

CLABSI Reduction Initiatives and Campaigns

Scope/Developed by/ Time Frame	Citation or Web Address (may include links to publications or tools)	Description
Initiative: Canadian Patient Safety Institute (CPSI) - Safer Healthcare Now!		
<p>Scope of the initiative: National (Canada)</p> <p>Developed by: Canadian Patient Safety Institute</p> <p>Time frame: Initiative designed with a 5-year implementation period</p>	<p>Canadian Patient Safety Institute. Safer Healthcare Now! Accessed Mar 18, 2012. http://www.saferhealthcarenow.ca/EN/Pages/default.aspx.</p> <p>Canadian Patient Safety Institute. Safer Healthcare Now! Central Line–Associated Bloodstream Infection (CLABSI). Accessed Mar 18, 2012. http://www.saferhealthcarenow.ca/EN/Interventions/CLI/Pages/default.aspx.</p> <p>Website: http://www.saferhealthcarenow.ca/EN/Interventions/CLI/Pages/default.aspx</p>	<p>Safer Healthcare Now! is a national campaign that supports Canadian health care organizations in their patient safety improvement efforts, including those directed at preventing CLABSIs.¹ The focus of the campaign is reducing avoidable harm by implementing evidence-based interventions. The campaign is supported by IHI and is patterned after IHI's 5 Million Lives Campaign. CPSI has issued an open invitation to all Canadian hospitals to participate in one or more of the nine Safer Healthcare Now! interventions, such as rapid response teams, ventilator associated pneumonia (VAP), or CLABSI. Each intervention includes resources and tools that are customizable, reliable, tested, and based on 5 years of improving care and designed to provide everything needed to implement, measure, and evaluate the patient safety initiatives. Reporting of rates is voluntary, and hospitals that report data are included in aggregated reports that are publicly available.</p> <p>The CLABSI intervention has tools for both insertion and maintenance of CVCs, and it encourages organizations to measure their CLABSI rates over time.¹ The how-to guide includes such topic areas as the importance of using a multidisciplinary team approach, using data to define and monitor CLABSIs, setting time-specific and measurable goals, educating staff, and using techniques for overcoming barriers.</p>
Initiative: Hospital Israelita Program to Prevent CLABSIs—São Paulo, Brazil		
<p>Scope of the initiative: Single organization</p> <p>38-bed medical/surgical ICU and two 20-bed step-down units (SDUs)</p> <p>Developed by: Hospital Israelita, São Paulo, Brazil</p> <p>Time frame: March 2005–March 2007 (baseline period)</p>	<p>April 2007–April 2009 (intervention period) Marra AR, Cal RG, Durão MS, Correa L, Guastelli LR, Moura DF Jr, Edmond MB, Pavao Dos Santos OS. Impact of a program to prevent central line–associated bloodstream infection in the zero tolerance era. <i>Am J Infect Control</i>. 2010 Aug;38(6):434–439.</p>	<p>While full barrier precautions at insertion, 2% chlorhexidine skin preparation prior to catheter insertion, and periodic feedback on adherence to recommended practices were in place in the baseline period (phase 1), the hospital's chief executive officer announced a zero tolerance for CLABSI initiative in April 2007 (phase 2). IHI's central line bundle was implemented in the ICU and the two SDUs, which included creation of a central line cart, emphasis on hand hygiene, optimal catheter site selection (avoiding femoral vein), and daily review of line necessity. Feedback was provided on adherence to the bundle as well as CLABSI rates over time.</p> <p>The CLABSI rate per 1,000 catheter-days in the ICU in phase 1 was 6.4, and in phase 2 it had decreased to 3.2; the rate in the SDUs decreased from 4.1 to 1.6 per 1,000 catheter-days.</p> <p>This study suggests that the same prevention principles and evidence-based practices that decrease CLABSIs in the ICU can be applied to the non-ICU setting as well.</p>

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CLABSI Reduction Initiatives and Campaigns (*continued*)

