

# Elimination of HAIs: What will it take?

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November 19, 2010

## WHITE PAPER

## Moving toward Elimination of Healthcare-Associated Infections: A Call to Action

Denise Cardo, MD; Penelope H. Dennehy, MD; Paul Halverson, DrPH, MHSA, FACHE; Neil Fishman, MD; Mel Kohn, MD, MPH; Cathryn L. Murphy, RN, PhD, CIC; Richard J. Whitley, MD, FIDSA; HAI Elimination White Paper Writing Group

### INTRODUCTION

Jointly, the Association for Professionals in Infection Control and Epidemiology (APIC), the Society for Healthcare Epidemiology of America (SHEA), the Infectious Diseases Society of America (IDSA), the Association of State and Territorial Health Officials (ASTHO), the Council of State and Territorial Epidemiologists (CSTE), Pediatric Infectious Diseases Society (PIDS), and the Centers for Disease Control and Prevention (CDC) propose a call to action to move toward the elimination of healthcare-associated infections (HAIs) by adapting the concept and plans used for the elimination of other diseases, including infections. Elimination, as defined for other infectious diseases, is the maximal reduction of "the incidence of infection caused by a specific agent in a defined geographical area as a result of deliberate efforts; continued measures to prevent reestablishment of transmission are required."<sup>1(p40)</sup> This definition has been useful for elimination efforts directed toward polio, tuberculosis,<sup>2</sup> and syphilis<sup>3</sup> and can be readily adapted to HAIs. Sustained elimination of HAIs can be based on this public health model of constant action and vigilance. Elimination will require the implementation of evidence-based practices, the alignment of financial incentives, the closing of knowledge gaps, and the acquisition of information to assess progress and to enable response to emerging threats. These efforts must be underpinned by substantial research investments, the development of novel prevention tools, improved organizational and personal accountabilities, strong collaboration among a broad coalition of public and private stakeholders, and a clear national will to succeed in this arena.

The clear consensus among healthcare epidemiologists, infection preventionists, infectious disease physicians, and other

clinicians attending the Fifth Decennial International Conference on Healthcare-Associated Infections 2010 is that now is the time to advance the cause of HAI elimination.<sup>4</sup> In this white paper, we embrace the goal of HAI elimination and we identify steps to achieve this goal. We are committed to working together to eliminate HAIs, recognizing that further work is needed to implement the steps identified in this call to action.

HAIs are an increasingly recognized problem. The number of people who are sickened or die and the financial impact from HAIs are unacceptably high.<sup>5</sup> Intrinsic to the problem is the inconsistent implementation of proven preventive measures. Furthermore, we know little about the burden of infections outside hospitals, particularly in long-term care facilities, ambulatory surgical centers, and other outpatient settings, and the burden of infections outside the United States. The World Health Organization has reported that, at any given time, approximately 1.4 million people have an HAI; in developing countries, the risk can be up to 20 times greater than in developed countries.<sup>6</sup> In addition, the emergence of HAIs caused by multidrug-resistant microorganisms is an increasing concern.<sup>7</sup> We recognize the diversity of political, economic, educational, and clinical capacity throughout the world, as well as the success of various HAI prevention efforts. The framework we describe is based primarily on the US experience, but we are optimistic that these principles can be applied to the elimination of HAIs around the globe.

Recently, efforts in several countries have shown remarkable success in preventing some HAIs,<sup>8-11</sup> and there is a growing body of knowledge defining a full range of prevention interventions that can address specific HAIs when consistently applied across settings.<sup>12</sup> As the US population ages and

