persons for the duration of illness or to control institutional outbreaks.10

The World Health Organization’s “Five Keys to Safer Food” provides basic guidance with ensuring a safe food supply:7 The keys are:

1. Keep clean
2. Separate raw and cooked
3. Cook thoroughly
4. Keep food at safe temperatures
5. Use safe water and raw materials

Food handlers must be vigilant with observing hygienic principles and should not prepare food while ill with gastrointestinal symptoms or visibly infected skin lesions. *Salmonella enterica* serotype Typhi, the pathogen responsible for typhoid fever, is preventable through the use of two vaccines licensed and available in the United States.11

There are no other licensed vaccines effective against *Salmonella*.

The nursing home administrator was interviewed and stated the resident did not have any roommates. In contrast, the director of nursing stated the resident had a 19-year-old male roommate for three weeks. The roommate had an enterofistula, an abnormal condition that results with stomach or intestinal contents leaking through the skin. Prior to being admitted to the nursing home, the roommate was hospitalized with *Salmonella enterica*.

The authors concluded cross-transmission occurred between the roommates based upon the pathogen recovered; no isolate phage typing was performed. The same nursing staff cared for both residents. The resident with the fistula had frequent soiling. Concern was expressed with the lack of adherence to Standard Precautions. The facility did not have cohorting policy in place at the time of the occurrence.

**References**


Steven J. Schweon, RN, MPH, MSN, CIC, CPHQ, FSHEA, FAPIC, is an infection prevention consultant with a specialized interest in acute care/long-term care/behavioral health/ ambulatory care infection prevention challenges, including outbreaks.

**TAKE-HOME MESSAGES**

1. Adhere to your federal, state, and local regulations, in addition to facility policy, when an outbreak is suspected; consider developing an outbreak policy, which includes key contact, including the daily and after hours phone numbers of the appropriate health department.
2. Foodborne disease outbreaks are a national notifiable condition to public health authorities ([https://www.cdc.gov/nndss/conditions/notifiable/2021/](https://www.cdc.gov/nndss/conditions/notifiable/2021/)). Consider storing the health department’s contact information in your personal phone and computer.
3. During an epidemiological investigation, it may be helpful to ask the same question, to different individuals, to validate the findings.
4. ServSafe is a credible source for food safety and sanitation: [https://www.servsafe.com](https://www.servsafe.com)
5. Consider developing a pet visitation policy to reduce the risk of *Salmonella* and other pathogen transmission from animals. The SHEA “Animals in healthcare facilities: Recommendations to minimize potential risks” is a credible resource to review and support the policy development: [https://www.cambridge.org/core/journals/infection-control-and-hospital-epidemiology/article/animals-in-healthcare-facilities-recommendations-to-minimize-potential-risks/706725bab2aaa4c1949da5b90f06f3b](https://www.cambridge.org/core/journals/infection-control-and-hospital-epidemiology/article/animals-in-healthcare-facilities-recommendations-to-minimize-potential-risks/706725bab2aaa4c1949da5b90f06f3b)
6. “Cohorting” is the practice of grouping together patients who are colonized or infected with the same organism to confine their care to one area ([https://www.cdc.gov/infectioncontrol/pdf/guidelines/Isolation-guidelines-H.pdf](https://www.cdc.gov/infectioncontrol/pdf/guidelines/Isolation-guidelines-H.pdf)). Additionally, when assessing if two residents can share the same semi-private room for proper placement, it’s important to have an awareness of both residents:
   a. Communicable disease history, e.g., *Salmonella*
   b. Multidrug-resistant organism (MDRO) history
   c. Immune status (e.g., immunocompromised)
   d. Skin integrity (e.g., abscess, draining wound)
   e. Malodourous condition
   f. Presence of an indwelling device (e.g., urinary catheter)
   g. Personal hygiene status
   h. Ability to follow cueing with activities of daily living (ADLs)
It’s time to take proven infection prevention further

Figures released from the CDC make stark reading for Infection Preventionists. An estimated 722,000 healthcare-associated infections occur annually, resulting in 75,000 deaths and billions in additional costs.¹ More than half of these occurred outside of the intensive care unit.

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In 2021, The APIC Board of Directors formed the Diversity, Equity, and Inclusion (DEI) Task Force. According to APIC’s CEO, Devin Jopp, the DEI Task Force was formed to create a roadmap for how to embed DEI into the DNA of our organization and to also keep an ongoing focus on these critical efforts. Prevention Strategist spoke to Bria Graham-Glover and Karoline Sperling, co-chairs of the DEI Task Force. Bria and Karoline were selected to lead the task force based on their non-nursing backgrounds, experience in the field for over a decade, and passion for change as we look to the future of both the infection prevention workforce and volunteer opportunities within APIC.
Who are the members of the DEI Task Force?

Other members of the task force represent a melting pot of infection prevention from race, ethnicity, gender, sexual orientation, age, as well as education, years in the field, practice setting, and CIC status.

What are the goals/mission of the DEI Task Force?

The mission of this task force is to:
1. Examine how to best structure APIC’s DEI efforts across our volunteer structure;
2. Provide recommendations to the APIC Board of Directors on a roadmap forward; and
3. Assist in implementing an organization-wide DEI program.

This group may also work on workforce development and the development of IPs. We see ourselves connecting with and impacting all of APIC’s stakeholders as we advance this important work.

What characteristics make a great candidate for the DEI Task Force?

Anyone with an open mind who is committed to change would be an ideal candidate. The topics of diversity, equity, and inclusion tend to be uncomfortable. We need people who are willing to embrace the discomfort. Those that can actively listen and seek to understand by asking questions are some qualities that can bring a rich perspective to the task force. The next call for volunteers will begin in fall 2022.

What is the biggest obstacle that the DEI Task Force faces right now?