Scope/Developed by/ Time Frame	Citation or Web Address (may include links to publications or tools)	Description
Campaign: Institute for Healthcare Improvement (IHI) 5 Million Lives Campaign		
<p>Scope of the initiative: National (US)</p> <p>Developed by: Institute for Healthcare Improvement (IHI)</p> <p>Time frame: December 2006–December 2008</p>	<p>Institute for Healthcare Improvement. 5 Million Lives Campaign. Accessed Mar 18, 2012. http://www.ihl.org/offerings/Initiatives/PastStrategicInitiatives/5MillionLivesCampaign/Pages/default.aspx.</p> <p>DePalo VA, McNicoll L, Cornell M, Rocha JM, Adams L, Pronovost PJ. The Rhode Island ICU collaborative: A model for reducing central line–associated bloodstream infection and ventilator-associated pneumonia statewide. <i>Qual Saf Health Care</i>. 2010 Dec;19(6):555–561. Institute for Healthcare Improvement. Prevent Central Line Infection. Accessed Mar 18, 2012. http://www.ihl.org/explore/CentralLineInfection/Pages/default.aspx.</p> <p>Publications: http://www.ihl.org/knowledge/Pages/Publications/default.aspx</p> <p>Tools: CLABSI bundle and checklist developed by Peter Pronovost: http://www.ihl.org/explore/CentralLineInfection/Pages/default.aspx IHI How to Guide: \\Jcfs2\data\DRE\THE CENTER\Projects Funded\Baxter\Phase 2\Toolkit development \In Process\IHI_Howto GuidePreventCentralLine Infection.pdf</p>	<p>IHI’s 5 Million Lives campaign (formerly the 100,000 Lives Campaign) was a voluntary initiative to protect patients from 5 million incidents of medical harm.² Between December 2006 and December 2008, IHI challenged US hospitals to adopt any or all of 12 interventions that save lives and reduce patient injuries, including CLABSIs. Each of the interventions had multiple resources available to support hospitals that undertook interventions, such as how-to guides, PowerPoint presentations with facilitator notes, access to “mentor hospitals” that provided support and tips to hospitals seeking help with implementation efforts, and various improvement tools submitted by participating hospitals. Detailed process and outcome measure information was also provided. Although a national “harms avoided” number was not announced at the conclusion of the campaign, IHI is studying the progress of campaign hospitals in reducing mortality and harm in other ways and is also working with other national organizations to tap into existing databases to measure changes in specific types of harm (for example, medication error, infection, surgical complication).</p> <p>IHI also has begun to collect information on hospitals “getting to zero”—reducing adverse event rates to zero for extended periods of time— in several appropriate intervention areas. For example, Rhode Island hospitals that were active in the campaign reported a 74% decrease in CLABSIs from 2006 to 2008, and several hospitals reported going a year or more without a CLABSI in at least one of their ICUs.³</p>

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CLABSI Reduction Initiatives and Campaigns (*continued*)

Scope/Developed by/ Time Frame	Citation or Web Address (may include links to publications or tools)	Description
Initiative: International Nosocomial Infection Control Consortium (INICC) Strategy on CLABSI		
<p>Scope of the initiative: International and multi-institutional</p> <p>Developed by: INICC</p> <p>Time Frame: 2000–2008</p>	<p>Rosenthal VD, Maki DG, Rodrigues C, Alvarez-Moreno C, Leblebicioglu H, Sobreira-Oropeza M, Berba R, Madani N, Medeiros EA, Cuéllar LE, Mitrev Z, Dueñas L, Guanche-Garcell H, Mapp T, Kanj SS, Fernández-Hidalgo R; International Nosocomial Infection Control Consortium Investigators. Impact of International Nosocomial Infection Control Consortium (INICC) strategy on central line–associated bloodstream infection rates in the intensive care units of 15 developing countries. <i>Infect Control Hosp Epidemiol.</i> 2010 Dec;31(12):1264–1272. Epub 2010.</p> <p>Website: http://www.inicc.org/eng/consorcio.php</p> <p>Peer Review Journal: http://www.inicc.org/eng/revistas.php</p>	<p>Founded in 2002, the International Nosocomial Infection Control Consortium (INICC) is an international nonprofit, multicenter, collaborative HAI infection control program with a surveillance system based on the National Healthcare Safety Network (NHSN) of the US Centers for Disease Control and Prevention (CDC). There are now more than 300 intensive care units (ICUs) in approximately 40 countries on 4 continents that participate in the INICC (see http://www.inicc.org/eng/consorcio.php).</p> <p>At the conclusion of the INICC's first 8 years, the organization conducted a time-sequence analysis of CLABSI rates and associated deaths in 86 ICUs in 15 developing countries; each ICU included in the analysis had been a member of the consortium for a minimum of 6 months and had submitted monthly surveillance data through December 2008. Infection prevention and control practices (for example, hand hygiene, use of maximal sterile barriers at catheter insertion, chlorhexidine skin antisepsis) were assessed via periodic surveys, and trends in process surveillance for hand hygiene and vascular care, as reported monthly, were analyzed. The 3-month baseline period was compared to the 24-month intervention period.⁴</p> <ul style="list-style-type: none"> ■ Overall CLABSI rate in the 86 ICUs: <ul style="list-style-type: none"> ● Baseline: 14.5 per 1,000 central line–days ● 6 months into intervention period: 9.7 per 1,000 central line–days ● 12 months into intervention period: 10.0 per 1,000 central line–days ● 18 months into intervention period: 9.8 per 1,000 central line–days ■ All-cause deaths in patients with CLABSIs decreased by 58% by month 24. ■ Adherence to hand hygiene improved from 50% at baseline to 60% in the intervention period. ■ Use of maximal sterile barriers at catheter insertion improved from 46% at baseline to 85% by month 24. ■ Limiting the duration of central line use improved from 4.1 days to 3.5 days. <p>Overall, the researchers were able to demonstrate significant improvements in CLABSI rates and process indicators with a simple surveillance and performance feedback program. They realize, however, that 7 CLABSIs per 1,000 central line–days is still too high. They believe that a further reduction in CLABSI rates is achievable by continuing to strengthen the existing program.⁴</p>

