

Population Health Matters

Healthcare-Associated Infections - Is Targeting Zero a Global Reality?

Healthcare-associated infection (HAI) is a global patient safety threat affecting hundreds of millions of people worldwide. In developed countries, HAI complicates up to 10% of hospital admissions. In limited resource countries the risk can be twenty times higher and the proportion of infected patients can exceed 25%.^{1,2} In the US it is estimated that over 1.7 million HAIs occur annually, resulting in 99,000 deaths and costing up to \$45 billion in added healthcare costs.³ In other words, every day, approximately 1 in 20 patients acquire an infection related to their hospital care. In addition, HAIs increase patients' morbidity and length of stay and can have devastating emotional consequences for patients and their family.

Historically, clinicians considered HAIs an inevitable consequence of care or the "cost of doing business." In developing countries other health problems and diseases often take priority. Over the past decade such notions have gradually changed as the scientific evidence indicated that many HAIs may be preventable, even in diverse, high-risk settings, when targeted interventions are successfully implemented. As a result, numerous intensive care units have reported periods of a year or more with zero bloodstream infections in the sickest patient populations.⁴ Concurrently, US hospitals faced increasing external social, economic and regulatory pressure as states began to mandate HAI reporting and the Centers for Medicare and Medicaid Services no longer reimbursed the cost of "preventable" complications.

Central line-associated bloodstream infection (CLABSI) is among the most common HAIs and is included in the list of non-reimbursable HAIs along with urinary tract infections, and some surgical

site infections. In 2005, the World Health Organization (WHO) launched the First Global Patient Safety Challenge, *Clean Care is Safer Care*, dedicated to raising global awareness and providing solutions to support HAI prevention.⁵ WHO and its partners provide member states with evidence-based guidelines and tools to implement HAI prevention activities, and strategies to promote the highest standards of practice and behavior, as well as to mobilize governments and stakeholders. As growing national and worldwide attention was devoted to HAI prevention, it inspired and motivated clinicians, health care leaders and professional organizations to set more aggressive goals and targets to reduce the risks of HAIs, resulting in the "targeting zero" movement. Warye and Murphy suggested that a culture of targeting zero HAI included the following:⁶

1. Setting the theoretical goal of elimination of HAIs;
2. An expectation that infection prevention and control measures will be applied consistently by all health care workers, 100% of the time;
3. A safe environment for healthcare workers to pursue 100% adherence, where they are empowered to hold each other accountable for infection prevention;
4. Systems and administrative support that provide the foundation to successfully perform infection prevention and control measures;
5. Transparency and continuous learning where mistakes and/or poor systems and processes can be openly discussed without fear of penalty;

6. Prompt investigation of HAIs of the greatest concern to the organization and/or community; and
7. Focus on providing real time data to front-line staff for the purpose of driving improvements.

The Michigan Keystone Project provides a successful targeting zero prototype and clinicians around the world have taken notice. The project, funded by the Agency for Healthcare Research and Quality (AHRQ), reduced the median central line-associated bloodstream infection (CLABSI) rate to 0 in 103 Michigan Intensive Care Units (ICUs) over 18 months.⁴ This was accomplished by implementing an evidence-based bundle that consisted of 5 Centers for Disease Control and Prevention (CDC) recommendations combined with interventions to improve and support cultural, behavioral and systematic change. A 3-year follow-up study reported most Michigan ICUs continued to sustain reduced CLABSI rates.⁷ Using a comparable approach, similar results have been reported by others in the US and around the world. For example, AHRQ funded a national initiative enrolling approximately 1,100 US hospitals and reported a 35% reduction in CLABSI among adult ICUs from 350 participating hospitals in the first 22 states reporting.⁸ England joined the targeting zero effort and conducted a 2-year 'Matching Michigan' initiative, which resulted in a 60% reduction in reported CLABSI in adult ICUs across the country.⁹ A Saudi Arabian hospital found the use of bundles was associated with a significant decrease in device-related HAIs in their adult ICUs.¹⁰

The International Nosocomial Infection Control Consortium (INACC) is a nonprofit, open, multi-center, collaborative healthcare

infection control program with a surveillance system based on that of the US National Healthcare Safety Network.¹¹ INACC was established to control HAIs in hospitals in limited-resource countries and at hospitals in developed countries without sufficient experience in HAI surveillance and control, through the analysis of data collected voluntarily by its member hospitals in Latin America, Asia, Africa, and Europe. While prevention strategies are not titled “targeting zero,” the INACC vigorously supports the use of reliable data to promote consistent implementation of simple, inexpensive, high-priority evidence-based infection control practices for prevention of HAI.

The concept of targeting zero HAI may seem an unrealistic goal or an impossible

dream, especially in developing countries. We realize that reliable and systematic infection surveillance systems are essential for successful targeting zero HAI initiatives, that HAI surveillance is time and resource intensive, and that few developing countries have national HAI programs or surveillance systems. In addition to surveillance limitations, we recognize the global differences in terms of evidence-based guidelines and recommendations, regulations, and healthcare worker infection control education and training. We acknowledge that creating a targeting zero culture requires strong leadership and can be daunting even in the most resourced environments. However, we believe that targeting zero is a global possibility; there

is significant and growing worldwide resolve and evidence to demonstrate that reducing – and, in some cases, eliminating – many serious HAIs has been achieved and sustained. ■

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