Knowing where to start! The topic of DEI can mean a lot of different things to people personally, professionally, and even as an APIC member. While we tend to think of the obvious—race, gender—what does DEI look like as an infection preventionist? You can see the various attributes we tried to include in creating the task force that go beyond those initial DEI lenses. We are in the process of finding a DEI expert to help us start our journey on the right foot and create that roadmap moving forward.

You mentioned the stakeholders earlier. Can you talk a little more about how chapters fit into this?

Chapters are a critical component of the APIC experience. More than 75% of members are part of at least one chapter, and many choose to spend their volunteer time working with the local group. It’s critical that this DEI work is implemented across the chapter network.

For example, APIC Chapter 29 of Greater Baltimore has a Board-level position called the Diversity Chair that specifically focuses on DEI within the local chapter. The chapter has used this position to partner with a local university to bring exposure to the field of infection prevention. To date, the chapter has placed six students in infection prevention internships around the state of Maryland. Some of these interns have gone on to pursue additional education with intentions to build careers as infection preventionists. We want to enhance and extend activities like this across the chapter network.

Is there anything you’d like to share that hasn’t been asked?

We have seen the broad reach of infection prevention during these last two years of the pandemic and know our members want to be represented, included, and volunteer within APIC. We look forward to being part of the change to create and foster an inclusive environment that supports APIC’s new vision of a safer world through the prevention of infection.

Special thanks to Sara Miller, senior director of membership, for her help in organizing the interview.
Janet Conner recalls her early days in the profession as an isolated IP. “My infection prevention career, at the time ‘infection control,’ began 28 years ago in a small rural facility where the position had been vacant for six months and there was no one left to learn from. There was guidance from the pathologist and the quality director, but the greatest resources I found were in the relationships established by reaching out to internal leaders and external colleagues—the EVS, OR, CSPD, food service, and plant operations leaders; local hospitals, and larger hospitals in bigger cities, and the local and state health departments. It was also helpful to reach out and connect with other healthcare services in the community, including long-term care, home medical equipment, home care services, and retail pharmacy particularly if there is not an outpatient pharmacy in your facility. These connections afforded me the opportunity to learn regulatory requirements, how an infection prevention program looks and operates, and how to apply those principles to the local facility where I worked. I was offered and graciously accepted opportunities to visit and shadow other IPs. To that end, I was invited to visit APIC locally, and to connect nationally providing the resources I realized were needed. An inclusive resource such as this would have been invaluable to my learning process.”

An IP plays a very important safety and leadership role in every healthcare setting across the continuum of care. While at first it may seem daunting, being an IP is a great career—especially if you like to learn. IPs embody the idea that learning is the most important skill in the 21st century.

The resource is intended to be readily available to individuals regardless of APIC membership status, or scope of service. This consumer-facing guidance document is broken down into sections or topics the isolated IP can use to get started or use as a reference as needed. The basic message is this: You are not alone.

The following section topics are included:

1. Get Connected
2. Know Your Key Resources
3. Prioritize Your Issues
4. Understand IPC Essentials
5. Decide When to Lead, Consult, or Refer
6. Build Your IPC Team, Know Your Network
7. Review Your Surveillance Plan
8. Develop a Risk Assessment (Evaluate/ Prioritize Risk)
9. Conduct a Risk Assessment
10. Get to Know Key Program Drivers: Regulatory Requirements and the Survey Process
11. Document Your Training for Competency Development and Validation
12. Consider Making Infection Prevention & Control Your Specialty/Career

This resource’s intention is to help those who are new to the professional practice of infection prevention recognize what they need to know and understand what resources they can use to bridge knowledge gaps.

The PDC encourages APIC members to reach out to those working in these isolated settings and share this resource with them. Stay tuned for updates on the availability of this research later this year.

Eileen R. Sherman, MS, CIC, FAPIC, System Director, Infection Prevention, Main Line Health. Janet Conner, MT(ASCP), MSPH, CIC, FAPIC, Infection Prevention Banner Health System.
The future is bright for medicine: telemedicine, wellness monitors, personal genomics, electronic health records, and more. Plus: “big data” and smart computers will choose the best and most efficient treatment options based on actual outcomes. All this progress will come with caveats, of course: How do we keep the human element in healthcare? What are the privacy implications of personal genomic data? How do we fund the latest technologies while still making sure that basic healthcare is affordable? Michael Rogers has presented this topic to pharmaceutical companies, hospital networks, health insurers, medical educators, and more. He will be speaking at APIC’s annual conference on Wednesday, June 15.

Michael Rogers is a best-selling author, technology pioneer, and futurist, who also serves as futurist-in-residence for The New York Times Company. His consultancy, Practical Futurist, has worked with companies ranging from FedEx, Boeing, and NBC Universal to Microsoft and Pfizer, focusing on how organizations can think about the future in useful ways. Read more about Michael here: https://michaelrogers.com/bio.

In your opinion, what does the healthcare revolution look like in a post-COVID world?

Post-COVID, we will continue to push consultation and diagnosis out closer to the patient. Telehealth video appointments are just the start. Diagnostic devices will be deployed in homes, schools, pharmacies, etc. to provide measurement of vital signs and even more sophisticated diagnoses during telehealth visits. Tying it together will be a far more integrated IT environment where practitioners, pharmacies, hospital networks easily share patient data. That same patient information, anonymized, will feed nationwide data analytics for real-time pattern-tracking in the population as well as evaluating the efficacy of treatment options.

How do you see the healthcare revolution affecting the IPC industry directly, if at all?

It will have a large and positive effect. Three quick examples:

- Smart sensors in the hospital to monitor individual activities, such as handwashing, and remind healthcare workers when they fail to maintain protocols.
- As supply chains digitize, foodborne infections will be easy to track back to their origins.
- COVID-driven advances in mRNA vaccines will probably produce new targeted approaches to antibiotic resistance.