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CLABSI Reduction Initiatives and Campaigns (*continued*)

Scope/Developed by/ Time Frame	Citation or Web Address (may include links to publications or tools)	Description
Initiative: The Michigan Keystone Intensive Care Unit Project		
<p>Scope of the initiative: State of Michigan (US)</p> <p>103 ICUs</p> <p>Developed by: Researchers at Johns Hopkins, the Michigan Health and Hospital Association, and Agency for Healthcare Research and Quality (AHRQ)</p> <p>Time frame: September 2003 to September 2005</p>	<p>Pronovost P, Needham D, Berenholtz S, Sinopoli D, Chu H, Cosgrove S, Sexton B, Hyzy R, Welsh R, Roth G, Bander J, Kepros J, Goeschel C. An intervention to decrease catheter-related bloodstream infections in the ICU. <i>N Engl J Med</i>. 2006 Dec 28;355(26):2725–2732. Erratum in: <i>N Engl J Med</i>. 2007 Jun 21;356(25):2660.</p> <p>Pronovost PJ, Berenholtz SM, Goeschel CA, Needham DM, Sexton JB, Thompson DA, Lubomski LH, Martsteller JA, Makary MA, Hunt E. Creating high reliability in health care organizations. <i>Health Serv Res</i>. 2006 Aug;41(4 Pt 2):1599–1617.</p> <p>Pronovost PJ, Berenholtz SM, Goeschel C, Thom I, Watson SR, Holzmueller CG, Lyon JS, Lubomski LH, Thompson DA, Needham D, Hyzy R, Welsh R, Roth G, Bander J, Morlock L, Sexton JB. Improving patient safety in intensive care units in Michigan. <i>J Crit Care</i>. 2008 Jun;23(2):207–221.</p>	<p>From September 2003 to September 2005 the Johns Hopkins team partnered with the Michigan Health and Hospital Association in a large-scale initiative involving 103 ICUs in Michigan, funded by the Agency for Healthcare Research and Quality (AHRQ).⁵ The initiative included employing the Comprehensive Unit-Based Safety Program (CUSP) techniques, along with the following strategy to translate evidence into practice and measurement and feedback of infection rates:</p> <ul style="list-style-type: none"> ■ At each hospital, teams were formed that included, at a minimum, a senior executive, the ICU director and nurse manager, an ICU nurse and physician, and a department administrator; each team committed to implement the evidence-based interventions, collect and submit required data, participate in monthly conference calls, and attend biannual conferences.⁶ ■ Before the interventions, each participating ICU measured the culture of safety using the Safety Attitudes Questionnaire; this survey was repeated annually to reassess the culture.⁶ This was an important step, as understanding the culture within ICUs was believed to be necessary before teams could redesign care.⁷ ■ CUSP is a process that targets senior leaders, ICU directors, and health care personnel to improve patient safety through enhanced communication and teamwork. CUSP provides just enough structure to allow health care organizations to develop a broad improvement strategy that is flexible, permitting staff to adapt the strategy to meet their own needs. The teams also implement tools, such as conducting morning briefings and setting daily goals. <p>The goal of CUSP is to move toward focusing on a few hazards and redesigning the system in which work is performed to mitigate the hazards rather than just reporting and superficially reviewing multiple hazards.⁶</p> <ul style="list-style-type: none"> ■ Five interventions that were supported by strong evidence were chosen, with the intent to convert them into behaviors.⁶ This intervention “bundle” consisted of the following: <ol style="list-style-type: none"> 1. Hand hygiene 2. Use of full barrier precautions 3. Chlorhexidine skin preparation 4. Avoiding insertion of lines into the femoral vein 5. Prompt removal of CVCs ■ Monthly throughout the study, data on the number of CLABSIs and central line–days were collected by the hospital infection preventionists, using the US CDC’s National Nosocomial Infections Surveillance (NNIS) system methods and definitions (now the National Healthcare Safety Network). To help ensure standardization in data collection, staff received education on the definitions used for the outcome measures and the data collection process;