From the Centers for Disease Control and Prevention (CDC), Division of Healthcare Quality Promotion (DHQP) (D.C.), the Pediatric Infectious Diseases Society (PIDS) (P.H.D.), the Association of State and Territorial Health Officials (ASTHO) (P.H.), the Society for Healthcare Epidemiology of America (SHEA) (N.E.), the Council of State and Territorial Epidemiologists (CSTE) (M.K.), the Association for Professionals in Infection Control and Epidemiology (APIC) (C.L.M.), Infectious Diseases Society of America (IDSA) (R.L.W.). Members of the HAI Elimination White Paper Writing Group are Patrick J. Brennan, MD (IDSA); Jennifer Bright (SHEA); Cecilia Curry, PhD (CDC); Denise Graham (APIC); Belinda Haerum, MPH (ASTHO); Marion Kainer, MD, MPH (CSTE); Keith Kaye, MD, MPH (SHEA); Tammy Lundstrom, MD, JD (SHEA); Chesley Richards, MD (CDC); Lisa Tomlinson (APIC); Elizabeth L. Skillen, PhD (CDC); Stephen Streed, MS, CIC (APIC); Melanie Young (SHEA); and Edward Septimus, MD, FIDSA, FACP, FSHEA (APIC).

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Received August 24, 2010; accepted August 24, 2010; electronically published October 7, 2010.

A diagram shaped like a classical temple. At the top is a triangular pediment containing the main title. Below the pediment is a horizontal entablature. The main body of the temple consists of four vertical columns, each representing a pillar of support. The columns are supported by a wide, multi-tiered base. The entire structure is rendered in a light gray, marbled texture.

**Elimination of  
Healthcare-Associated Infections**

**Adherence to  
Evidence-  
Based  
Prevention  
Practices**

**Align  
Incentives**

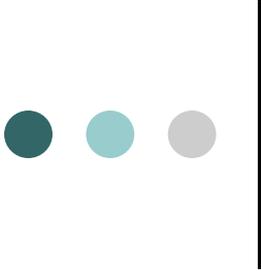
**Innovation  
Research**

**Data for  
Action**

**Financial Investments and Resources**

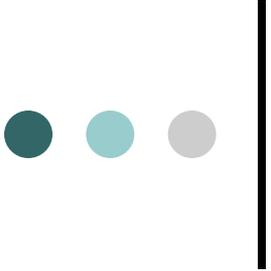


# Imperatives for the Elimination of HAIs: The Four Pillars



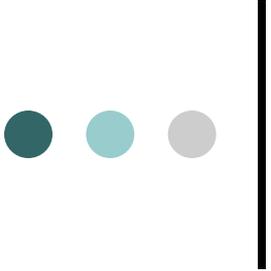
# I: Implement Evidence-Based Practices

- The cornerstone of HAI elimination is to increase adherence to what we already know can be effectively implemented, on the basis of scientific evidence.



# I: Implement Evidence-Based Practices

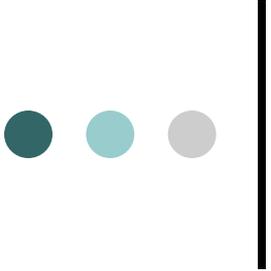
- Clinical guidelines
  - HICPAC infection control guidelines
- SHEA/IDSA's Compendium of Practical Strategies to Prevent HAIs in Acute Care Hospitals
- APIC's Elimination Guides



# I: Implement Evidence-Based Practices

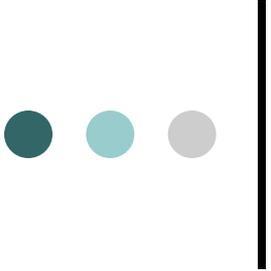
- Barriers to adherence are multiple and complex

“Collaboration rather than competition should be the hallmark of elimination efforts.” Pronovost, Overview of STOP-BSI Program, 2009



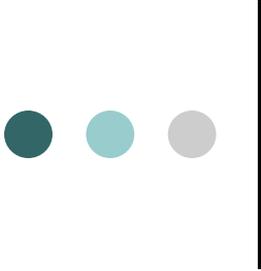
## II: Align Incentives

- A broad, strategic approach toward prevention-oriented healthcare payment
  - Shift focus from strategies based on individual healthcare encounters to performance-modeled payment based on population-based results



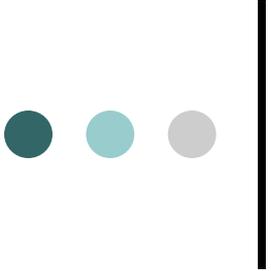
### III: Address Gaps in Knowledge

- Current level of evidence for HAI prevention varies for each type of infection and also by type of healthcare setting