In your experience, how can you determine a revolution is an actual movement or improvement to quality of care, rather than a ‘fad’ or a trend?

Healthcare alternatives need to make economic sense to all layers of the delivery system; there may be an initial cost to adoption, but that investment must ultimately provide savings to all parties involved. There needs to be a clearly stated path for the future that takes advantage of the “network effects” offered by the fully digitized healthcare system. And finally, with a more unified system of outcomes monitoring, it should be possible to more quickly ascertain the benefits of any given innovation.

“Healthcare alternatives need to make economic sense to all layers of the delivery system; there may be an initial cost to adoption, but that investment must ultimately provide savings to all parties involved.”
When entrepreneur Jia Jiang left corporate life to build his dream company, he had no idea it also meant facing crushing rejection. To overcome his fear and pain, he decided to fully embrace rejection by making crazy requests for 100 days. To his surprise, the world opened up to him. Jia flew a plane, taught a college class, and befriended a billionaire. In the meantime, he made a viral video blog that got more than six million views on YouTube and elevated a well-known company’s stock by 29 percent. Jia will speak at APIC’s annual conference on Tuesday, June 14, and share the humorous and insightful learning and truth about rejection and fear he has discovered, and practical applications in life and business.

Jia Jiang is the author of the bestselling book Rejection Proof: How I Beat Fear and Became Invincible Through 100 Days of Rejection and was one of the most viewed TED Talks of 2017. Jia’s mission is to help others discover a world hidden in plain sight—where rejection is an advantage instead of a setback—for themselves. Read more about Jia at www.rejectiontherapy.com/about-jia. Rejection resilience assessment

In your opinion, what is the most helpful takeaway from a rejection someone can learn?

The rejection itself is not as bad or damaging. The damaging part is inducing fear for us to not want to take on more risks in the future. We should focus on overcoming the fear of rejection rather than avoiding rejection.

How does fully embracing rejections enrich your quality of life?

It opens up all kinds of possibilities in our minds, which leads to many more opportunities in the real world. Once you can overcome the fear, you become much more confident in many endeavors you take.

What did you learn about yourself during your 100 days?

I learned how much limitation of my potential is mental fear induced, and how much I can improve my ability in a short amount of time.

What is your advice for healthcare professionals experiencing fatigue and burnout in a pandemic world?

We all go through life’s ups and downs. Many times during the down period, the fatigue, fear, and frustration can feel overwhelming, but looking back, those might be the most eventful and impactful periods of our life. You guys are literally saving lives. Keep it up!
Patricia Stone, PhD, RN, FAAN, interviewed one of the authors of the AJIC article, “Video engagement to improve handwashing duration: A longitudinal study assessing creative and messaging fatigue.”

doi: 10.1016/j.ajic.2021.11.024

Jeffrey Riggio, MD, MS, FACP, Departments of Medicine, Infection Control, Nursing, Pharmacology & Experimental Therapeutics, Thomas Jefferson University Hospital, Philadelphia, PA

What are the circumstances that have led up to your current work?

It was in the spring of 2015 when I was rounding with the team on our hospital medicine service. We just finished examining a patient with C. difficile and I watched the residents and medical students wash their hands at the bedside sink. I watched each one’s handwashing duration as I looked at the clock on the wall with the seconds ticking by. No one got to the 20 second mark (not even close). Later that day, I got into an elevator and was fascinated to see all the riders’ eyes glued to their cell phones. We are a society where most of us (especially the younger generations) are attracted to video stimulation. I thus created the concept to have video engagement to enhance effective handwashing.

One of the Jefferson Health values is “Be Bold and Think Differently,” and I decided to explore this concept with our digital innovation team. Appropriate hand hygiene an important way to prevent the spread of infection. As we know, seconds saves lives, and the goal is 20 seconds for effective handwashing.

What is the coolest thing about your work?

This innovation design was also one of the topics for the Thomas Jefferson University East Falls Campus Masters Industrial Design Collaborative Innovation Studio class. I was one of the mentors teaching graduate students about hospital infection control and guiding them on their projects to enhance hand hygiene.

Share a turning point or defining moment in your work.

During a regulatory site visit, one of the surveyors used the prototype and was quite impressed with the innovation. This external validation from an experienced patient safety expert was a defining moment.

Briefly, what excites you about your work?

As we face challenges, finding clever and engaging processes could be the key to success.

The facts on handwashing
• Video engagement improves handwashing duration by 7.5 seconds.
• Creative and messaging fatigue starts at 3 months.
• Effective handwashing (greater than or equal to 20 seconds) increases by 39% with video engagement.

‘On the air’ with APIC

BY ELIZABETH HABERKORN

APIC’s resources are vast, numerous, and ever expanding. Over the past two years, APIC has added two podcasts, the “5 Second Rule” and “AJIC Science into Practice,” to its library of knowledge. But APIC’s podcasts aren’t just resources. They’re conversations, too.

5 Second Rule

The idea for APIC’s first podcast, “5 Second Rule,” was “born” at an ASAE’s Great Ideas conference. Silvia Quevedo, director of practice guidance at APIC and host of the “5 Second Rule” podcast, and her colleague were approached to speak on a podcast about association management, which inspired the idea of sharing and disseminating IPC content via podcasts. The mission of the podcast would be to appeal to a larger audience, one that consists of other healthcare workers and the public.

True to its mission, the “5 Second Rule” podcast covers not just hot IPC topics, but hot healthcare topics in general, and has had episodes on vaccine myths, antibiotics, and healthcare-associated infections.

“Topics should be interesting to the public, IPs, and other healthcare workers,” Quevedo said. “The team and I, in collaboration with APIC’s Communications Committee, will come up with general topics of interest, and then within those topics we narrow down themes interesting to IPs, and also what are the themes other healthcare workers would be interested in? What does the public need to know about this topic? We work with those three questions.” Quevedo and team will also collect ideas from the membership and committees to make sure they are on the right track and hitting the mark.