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CLABSI Reduction Initiatives and Campaigns (continued)

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Initiative: The Michigan Keystone Intensive Care Unit Project (continued)		
	<p>Pronovost PJ, Goeschel CA, Colantuoni E, Watson S, Lubomski LH, Berenholtz SM, Thompson DA, Sinopoli DJ, Cosgrove S, Sexton JB, Marsteller JA, Hyzy RC, Welsh R, Posa P, Schumacher K, Needham D. Sustaining reductions in catheter related blood-stream infections in Michigan intensive care units: Observational study. <i>BMJ</i>. 2010 Feb 4;340:c309. doi: 10.1136/bmj.c309.</p> <p>Tool: Keystone_Goeschel Watsonslides.ppt</p>	<p>standardized data collection forms were used; and quarterly infection rates were calculated, expressed as the number of infections per 1,000 central line–days.⁶</p> <ul style="list-style-type: none"> ■ To ensure that patients received the interventions, and to facilitate the execution of the interventions, a checklist was created. Nurses assisting with CVC placement were empowered to ensure physician adherence to all five interventions in the bundle. In addition, a CVC cart was created to bring all needed supplies to one location. The teams also evaluated each CLABSI that did occur, to determine whether it could have been prevented.⁶ <p>This initiative resulted in a dramatic decrease in CLABSI rates across the 103 participating ICUs. The mean and median CLABSI rates decreased as follows:</p> <ul style="list-style-type: none"> ■ At baseline: mean rate 7.7 (median 2.7) ■ At 16–18 months: mean rate 1.3 (median zero) <p>Taking the study a step further, the researchers also conducted a study to determine the extent to which the ICUs sustained the CLABSI reductions. They found that the reduced rates of infection in the initial 18-month implementation period were sustained for an additional 18 months; at 34–36 months the mean CLABSI rate was 1.1, and the median remained zero.⁸</p>
Initiative: National Association of Children’s and Related Institutions (NACHRI) PICU CA-BSI Collaborative		
<p>Scope of the initiative: Multi-institutional across the United States</p> <p>29 PICUs across the United States</p> <p>Developed by: NACHRI</p> <p>Time frame: October 2006–September 2007</p>	<p>Miller MR, Griswold M, Harris JM 2nd, Yenokyan G, Huskins WC, Moss M, Rice TB, Ridling D, Campbell D, Margolis P, Muething S, Brill R. Decreasing PICU catheter-associated bloodstream infections: NACHRI’s quality transformation efforts. <i>Pediatrics</i>. 2010 Feb;125(2): 206–213.</p>	<p>Twenty-seven NACHRI member hospitals worked collaboratively to reduce catheter-associated bloodstream infection (CA-BSI) rates among their 29 pediatric intensive care units (PICUs). Baseline data were obtained retrospectively for the period 2004–2006. PICU teams included a senior PICU leader/physician champion, quality improvement leaders, infectious disease physicians, PICU nursing leaders, and/or infection preventionists. From October 2006 through September 2007, the teams implemented insertion and maintenance bundles. Mean CA-BSI rates were reduced by 43% across the 29 PICUs (5.4 vs. 3.1 CA-BSIs per 1,000 central line–days) over the course of the study. By the end of the first year, sustained insertion bundle adherence was 84% and maintenance bundle compliance was 82%.</p> <p>This is believed to be the first study regarding the impact of insertion-related practices versus maintenance-related practices on bloodstream infection rates in either adult or pediatric populations.</p>

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CLABSI Reduction Initiatives and Campaigns (*continued*)