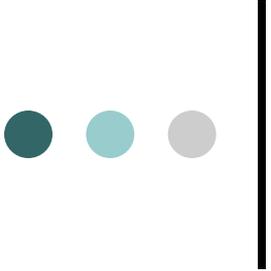
### III: Address Gaps in Knowledge

- Need to better understand how and why HAIs occur
- Research is needed to develop evidence-based prevention recommendations for many HAIs
- Research is needed to assess the impact of existing prevention recommendations and policies



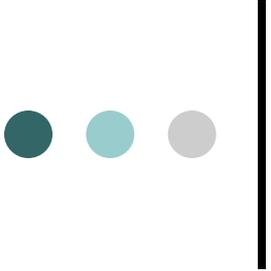
## III: Address Gaps in Knowledge

- Propose 5 phases of translational research to address gaps:
  1. epidemiologic studies
  2. discovery of potential interventions
  3. evaluating promising interventions leading to the development of evidence-based guidelines
  4. moving evidence-based guidelines into health practice
  5. evaluating the “real world” health outcomes of population health practice



## IV: Data for Action and Responding to Emerging Threats

- Timely and accurate data to:
  1. define the scope of the problem
  2. assess progress towards elimination

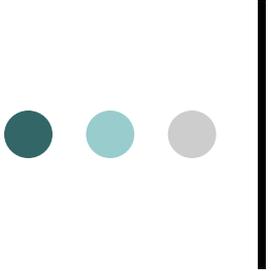


## IV: Data for Action and Responding to Emerging Threats

- Focus investments for timely, high quality data on:
  1. reshaping standard definitions and surveillance methods
  2. creating national and global data standards for key HAI prevention metrics
  3. creating or refining available data analysis and presentation tools

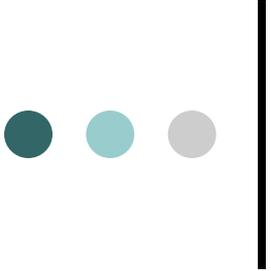


Call to Action



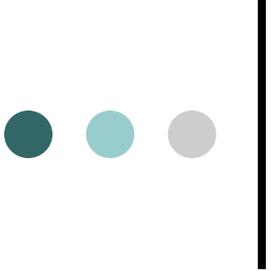
## Call to Action

- We must continue to work together to:
  1. increase adherence to practices supported by the body of knowledge on existing prevention interventions
  2. toward the alignment of incentives



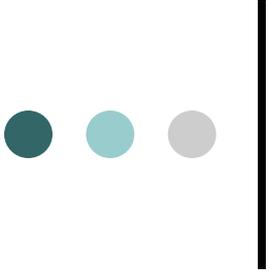
## Call to Action

- We must invest in research to find innovative solutions to combat challenges



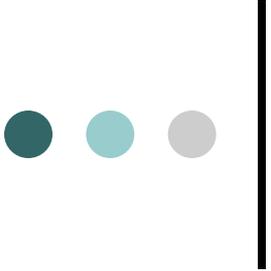
## Call to Action

- We must be flexible and responsive to emerging challenges and the changing healthcare environment



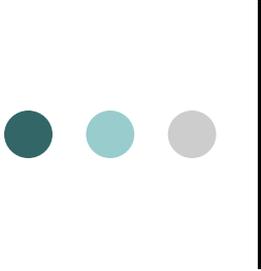
## Call to Action

- Most of all, we must focus on the patient and must challenge ourselves to no longer accept the unacceptable



## Call to Action

- We must work together to eliminate HAIs for the generations to come
  - Will require constant action and vigilance



## What is on the horizon?

- It is anyone's guess...
  - Process vs. outcome measures?
  - Mandatory influenza vaccination for healthcare personnel?
  - Healthcare associated *C. difficile*?
  - Surgical Site Infection? Which ones?
  - More CLA-BSI?
  - Specific MDROs?
- Consider existing, if any, science of prevention