Guests are selected based on their areas of expertise and invited to the studio to record the episode. Currently, episodes are recorded virtually. “When we first started the podcast, we would record in and invite guests to the studio or video patch them in. The good news is
that the podcast is a conversation, not a presentation. Guests do not have to ‘prepare’ anything. The team creates talking points that guests review prior to the episode. This helps keep the host and guests on track making sure we ‘hit’ the important themes,” Quevedo said. The intent was to eventually have the podcasts recorded in front of a live audience, during annual conferences. But due to COVID-19, that will have to be put on hold.

But despite the pandemic, there is no shortage of topics or guests. “We’ve been contacted by other groups who want to be on the podcast. Recently, we’ve been contacted by a university nursing program to help train nurses. We hope to increase active listeners and subscriptions. We already have listeners in a number of countries around the world,” Quevedo said.

Overall, Quevedo wants members to realize that the podcast serves as another way to communicate with non-IPC healthcare workers and the public. “It’s a podcast. It’s a fun conversation, but it’s not meant to replace a webinar,” Quevedo said.

AJIC Science into Practice

APIC’s second podcast, “AJIC Science into Practice,” dives much deeper into the science and practice of infection prevention and control. In collaboration with APIC’s scholarly peer-reviewed journal, the American Journal of Infection Control, or AJIC, the goals of the podcast go beyond using a new media forum to disseminate science. “We hope that the podcast episodes will not only help the IP to translate the evidence into their practice but also be stimulated to find ways to involve research in their own practices,” said Patricia Stone, PhD, RN, FAAN, AJIC’s editor in chief. “Many journals have podcasts. But as we celebrate 50 volumes of AJIC this year, it was time for AJIC to offer professional, current, and interesting podcast episodes!”

Hosted by Jessica Swain, MBA, MLT, CIC, and Nicki Shorr, RN, BSN, CIC, each podcast episode highlights an article recently published or scheduled for publication in AJIC. Articles that can be applied to the IP’s practice are selected and the hosts develop questions and then have a dialogue with the authors. In its current format, the podcast allows IPs to listen to the research while doing something else, which you cannot do when you are reading the articles. Not to mention that offering the podcast as a source for information is also a great way to encourage people to read other articles in AJIC.

Plus, the podcast episodes do something that the articles cannot: ask the authors questions. “The podcast gives listeners a glimpse into the behind-the-scenes development and methods of the studies,” said Swain. “I enjoy hearing about why they choose to do this kind of research and what it means to them, as many of them are very passionate about infection prevention.” The podcast is not meant to replace the articles, but complement them. “These researchers are doing amazing work, and it’s nice to give them an oral platform in addition to their written pieces,” said Shorr.

Elizabeth Haberkorn is associate director of communications at APIC.

Previous episodes of “Science into Practice” Podcast

#7 February 3, 2022
Using Technology for More Efficient Data Collection and Considering Improved Patient Care in Isolation

Listen as our hosts speak with guests about how technology can impact the daily work of infection preventionists, specifically using the electronic medical record (EMR) to better predict possible outbreaks, respond to them more quickly, and to better differentiate between community and hospital onset infections. Further, they discuss possible methods of improving patient outcomes while in isolation, the lack of quality evidence for effective interventions, and the need for future research in this area. Guests: Mohamed Adawee, MSN-IPC, CIC, CPHQ; and Sharon Kramer, PhD

#6 January 6, 2022
A Look at COVID-19 Vaccine Hesitancy: Who Do People Trust To Give Them Vaccine Advice and How Can We Use this Information Now and In the Future?

During this episode hosts discuss the Health Belief Model used in this study; whether vaccine hesitancy among healthcare workers impacts public hesitancy; who the public trusts for advice on vaccination; and what the implications are for the current pandemic and future events. Guest: Gina Piscitello, MD

Previous episodes of the “5 Second Rule” Podcast

#29 February 8, 2022
Go With the “Air” Flow: Ventilation and Filtration for Infection Prevention and Control

Join us for a conversation on everything you wanted to know and more about air ventilation and filtration. This topic is particularly relevant given the challenges of the ongoing COVID-19 pandemic, changing standards, and applications of filtration/ventilation best practices in non-healthcare settings like public schools, office buildings, and airplanes.

#28 January 11, 2022
Career Advice: How To Become an Infection Preventionist

The infection prevention profession has been rapidly growing as the need for health protocols increases in various environments. What we traditionally think of as a hospital-based position is now appearing in areas like entertainment, sports, and the government. In this episode, we will be discussing how you can get started as an infection preventionist and what you can expect in the role.

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**What are your thoughts on how TJC home care infection control standards have changed through the years?**

**MM:** The Joint Commission home care infection control standards have not changed much over the years. They were first published in 1988, and the next big revision was in 2008. At that time, I was on the external review panel that made recommendations for standards changes, which were subsequently put into effect. Since then, a new standard and elements of performance have been put into effect related to influenza vaccination (which was also put into effect for all programs, not just home care) and some other minor edits.

**What are your tips or suggestions for home health IPs when interacting with surveyors?**

**MM:** The most important thing is to “try” and relax… I know it's easier said than done. Anytime we are being evaluated, it can be intimidating to most and often puts us in a defensive state. It's best to approach any survey with honesty, grace, and a sense of humor. During interviews, don't take a passive role by ‘buckling in’ and waiting for the next surveyor’s question. Offer information, be proud and tell the surveyor about all the great things that you’re doing to keep patients safe and free from infections. It’s a survey, and ‘stuff’ can be found…especially when you have no control over what others do and say during observation of patient care activities. Try not to get confrontational or aggressive with the surveyor and present any additional information to consider in an open, kind manner.