Scope/Developed by/ Time Frame	Citation or Web Address (may include links to publications or tools)	Description
Initiative: New York State NICU CLABSI Study		
<p>Scope of the initiative: Regional multi-institutional</p> <p>All 18 regional referral NICUs in New York State</p> <p>Developed by: New York State Regional Perinatal Care Centers</p> <p>Time frame: 2007 (baseline)</p> <p>January–December 2009 (postintervention)</p>	<p>Schulman J, Stricof R, Stevens TP, Horgan M, Gase K, Holzman IR, Koppel RI, Nafday S, Gibbs K, Angert R, Simmonds A, Furdon SA, Saiman L; New York State Regional Perinatal Care Centers. Statewide NICU central-line-associated bloodstream infection rates decline after bundles and checklists. <i>Pediatrics</i>. 2011 Mar;127(3):436–444.</p>	<p>By late 2008 each of the 18 regional NICUs had adopted the use of checklists to monitor adherence to the newly implemented central line insertion and maintenance bundles, in an effort to standardize central line care. The teams used repetitive, structured social interactions such as conference calls, e-mails, and workshops to share stories about checklist and bundle successes and barriers, and to receive updated information on performance data. Each NICU reported CLABSI and central line utilization data and insertion and maintenance checklist use. CLABSI rates decreased 40% across all NICUs, from 3.5 to 2.1 CLABSIs per 1,000 central line–days, although no NICU achieved an overall CLABSI rate of zero. Maintenance bundle use varied between 10% and 100% across the NICUs; study design did not enable the researchers to evaluate adherence to the insertion bundle.</p>
Initiative: The On the CUSP: Stop BSI Project		
<p>Scope of the initiative: At inception - National (US)</p> <p>As of 2012, the initiative had been implemented throughout Europe and England and was being pilot tested in several Peruvian hospitals.</p> <p>Developed by: The Department of Health and Human Services. (Part of DHHS's Action Plan to Prevent Healthcare-Associated Infections.)</p> <p>Time frame: 2009 to present</p>	<p>Sawyer M, Weeks K, Goeschel CA, Thompson DA, Berenholtz SM, Marsteller JA, Lubomski LH, Cosgrove SE, Winters BD, Murphy DJ, Bauer LC, Duval-Arnould J, Pham JC, Colantuoni E, Pronovost PJ. Using evidence, rigorous measurement, and collaboration to eliminate central catheter-associated bloodstream infections. <i>Crit Care Med</i>. 2010 Aug;38(8 Suppl):S292–298.</p> <p>Agency for Healthcare Research and Quality (AHRQ). Eliminating CLABSI: A National Patient Safety Imperative: Second Progress Report on the National On the CUSP: Stop BSI Project.</p>	<p>This project is an outgrowth of the Michigan Keystone project and was also funded by AHRQ.⁹ As part of HHS's Action Plan to Prevent Healthcare-Associated Infections, AHRQ expanded the program as a national effort to prevent CLABSIs. This national effort includes partnership with the Health Research and Educational Trust (a nonprofit research and educational affiliate of the American Hospital Association); Johns Hopkins Quality and Safety Research Group; and the Michigan Health and Hospital Association's Keystone Center for Patient Safety and Quality. The project is the first federally funded national effort in the United States with the quantifiable and measurable goal of reducing CLABSI rates to less than 1 per 1,000 central line–days across all participating US hospitals.¹⁰</p> <p>Each participating state has a lead organization (usually a state hospital association) that works with hospitals across the state to implement the cultural and clinical changes to reduce CLABSIs. The project, initially implemented in 10 US states in 2009, had grown by mid-2011 to include 44 states, as well as the District of Columbia and Puerto Rico, with more than 1,000 hospitals and 1,775 hospital teams participating.¹⁰</p> <p>Focusing on the 22 states that began participating in the On the CUSP: Stop BSI project in 2009, AHRQ published a progress report to highlight the results of the first 2 years of the project:</p> <ul style="list-style-type: none"> ■ After 10–12 months of participation, CLABSI rates decreased in the participating ICUs by 33%, from the baseline rate of 1.87

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CLABSI Reduction Initiatives and Campaigns (*continued*)

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Initiative: The On the CUSP: Stop BSI Project (continued)		
	<p>Sep 2011. Accessed Mar 18, 2012. http://www.ahrq.gov/qual/clabsiupdate/.</p> <p>US Centers for Disease Control and Prevention. Vital signs: Central line–associated blood stream infections—United States, 2001, 2008, and 2009. <i>MMWR Morb Mortal Wkly Rep.</i> 2011 Mar 4;60(8):243–248.</p> <p>Website: http://www.onthecuspstophai.org/on-the-cuspstop-bsi/toolkits-and-resources/#clabsi</p> <p>Tools: Fact Sheet: http://www.ahrq.gov/qual/haicusp.htm Toolkit: http://www.psnet.ahrq.gov/resource.aspx?resourceID=25037. Video: http://www.ahrq.gov/about/annualconf12/video/clabsicusp/</p>	<p>infections per 1,000 central line–days to 1.25 infections per 1,000 central line–days.</p> <ul style="list-style-type: none"> ■ Even at baseline, many ICUs had CLABSI rates below the national mean and were still able to reduce their rates. ■ The percentage of units with no quarterly CLABSIs increased from 27.3 at baseline to 69.5. ■ The project demonstrates that further improvement is achievable, even among hospitals that already have low CLABSI rates.¹⁰ <p>The US CDC recently reported a decrease in ICU CLABSI rates, from 3.64 per 1,000 central line–days in 2001 to 1.65 in 2009.¹¹ The initial progress in the On the CUSP: Stop BSI project is well aligned with the 2011 CDC findings. The national team continues to closely monitor the progress of the project, to see which units are realizing declining CLABSI rates and which are not and attempting to better understand what changes need to be made to maximize the impact for each participating hospital.¹⁰</p> <p>The On the CUSP: Stop BSI project is now being implemented throughout Europe and England and is being pilot tested in several Peruvian hospitals.⁹</p>

