

INS 2025 Speaker Spotlight - Victor D. Rosenthal, MD, PhD

When did your passion begin?

My passion began in 1993, during a scientific congress, where I presented an abstract about successfully treating ten patients with chronic osteomyelitis caused by intramedullary nails. I was proud and happy with my diagnosis and treatment of these patients.

But something shocking happened that day when I attended a congress session on surveillance, healthcare-associated infections (HAIs), and infection prevention. For the first time, I encountered this groundbreaking concept: a system for measuring HAIs and evidence-based practices that could significantly reduce them.

This revelation marked a pivotal moment in my career. I realized the importance of shifting focus from diagnosing and treating HAIs to preventing them. Doing so can alleviate patient suffering, reduce the extra length of hospital stays, minimize time away from family and friends, and avoid interruptions in education or work. This approach also allows patients to enjoy life without the burden of adverse events caused by antibiotics and other drugs, prevent complications and long-term sequelae, decrease mortality rates, and redirect healthcare costs toward enhancing the quality of care and driving innovations rather than merely treating complications like healthcare-associated infections (HAIs). This has been the driving force behind my work ever since.

Can you share a preview of the key themes or topics you will be discussing at the conference?

At the conference, I will focus on the epidemiology and prevention of catheter-associated bloodstream infections (CABSI), including central line-associated bloodstream infections (CLABSI) and Peripheral Intravenous Catheter-Associated Bloodstream Infections (PIV-BSI), in low-resource settings. My presentation will explore the significant disparities in CABSI rates and clinical outcomes between low-resource settings and high-income countries, as highlighted by research conducted by the International Nosocomial Infection Control Consortium (INICC).

Key themes will include: (1) Global Burden and Epidemiology of CLABSI and PIV-BSI: I will describe how CABSI rates and outcomes vary between regions, emphasizing the unique challenges faced in low-resource settings. (2). Challenges in Low-Resource Settings: Discuss barriers to infection prevention, such as limited infrastructure, staffing shortages, and insufficient access to medical supplies. (3). Evidence-Based Prevention Strategies: Practical interventions tailored to low-resource settings, including implementing basic infection prevention bundles. (4). The Role of Technology and Data Surveillance: The development and impact of INICC's online global surveillance platform facilitates real-time CABSI monitoring and data sharing. (5). Research and Case Studies: Insights from studies conducted in over 40 countries highlight the effectiveness of combining modern technology with evidence-based practices to mitigate CABSI risks. (6). Improving Compliance and Reducing Risk: The importance of CABSI Prevention Practices compliance and strategies to address key risk factors for CABSI.

Attendees will leave with actionable strategies and a deeper understanding of improving patient safety in resource-constrained and high-income countries' environments, supported by real-world examples and data from INICC's extensive global experience.

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What inspired you to focus on these particular areas in your presentation?

What inspired me to focus on these particular areas in my presentation is rooted in the challenges I encountered early in my career, starting in 1993, when I began researching, conducting surveillance of CABSIs, and implementing CABSIs prevention interventions. I realized there were no established standards to determine expected CABSIs rates in low-resource settings. The only available benchmarks were those from the CDC/ National Nosocomial Infections Surveillance (NISS) in the United States that later evolved to CDC/ National Healthcare Safety Network (NHSN), which were not representative of the realities faced by hospitals in low-resource countries. CABSIs rates in these hospitals in low-resource countries were often more than ten times higher than in the U.S.

Additionally, through audits, I identified (1) stark differences in the practices and devices used for CABSIs prevention between high-income and low-resource countries, (2) More critically, in low-resource settings, there was a lack of national and local surveillance systems, (3) there was a lack of national concrete recommendations for CABSIs prevention, and (4) knowledge or implementation of adequate procedures.

A key problem was the lack of benchmarks: This absence of comparable standards made it difficult for hospitals in these low-resource countries to acknowledge that improvement was possible using their existing resources. When I created CABSIs rate benchmarks tailored explicitly to low-resource countries, hospitals in these settings began comparing themselves to these standards. This comparison motivated them to improve, as it was reasonable not to match the CABSIs rates of high-income countries like the U.S. Still, having significantly higher CABSIs rates than other countries with similar resource constraints was unacceptable. This was a critical first step. To develop benchmarks tailored to low-resource settings

Another key issue is the lack of local research. After that, my focus shifted to identifying the most effective behaviors and devices for significantly reducing CABSIs rates in low-resource settings. The ultimate goal was to enable these countries to gradually approach the CABSIs rates of the U.S. and other high-income nations. I implemented CABSIs prevention interventions to address these issues and demonstrated that significant reductions in CABSIs rates were achievable within these constraints. Furthermore, I conducted multicenter, multinational, and multicontinental prospective randomized studies using standardized forms to highlight the elevated risks for CABSIs associated with inadequate devices and practices in low-resource settings compared to high-income countries. These studies also examined behavioral differences, showcasing the superior effectiveness of practices in high-resource environments.

This work underscored the importance of creating practical, evidence-based solutions and inspired my dedication to improving CABSIs prevention in low-resource settings. I aim to share this mission with attendees through my presentation.

How do you see the field of infusion therapy evolving over the next few years?