**What are the most critical elements of a home care IPC program and the most efficient way to implement them?**

**MM:** In home care, one of the biggest challenges in preventing infections is that most of the patient’s care is provided by someone other than a home care professional. As such, the clinicians need to focus on educating the patient and family about individualized infection prevention and control strategies (based on the type of care needed and other risk factors). Requiring the patient or caregiver to demonstrate the care (e.g., performing wound care) and not just observing the clinician is important in preventing infections.

Also, periodically remind clinicians to report patient infections to be included in the home care provider’s surveillance program. If a surveyor identifies an infection that was not reported and thus not included in the surveillance data, it invalidates the accuracy of the surveillance data—the adage of “garbage in, garbage out.”
**PS:** Have you developed any metrics for home health care, or have you been involved in developing metrics with TJC?

**MM:** No, home health (and other types of in-home care providers like home hospice and palliative care) is a “data-poor” industry. Surveillance data is required to be collected internally for skilled services, and the data is compared to itself over time. It’s intended to be compared to external data when the data is available. The problem is there are no reporting requirements in place for patient surveillance data to be reported, such as NHSN, which is available to other healthcare providers.

**PS:** What is your advice for those who wear many IP hats? In other words, often IPs who work in small and/or rural settings may oversee acute and long-term care and home health; in such circumstances, what would you suggest the IP focus limited time and resources on in the home healthcare setting?

**MM:** Most home care organizations do not have one person designated to be the IP. Infection prevention is typically one of several responsibilities assigned to a clinical manager. Staffing is a critical issue in home care as it is in other healthcare settings, and as such, everyone needs to focus their efforts on the most important things.

For the person responsible for infection prevention who works in a freestanding home care provider and may also be responsible for other functions, aggregating and analyzing data often goes on the back burner. I find that frequently when conducting mock surveys, they’ve collected the data, but no one has even looked at it…No judging…the patients always need to come first. Processes or staffing may need to be modified to ensure that data aggregation and analysis occur in a timely manner to identify any outbreaks or spikes in home care-onset healthcare-associated infections.

For a facility-based IP that oversees multiple departments and care settings, the IP can be helpful in providing education to the home care managers, assisting with surveillance activities, and ensuring that the home care surveillance data is integrated into the health system and reported to the governing body.

“Americans are living longer with chronic medical conditions, and if possible, most would rather receive care in their own home.”

**PS:** What is the biggest difference in the role of an IP whose focus is in home care as opposed to acute care?

**MM:** The biggest one is the lack of control over the home environment, the inability to observe staff rendering care easily, and the focus on field staff reporting patient infections to be included in surveillance data. Anyone that has ever worked in home care knows that you never know what you’re walking into and the conditions that may need to be addressed as a component of patient care. Conditions in home care that are not factors in other care settings include the presence of pets, pests, extreme clutter, poor sanitation, lack of appliances in working order (e.g., washing machine and dryer), lack of equipment and basic supplies, and sometimes a lack of utility systems (e.g., running water). Another risk factor is the absence of a consistent, willing, and able caregiver or support system. These conditions may serve as a significant barrier in providing effective patient care in the home setting. The culmination of these conditions makes the patient vulnerable to a myriad of home care-onset healthcare-associated infections.

**PS:** Is there anything else you’d like to share that wasn’t covered here?

**MM:** Our discussion has focused on home healthcare, but it is only one slice of the “home care pie.” There are many other in-home care providers, including private duty and non-medical care providers, home hospice and palliative care, home infusion therapy, and durable medical equipment providers. The length of time that a home care clinician remains in the home depends on the type of home care provider. This time may vary from less than an hour to 24 hours per day depending on the kind of care and services being performed, with most home care providers offering on-call services 24 hours per day. Patients receiving care in the home represent all age groups, from newborns to the elderly. Other than continuous home hospice care or private duty services, home care services are primarily provided on an intermittent (i.e., visiting) basis. All of these other in-home care providers need to follow the same infection prevention and control principles as home healthcare.

Americans are living longer with chronic medical conditions, and if possible, most would rather receive care in their own home. The home can be a very safe home environment to render care. Back in the early 80s, as a staff nurse for a home infusion therapy company that I helped start, I used to administer packed cells and platelets, draw patients’ blood and administer chemotherapy based on the patient’s blood counts routinely in the home setting. Those infusions are not performed in the home anymore and are given in outpatient settings. Some chemotherapy is still administered in the home after being set up as a continuous infusion at an outpatient facility and is discontinued by the home care provider. Home infusion therapy used to be called “high-tech” home care back in the day, and now it has become routine to receive IV antibiotics, TPN, pain management, and other infusions at home.

Home care may be shifting back to more intensive services at home with the Acute Hospital Care At Home (HaH) waiver program, which allows participating hospitals to provide hospital-level care in a patient’s home for the duration of the COVID-19 public health emergency. A HaH program is different from traditional home health agency services, although a home health agency may participate as a provider in the patient’s care under the HaH program.
Diverse backgrounds team up to tackle COVID-19 overseas

How infection prevention and the military combined forces against a pandemic

BY ELIZABETH HABERKORN

Among his military colleagues, Joseph Scaletta, MPH, BSN, RN, CIC, FAPIC, is known as “the science guy.”

Scaletta has been the nurse consultant for Infection Prevention and Control at the United States Army Medical Department Activity Bavaria (MEDDAC-B), the headquarters that oversees five Army health clinics within Germany, since before the pandemic started. MEDDAC-B is the largest Army training area outside of the U.S. It is also a hub for collaboration and synchronization among people with diverse trainings, expertise, and backgrounds.

Military personnel are known to have a wide expanse of education from all over the world. The COVID-19 response at MEDDAC-B exemplified how diverse backgrounds can come together to create the perfect team. The team’s success is attributed to the various experiences everyone brought to the table, a table that included a seat for the IP. It just so happened that the best people to handle the challenge were all working at the right time.