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CLABSI Reduction Initiatives and Campaigns (*continued*)

Scope/Developed by/ Time Frame	Citation or Web Address (may include links to publications or tools)	Description
Initiative: Pennsylvania ICU CLABSI Intervention		
<p>Scope of the initiative: Regional multi-institutional</p> <p>69 ICUs in 32 southwestern Pennsylvania hospitals</p> <p>Developed by: Pittsburgh Regional Healthcare Initiative (PRHI)</p> <p>Time frame: April 2001–March 2005</p>	<p>US Centers for Disease Control and Prevention. Reduction in central line–associated bloodstream infections among patients in intensive care units—Pennsylvania, April 2001–March 2005. <i>MMWR Morb Mortal Weekly Rep.</i> 2005 Oct;54(40):1013–1016.</p>	<p>In 2001 PRHI invited the US CDC to provide technical assistance for an intervention to prevent CLABSIs in ICU patients in southwestern Pennsylvania. This voluntary intervention was designed collaboratively, led by infection preventionists and medical staff from the participating hospitals. The components of the intervention were the following:</p> <ul style="list-style-type: none"> ■ Use of an evidence-based insertion bundle ■ An educational module on CLABSIs and their prevention ■ Use of a checklist to record adherence to insertion practices ■ Use of a standardized list of contents for catheter insertion supplies ■ Measurement and feedback of CLABSI rates <p>CLABSI rates decreased by 68% over the four-year study period, from 4.31 to 1.36 infections per 1,000 central line–days.</p>
Initiative: Thammasat University Hospital—Pratumthani, Thailand		
<p>Scope of the initiative: Single organization</p> <p>All units and all patients over 15 years of age</p> <p>Developed by: Researchers at Thammasat University Hospital, Pratumthani, Thailand, and Washington University School of Medicine, St. Louis, Missouri</p> <p>Time frame: July 2005–June 2006 (baseline)</p> <p>July 2006–June 2007 (intervention period, bundle implementation—period 2)</p> <p>July 2007–June 2008 (bundle with intensified hand hygiene intervention—period 3)</p>	<p>Apisarnthanarak A, Thongphubeth K, Yuekyen C, Warren DK, Fraser VJ. Effectiveness of a catheter-associated bloodstream infection bundle in a Thai tertiary care center: A 3-year study. <i>Am J Infect Control.</i> 2010 Aug;38(6):449–455.</p>	<p>Thammasat University Hospital is a 500-bed tertiary care university hospital in central Thailand. The hospitalwide intervention included education on hand hygiene, the use of maximum sterile barriers during CVC insertion, skin preparation with chlorhexidine, avoidance of femoral insertion sites, and daily review of the need for continued CVC use. The third period included an intensified hand hygiene effort that provided continuous education on hand hygiene and feedback to staff of hand hygiene adherence rates and adherence to the use of maximum sterile barriers. A significant, progressive decrease in the CVC–related bloodstream infection rate was noted over the three years:</p> <ul style="list-style-type: none"> ■ Baseline rate: 14 infections per 1,000 catheter-days ■ Period 2 rate: 6.4 infections per 1,000 catheter-days (54.3% reduction over the baseline period) ■ Period 3: 1.4 infections per 1,000 catheter-days (an additional 78% reduction) <p>This intervention demonstrates how an inexpensive and feasible intervention can be highly successful in reducing CVC–related bloodstream infections in a resource-limited setting.</p>

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CLABSI Reduction Initiatives and Campaigns (*continued*)