The field of infusion therapy is poised for significant advancements in the coming years, driven by a commitment to evidence-based practice, technological innovation, and a continued shift toward home-based care. Key developments include: (1). Enhanced Evidence-Based Practices: The infusion

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therapy community recognizes the need for robust scientific studies to validate new devices and techniques. There is a growing emphasis on conducting large-scale, multi-center, cohort, prospective, randomized controlled trials, cost-effectiveness analyses, meta-analyses, and systematic reviews to establish a solid evidence base. This approach ensures that clinical practices are safe and effective, improving patient outcomes. (2). Development of Comprehensive Standards: Organizations like the Infusion Nurses Society (INS) play a crucial and most important role in developing and disseminating standards of practice. (3). Technological Innovations: The market is witnessing an influx of devices and products to enhance the quality of intravascular infusion therapy. However, adopting these technologies necessitates thorough scientific validation to ensure they meet the rigorous standards required for clinical use. (4). Expansion of Home Infusion Therapy: There is a notable trend toward administering infusion therapies in home settings, driven by patient preference and healthcare system efficiencies. (5). Broadened Surveillance Metrics: Health organizations, including the Centers for Disease Control and Prevention (CDC), are expanding their surveillance to include hospital-onset bacteremia (HOB), not limited to CLABSI. This comprehensive monitoring underscores the importance of preventing CABS associated with all types of intravascular devices, central lines, and PIV, prompting the need for evidence-based interventions. In summary, the future of infusion therapy will be characterized by a stronger emphasis on evidence-based practice, continued updating of comprehensive standards, technological advancements, a shift toward home-based care, and expanded infection surveillance. These developments aim to enhance patient safety, improve clinical outcomes, and adapt to the changing dynamics of healthcare delivery.

What are the biggest challenges currently facing professionals in this industry, and how can they be addressed?

The biggest challenges currently facing professionals in the infusion therapy industry are the rigorous demands of conducting high-quality scientific research and the need for evidence-based validation of products and practices. Without robust evidence, it is highly challenging for new devices or techniques to gain approval from regulatory agencies such as the FDA or to be incorporated into key standards, such as those developed by the Infusion Nursing Society (INS), and guidelines such as those of APIC/SHEA/IDSA and other national and international organizations.

Addressing these challenges requires a concerted effort in the following areas: (1) high-quality research. Professionals must focus on conducting large-scale, multicenter, multinational, and multicontinental studies. These studies should include (a) prospective cohort studies to provide observational data with strong temporal associations, (b) randomized controlled trials (RCTs) to establish causation with the highest level of evidence, (c) meta-analyses and systematic reviews to synthesize data and evaluate the efficacy of interventions across multiple studies, and (d) large sample sizes. Usually, a minimum of 1,000 patients per study is necessary to ensure statistical power and generalizability of findings. (2) Collaborative efforts are crucial. Global partnerships between healthcare organizations, researchers, and industry leaders can facilitate the design and execution of these large-scale studies while helping to distribute the financial and logistical burdens associated with such research. (3) Regulatory alignment is vital. Research methodologies must align with the requirements of regulatory bodies like the FDA and produce findings relevant to professional



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organizations such as INS and APIC/SHEA/IDSA. This alignment increases the likelihood that new products will be integrated into standards and clinical guidelines and accepted worldwide. (4) Continuous education and advocacy are necessary. Raising awareness among healthcare professionals and policymakers about the critical need for evidence-based practices can help secure funding and support for high-quality research. (5) Professionals must adapt to evolving metrics. As surveillance expands to include broader indicators, such as hospital-onset bacteremia (HOB), interventions must be effective for a wide range of intravascular devices, not just central lines. Addressing these challenges through rigorous research, global collaboration, and alignment with regulatory and professional standards will allow the infusion therapy industry to continue to innovate while ensuring patient safety and improving outcomes.

How do you stay up-to-date with the latest trends and advancements in infusion therapy?

I stay current with the latest trends and advancements in infusion therapy through reliable, evidence-based sources and active participation in professional development opportunities.

First and foremost, I closely follow the standards published every three years by the Infusion Nursing Society (INS) and, secondarily, the guidelines issued approximately every four years by APIC, SHEA, and IDSA, all endorsed by the CDC. These are essential references for understanding the field's latest best practices and innovations.

Peer-reviewed scientific manuscripts indexed in PubMed are a cornerstone of my continuous learning. I prioritize studies with robust methodologies, including randomized controlled trials, prospective cohort studies, meta-analyses, systematic reviews, and cost-effectiveness analysis, as they provide the highest quality evidence. Subscribing to specialized journals, including the Journal of Infusion Nursing, Journal of Vascular Access, American Journal of Infection Control (AJIC), Infection Control & Hospital Epidemiology (ICHE), Journal of Hospital Infection, Clinical Infectious Diseases (CID), The Lancet Infectious Diseases, and others, ensures that I remain informed about the latest findings.

Attending the INS Annual Conference is unique and extremely valuable. Reading abstracts from conferences relevant to infusion therapy, such as those hosted by INS, APIC, SHEA, IDSA, ICAAC, and others, also offers valuable insights into emerging trends and ongoing research. Additionally, I regularly attend lectures by experienced researchers and leaders at these conferences, as they provide firsthand perspectives on cutting-edge advancements and practical applications in the field. This multifaceted approach enables me to stay informed, critically evaluate new information, and incorporate the most effective evidence-based practices into infusion therapy.