Leadership

Leadership is one of the Army’s strengths; after all, creating leaders is what the Army does. But what makes a strong leader? Surely not just knowledge or experience, although those things certainly help, but knowing when to step aside and letting the subject matter experts take over. That’s exactly what Colonel Edward Lee Bryan did. As a leader at MEDBACC-B, it’s Col. Bryan’s role to synchronize and coordinate the clinics and prioritize efforts to guarantee everyone has what they need to do the jobs done. It’s Col. Bryan who talks to general officers, and regional and operational commanders, and focuses on developing relationships to be able to allow folks to do the job they need to.

Col. Bryan, who has an operational mindset, knew that they had to stray from the norm and make medical the top priority. “Medical is never the main effort in the military. But when a pandemic comes, we..."
can’t fight corona with a tank,” Col. Bryan said. They’d look to their medical subject matter experts and say, ‘What are we going to do?’ or ‘How can we turn outpatient clinics into rudimentary emergency departments?’ ‘What’s your background? Well, let’s refresh your memory on incubations.’

In January 2020, Col. Bryan called the team together, which included key members Matthew S. Hyten, Jon Allison, and Scaletta, to do an evaluation and determine what courses of action they would take as a team. This is all part of the military’s decision-making process. The Commander explains the situation, then an analysis follows, ending with the establishment of a course of action. In this case: What if this disease progresses rapidly and hospitals become saturated? How will patients be transported?

At the time, Scaletta fell under a different deputy. But the upper leadership respected Scaletta’s previous experience with infectious diseases, like with Ebola, and so they granted Scaletta approval without having to pursue further permissions to work closely with Col. Bryan and the others. In return, Scaletta developed a play book for exercises and how units could continue to train in a COVID environment; how to coordinate contact tracing and prevent and isolate outbreaks; and provide guidance for clinics. All things a “science guy” would do to reinforce infection control. Getting IPC info out to everyone so that clinic.

The Respiratory Protection Program

Prior to COVID-19, there was no need for MEDDAC-B to maintain a respiratory protection program (RPP). MEDDAC-B facilities are considered low risk for tuberculosis exposure, which was the only exposure that would even require a RPP. However, when COVID-19 began to spread and was more than likely going to be a combination of droplet and airborne transmissions, the CDC, DoD, and the Department of Army and Regional Health Command began publishing guidance on preventing the droplet and/or airborne transmission of COVID-19 from patients to healthcare personnel. One of the protection elements was a RPP.

The responsibility of creating the RPP fell to the Mr. Hyten, whose role it is to oversee the occupational health system. On a regular day, Mr. Hyten is in charge of training nonoccupational providers and nurses on how to conduct health exams and he provides consultations for employees. But with the arrival of COVID-19, the occupational medicine measures suddenly became preventative, involving IPC and providing reasonable accommodations. It was extremely time consuming.

‘Scaletta and I discussed the potential need for a RPP should COVID become a pandemic. He presented different options of respiratory protection to the command leadership and discussed the risks and benefits with the different options.,” Mr. Hyten said. They also collaborated with logistics teams to ensure that the respirators stocked and those placed on order were NIOSH approved. “Everything was new to everyone, no one knew what to expect, but leadership took the SMEs guidance into consideration and followed it.”

For Mr. Hyten, Scaletta was instrumental in teaching him epidemiology. Mr. Hyten was exposed to information that he would never have picked up in a non-pandemic setting. The experience also highlighted skills he didn’t even know he had.

Typically, Occupational Health does not set up RPP. “This experience has provided me invaluable exposure to epidemiology, contact tracing, infection prevention, and respiratory protection programs,” Mr. Hyten said. “The IP has been a great gift to the unit.” It was a complementary relationship that presented the opportunity to “train up,” a method that IPs can employ to inspire other healthcare professionals to become interested in IPC work.

Lessons Learned

The takeaways from their experience can be carried and applied well into a post-pandemic healthcare system.

If the COVID-19 pandemic has taught healthcare professionals anything, it is to anticipate emergencies and have a plan in place. Having an RPP ready to go, even if seldom used, with a few personnel who are already trained, or even having a written policy in place, will save much time and effort if/when the time comes to implement that clinic.

Don’t underestimate logistics. Manage all your relationships, internal and external, because the answer or response can come from somewhere or someone unexpected.

Lastly, don’t overlook the diversity in backgrounds, knowledge, and experience among colleagues. It’s easy to focus on a lack of specific experience rather than see the complementary skillsets among your team, or the opportunity to transfer a skill and apply it elsewhere. You never know when you’ll discover the next IP.
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During APIC’s virtual 2021 conference, research on whole genome sequencing was presented and later published in *Clinical Infectious Diseases* (Sundermann A, Chen J, Miller JK, et al. Outbreak of *Pseudomonas aeruginosa* infections from a contaminated gastroscope detected by whole genome sequencing surveillance. *Clinical Infectious Diseases*. 2021; 73(3):e638–e642). *Prevention Strategist* followed up with lead author Alexander Sundermann, MPH, CIC, FAPIC, clinical research coordinator and doctoral student at Pitt Public Health, to find out more about their findings and what it could mean for the future of detecting and investigating outbreaks.

**PS: What is your IP background?**

**Sundermann:** I started in IP as a Masters of Public Health (MPH) practicum student in 2013 with my thesis focusing on the prevention of central line associated bloodstream infections (CLABSIs). In 2015, I became a full-time IP at the University of Pittsburgh Medical Center in one of our tertiary care hospitals, where I took on various projects in CLABSI prevention, *Legionella*, mold outbreak investigation, and extracorporeal membrane oxygenation. I began my DrPH degree part-time in 2016 where I researched the Enhanced Detection System for Healthcare-Associated
Transmission (EDS-HAT) under my advisor, Dr. Lee Harrison. I was excited to be a part of this work because I saw the clear potential for its impact on everyday IP practice, and I knew my knowledge of IP could be helpful for our team.