Scope/Developed by/ Time Frame	Citation or Web Address (may include links to publications or tools)	Description
Initiative: University Hospital of Zurich Impact Study—Zurich, Switzerland		
<p>Scope of the initiative: Single organization</p> <p>5 adult ICUs</p> <p>Developed by: Researchers from the University of Geneva Hospitals, Geneva, Switzerland; General Hospital, Langenthal, Switzerland; and University Hospital, Zurich, Switzerland</p> <p>Time frame: September–December 2003 (baseline period)</p> <p>March–July 2004 (intervention period)</p>	<p>Zingg W, Imhof A, Maggiorini M, Stocker R, Keller E, Ruef C. Impact of a prevention strategy targeting hand hygiene and catheter care on the incidence of catheter-related bloodstream infections. <i>Crit Care Med.</i> 2009 Jul;37(7):2167–2173.</p>	<p>The University of Zurich Hospital is a 960-bed tertiary care referral center. The researchers studied the impact of a multimodal intervention that included educational programs stressing hand hygiene, proper catheter care, and aseptic intravenous drug preparation on CVC–related bloodstream infections. At baseline they identified differences in health care personnel performance of catheter maintenance care; education focused, therefore, on current evidence-based practices. Additionally, while the overall adherence to proper hand hygiene did not improve significantly between the two periods (59.1% at baseline versus 65% in the intervention period), the rate of hand hygiene that was <i>correctly performed</i> did improve significantly (22.5% versus 42.6%). The overall infection rate at baseline of 3.9 per 1,000 catheter-days improved significantly to 1.0 per 1,000 catheter-days in the intervention period. This study is important in that it demonstrates the impact of proper postinsertion catheter care on the rates of CVC–related bloodstream infections.</p>
Initiative: University of Geneva Hospital, Intervention—Geneva, Switzerland		
<p>Scope of the initiative: Single organization</p> <p>18-bed medical ICU in a tertiary care center</p> <p>Developed by: University of Geneva Hospital</p> <p>Time frame: October 1995–February 1997 (baseline period)</p> <p>March 1997–November 1997 (intervention period)</p>	<p>Eggimann P, Harbarth S, Constantin MN, Touveneau S, Chevrolet JC, Pittet D. Impact of a prevention strategy targeted at vascular-access care on incidence of infections acquired in intensive care. <i>Lancet.</i> 2000 May 27;355(9218):1864–1868.</p>	<p>The University of Geneva Hospital is a 1,500-bed primary and tertiary care center. In 1997 the hospital implemented a multimodal, multidisciplinary prevention strategy to decrease the incidence of infections, including those associated with vascular-access catheters (including CLABSIs) in its medical ICU. The intervention included the following:</p> <ul style="list-style-type: none"> ■ An educational campaign for ICU staff on infection prevention for the insertion and maintenance of central lines ■ An emphasis on hand hygiene before and after insertion ■ Maximum barrier precautions (sterile gloves and gown, cap, mask, and large drape) ■ Prompt removal of devices when no longer needed <p>CLABSI rates before the intervention of 6.6 per 1,000 catheter-days were reduced to 2.3 per 1,000 catheter-days after the intervention.</p>

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CLABSI Reduction Initiatives and Campaigns (*continued*)