**PS: During your presentation the audience resonated with the chronic IP challenge of resources. Is there a way to make genome sequence testing more available to local community hospitals?**

Sundermann: There are many private companies that offer genomic sequencing as a service now, which is a plus for those hospitals that may not be ready to adopt something in-house. We are working to build an EDS-HAT prototype that could potentially be used by any type of hospital.

**PS: Can you think of an instance when this technology would be appropriate for an outpatient setting?**

Sundermann: Outpatient procedures and operations are very common now. Many patients may get clinical cultures in outpatient settings, too. These exposures and cultures are valuable information in tracking transmission that is only detected in outpatient settings or occurred in outpatient settings. One of our prior studies showed an outbreak of *Klebsiella pneumoniae* due to contaminated endoscopic retrograde cholangiopancreatography (ERCP) scopes. Many of these procedures were performed in the outpatient setting, and the patients presented acutely ill to the emergency room so they were not initially considered healthcare-associated. Having technology like EDS-HAT would detect this outbreak that was partly occurring in the outpatient setting.

**PS: Are there software programs available that can take whole genome sequencing (WGS) and epidemiology data and produce meaningful results?**

Sundermann: That’s what we are aiming to build. Genomic data are very useful but can often be tedious to manually cross reference to electronic health records. Ideally, a program would extract both sets of data and enable IPs to explore the detected outbreaks looking at various exposures (e.g., units, procedures, medications) that are shared among the cases. There are many programs out there that let IPs create ‘bed traces’ of where patients have been housed, but these do often have other exposure data or bring over the genomic data.

**PS: How accessible is this testing via state public health labs? How would you advise on convincing hospital leadership about the financial invest of the equipment for in-house testing?**

Sundermann: WGS for suspected healthcare outbreaks is generally not done by state public health labs. As for the cost of investing in in-house genomic sequencing, what we showed in our newest publication is that genomic surveillance is cost-savings in the end. The costs of treating the prevented infections outweighs the costs of sequencing many isolates. We purposely wanted to include this in our publication so that other IPs may bring it to their hospital leadership to show both the clinical and economic impact a program like EDS-HAT can have for patient safety.

**PS: What are recommendations for making this useful in real time? What are the cost implications?**

Sundermann: A real-time program needs to be fast. Getting genomic results 2 months after a patient’s culture date won’t be actionable as an outbreak may have already progressed to different transmission routes by the time infection prevention can intervene. We’re currently exploring ways in how to decrease our turn-around time and looking forward to sharing our findings soon.

**PS: Do you think this technology might uncover more outbreaks than today’s staffed IP departments can absorb?**

Sundermann: We showed in our paper that almost all outbreaks went undetected in the study period. Yet many of these outbreaks were healthcare-associated infections that required IPs to investigate, workup, and report to regulatory agencies. We believe a program like EDS-HAT will reduce the number of HAIs that take IP time to work up. Additionally, an automated machine learning program will reduce the effort and time needed in investigating the true cause of an outbreak so that an IP can focus mostly on the intervention.

**PS: After application of this predictive analysis surveillance technology in an outbreak, what is ‘that next test’ going to be? Putting your ‘predictive’ hat on, would you think the technology will be in-house or not?**

Sundermann: We predict that systems like EDS-HAT will eventually become standard practice in American healthcare. Our efforts are now focusing on reducing the turn-around time and adopting the machine learning technology to create a seamless interface that will aid in investigations. Every hospital is different; for some large health systems, having a dedicated in-house team may be the best option.

**PS: Is there anything else you’d like to share about this topic?**

Sundermann: This technology will never negate the need for the expert IP review. IPs are crucial in understanding transmission dynamics within a hospital and will be the ones driving the interventions from the detected outbreaks. I believe it’s important for IPs to learn the uses of genomic surveillance as we predict this type of technology may be commonplace in the future.

“A real-time program needs to be fast. Getting genomic results 2 months after a patient’s culture date won’t be actionable as an outbreak may have already progressed to different transmission routes by the time infection prevention can intervene.”
Escape rooms:
A valuable and validated training tool

BY MICHELE PARISI

Grace Boseman had already participated in multiple escape rooms with her family when she found herself in a room using Glo Germ to highlight clues. Boseman, an RN and infection preventionist at Central Texas Veterans Health Care System (CTVHCS), had an epiphany. In that moment, she realized that escape rooms—an increasingly popular activity—could be a novel approach to delivering infection prevention education.

“We were struggling to get both clinical and administrative staff to participate in non-mandatory infection prevention education,” Boseman said. “After seeing the enthusiasm around escape rooms, I thought this might be an activity that would really stimulate and engage our population.”

The following week, Boseman presented the idea to Kristy Causey, RN, the simulation educator at Boseman’s facility.

“We normally have a list of questions we ask when team members propose educational programs, leading with, ‘Why do we need to do this?’” Causey said. “But as soon as Grace shared the escape room idea with me, I said, ‘Absolutely. I didn’t know how we’d do it, but I knew this was a concept that people were enthusiastically engaging in outside of the work environment.’

Learning objectives…and zombies

As they began planning their first escape room in 2017, Boseman and Causey discovered that there was very little in the literature to guide them. They identified only two papers highlighting educational uses of escape rooms, and neither was in infection control.
“We realized we’d have to implement without guidance,” Causey said. “The best approach in this situation is to go back to the way you develop any education. Start by identifying your objectives and let them guide you.”

For their first escape room, Boseman and Causey agreed that the educational priority was a back-to-BASICS (bloodborne pathogens, aseptic technique, standard precautions, isolation, cleanliness, safety goals) campaign. They also defined two key learning objectives, proposing that participants would be able to both investigate the role that environmental surfaces play in disease transmission, and demonstrate at least three moments of hand hygiene while completing their tasks to escape.

Boseman and Causey strategically selected the escape room timing and theme to help increase participation and engagement: They planned to conduct it during International Infection Prevention Week in October.
2017, settling on a zombie apocalypse theme to coincide with Halloween as well as the current popularity of shows such as *The Walking Dead*.

Finally, Boseman and Causey outlined the zombie escape-room scenario. Participants were briefed on the scenario outside the room, then given 10 minutes to work as a team, finding educational clues that would ultimately allow them to “escape.” Each session concluded with a debriefing.

“We worked to design a very hands-on, immersive training environment, because we know that the more senses we engage, the more people learn and the higher the level of retention,” Boseman said.

When the day came to launch the first escape room, Boseman and Causey had no idea what level of participation to expect. “We’d typically get 20 to 30 participants for any non-mandatory educational program—if we provided food. And it was usually the same 20 to 30 people,” Causey said.

When they opened the door the first day, they discovered staff lined up in the hallway, excited to get in. “We actually thought they were lost or there for something else,” Causey laughed. For several days, the pair worked through breaks and lunch hours to accommodate the demand from both clinical and non-clinical staff. “Other clinical education staff told us that we had one participant who’d been employed at the facility for more than 30 years and had never come to a non-mandatory training before,” Boseman said.

Since their first successful endeavor in 2017, Boseman and Causey have created and conducted three additional escape rooms, focused on sepsis, pandemic preparedness, and environmental awareness. While the first escape room required 12 to 16 hours to set up, learnings they acquired along the way have shortened this time to about four hours each.

“If we really focus on our learning objectives, it makes the set up much faster,” said Causey. “Then once the room is set up, we have a colleague run through it to ensure the clues are understandable and the sequence works.”

The team also learned to ensure that all clues align with their educational objectives. “In one of our infection prevention-focused scenarios, we hid a clue in a suction canister and expected learners to dig through it,” said Causey. “We thought it was clever, but one of our participants rightly said, ‘Why are we
doing this?!' The learning objectives need to drive the clues and room set up—not the creativity."

**Preparing for a pandemic**

Boseman and Causey developed and conducted two escape room programs in 2019. The first was sepsis themed, inspired by the roll-out of a new, nurse-driven sepsis protocol in the CTVHCS facility. Partnering with nurses to create the escape room, the team settled on a “Harry Potter and Scrabble mash-up theme.” In this room, the lab technician was an owl, and participants had to spell out “Early Recognition”—a key concept in sepsis—with Scrabble tiles to leave the room.

Late that same year, just prior to the start of the COVID-19 pandemic, the CTVHCS Safety Team reached out to Boseman and Causey to propose an escape room that would support the annual Safety Week. Simultaneously (and presciently, as it turned out), an annual infection control risk assessment identified the need for more attention to high-consequence infectious disease within the facility. Utilizing “dual-use” vehicles that the VA already maintained for emergency preparedness and response, Boseman and Causey designed a pandemic novel influenza-themed bus.

“We were really excited when we first opened this training, because we had non-clinical employees coming through,” Causey said. “In the debriefing we’d ask them, ‘How do you think your role will change in the event of a pandemic?’, and many times they looked at us like we had three heads. They didn’t think a pandemic would ever really happen.”

Three months following the pandemic flu escape room program, the team surveyed participants to assess impact. Self-reported behavioral changes included a 61% increase in handwashing, a 23% increase in awareness about the role that contaminated surfaces play in disease transmission, and a 21% increase in PPE use. Results like these helped validate the benefits of game-based education to the CTVHCS leadership and ensure support for additional escape-room training programs.

Additionally, when the pandemic did become reality, the practical benefits of the escape room trainings became abundantly clear. During simulations designed to prepare employees to set up COVID testing sites, both clinical and non-clinical staff who
had participated in the escape rooms immediately became engaged.

“They were actively applying hand hygiene concepts, asking questions about where to place sanitizer and how to manage a potentially high-touch surface,” said Causey. “For us, that was the best outcome we could ever see. The non-clinical staff had never been trained in the clinical process, yet they were able to provide active input.”

Meanwhile, staff who had not participated in the escape room were much less engaged, with many needing time to process the scenario.

Sharing and building on success

In the four years since they began planning their first escape room, Boseman and Causey say interest in training-based escape rooms has increased significantly. The pair note that there are now approximately 70 resources in the literature, as well as several educational handbooks. Having trained more than 1,100 CTVHCS staff through their escape rooms, Boseman and Causey enthusiastically share their learnings with peers looking to set up their own rooms.

So far, they’ve conducted 12 consultative calls both within and outside the VA healthcare system. In all of these discussions, they emphasize multiple critical success factors:

• Tap into viral concepts; look at and integrate the activities staff are already willing to spend their time and money on outside of work
• Employ a collaborative approach and involve as many key stakeholders as possible, including frontline staff, educators, infection preventionists, and subject matter experts
• Identify a theme and incorporate it into your room as much as possible
• Make it immersive by engaging as many senses as possible
• Take advantage of your participants’ natural inclination to be competitive
• Participate in an escape room; take your entire team so that they understand the concept
• Get the word out weeks ahead through emails, walking units, themed flyers, digital signage, etc.
• Conduct needs assessments and set objectives first

While COVID-19 pandemic limitations and demands have delayed initial plans, the pair are currently gearing up to conduct escape rooms targeting both COVID fatigue and healthcare-associated infections. And they’ll make future escape rooms mobile to bring the training and clinical benefits to their outlying clinics.

“Escape rooms are extremely versatile training tools that can be applied to almost any topic,” said Boseman. “They require and improve teamwork, communication, and crucial thinking. And as long as you build them to be fun and engage the senses, your staff will enthusiastically engage.”

Michele Parisi is a freelance writer for Prevention Strategist.
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