Scope/Developed by/ Time Frame	Citation or Web Address (may include links to publications or tools)	Description
Initiative: US Department of Health and Human Services (HHS) – Action Plan to Prevent Healthcare-Associated Infections & Partnership for Patients Initiative		
<p>Scope of the initiatives: National (US)</p> <p>Developed by: The US Department of Health and Human Services</p> <p>Time frame: 2008–ongoing, with details included in the description section for both initiatives</p>	<p>HHS Action Plan to Prevent Healthcare-Associated Infections US Department of Health and Human Services. National Action Plan to Prevent Healthcare-Associated Infections: Appendix G. Jun 2009. Accessed Mar 18, 2012. http://www.hhs.gov/ash/initiatives/hai/appendices.html#appendix_g.</p> <p>Partnership for Patients Initiative US Department of Health and Human Services. Partnership for Patients: Better Care, Lower Costs. Apr 12, 2011. (Updated Dec 14, 2011.) Accessed Mar 18, 2012. http://www.healthcare.gov/compare/partnership-for-patients/index.html.</p> <p>Website: http://www.healthcare.gov/compare/partnership-for-patients/</p>	<p>HHS Action Plan to Prevent Healthcare-Associated Infections The <i>HHS Action Plan to Prevent Healthcare-Associated Infections</i> contains nine metrics with corresponding five-year goals to focus efforts in reducing health care–associated infections, including two CLABSI– related goals¹² (details are available at http://www.hhs.gov/ash/initiatives/hai/appendices.html#appendix_g; the source of the data is the NHSN’s Device-Associated Module, which receives hospital-specific data on CLABSIs)¹³:</p> <ol style="list-style-type: none"> 1. <i>A five-year goal to reduce CLABSIs by at least 50% in ICU and ward-located patients.</i> A progress assessment in September 2010 estimated that, in 2009, at the current rate of reduction, the 2013 goal will be surpassed, for a 63% reduction in infections.¹⁴ An update in the fall of 2011 demonstrated further reductions in CLABSIs over the 2009 assessment.¹⁵ 2. <i>A five-year goal of 100% adherence to central line insertion practices.</i> In the baseline year (2009) there was 92% adherence to the recommended practices. Progress on this measure in September 2011 showed continued improvement in adherence to insertion practices. <p>Partnership for Patients Initiative In April 2011 HHS announced a new national patient safety initiative to improve care and lower costs for Americans. The Partnership for Patients initiative brings together leaders of major hospitals, employers, consumers, physicians, nurses, and patient advocates, along with state and federal governments, in a shared effort to make hospital care safer, more reliable, and less costly.¹⁶ Participation in the initiative is voluntary. Following are the two overarching goals of this new partnership:</p> <ol style="list-style-type: none"> 1. <i>Keep patients from getting injured or sicker.</i> The goal is that, by the end of 2013, preventable hospital-acquired conditions would decrease by 40% compared to 2010. Achieving this goal would mean approximately 1.8 million fewer injuries to patients, with more than 60,000 lives saved over three years. 2. <i>Help patients heal without complication.</i> By the end of 2013, the expectation is that preventable complications during a transition from one care setting to another would be decreased so that all hospital readmissions would be reduced by 20% compared to 2010. Achieving this goal would mean that more than 1.6 million patients would recover from illness without suffering a preventable complication requiring rehospitalization within 30 days of discharge. <p>The Partnership for Patients has nine areas of focus, including CLABSI prevention. The CLABSI–specific goal reflects the goal of the HHS action plan: reduce CLABSIs in hospitals by 50% by 2013. Hospitals are encouraged to join the initiative and are asked to pledge to work to attain the goals of the initiative and commit to building on work already under way to achieve safe, high-quality care by utilizing tools and processes that improve safety for patients.</p>

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CLABSI Reduction Initiatives and Campaigns (*continued*)

Scope/Developed by/ Time Frame	Citation or Web Address (may include links to publications or tools)	Description
Initiative: VA Inpatient Evaluation Center (IPEC)–Led CLABSI Initiative		
<p>Scope of the initiative: National (US)</p> <p>All 174 VA ICUs participated</p> <p>Developed by: Department of Veterans Affairs (VA, formerly the Veterans Administration, which includes the Veterans Health Administration [VHA])</p> <p>Time frame: 2006–2009</p>	<p>Render ML, Hasselbeck R, Freyberg RW, Hofer TP, Sales AE, Almenoff PL; VA ICU Clinical Advisory Group. Reduction of central line infections in Veterans Administration intensive care units: An observational cohort using a central infrastructure to support learning and improvement. <i>BMJ Qual Saf.</i> 2011 Aug;20(8):725–32. Epub 2011 Apr 2.</p>	<p>The VHA of the VA is the largest US health care system, with 174 ICUs in 123 hospitals across the country. This was an observational quality improvement project in which adherence to the IHI’s CLABSI bundle elements was monitored, as part of the VA’s participation in the Saving 100,000 Lives Campaign in 2006. CLABSI rates were also tracked monthly across all ICUs in the VA. This national project began with a two-hour Web-based conference call for the participating ICU teams, led by senior VA leadership, during which the importance of the initiative was stressed and experts reviewed the evidence for prevention of CLABSIs. The key components of the project were:</p> <ul style="list-style-type: none"> ■ Employing a physician champion ■ Use of a central line insertion cart ■ Use of an insertion checklist ■ Use of a daily ICU goal sheet, to remind physicians to evaluate the need for continuation of the central line ■ Feedback to frontline staff on CLABSI rates and bundle adherence <p>Adherence to the bundle practice improved from 85% in 2006 to 98% in 2009; CLABSI rates improved from 3.85 per 1,000 central line–days in 2006 to 1.8 per 1,000 central line–days in 2009.</p>
Initiative: World Health Organization (WHO) Bacteriemia Zero Project		
<p>Scope of the initiative: National (Spain)</p> <p>192 ICUs</p> <p>Developed by: WHO Patient Safety and the Spanish Ministry of Health, Social Policy and Equity (SMoH) researchers in collaboration with the Spanish Society of Intensive and Critical Care Medicine and Coronary Units and the Johns Hopkins Quality and Safety Research Group</p> <p>Time frame: April 2008–June 2010</p>	<p>World Health Organization. Bacteriemia Zero: Preventing Bloodstream Infections from Central Line Venous Catheters in Spanish ICUs. Accessed Mar 18, 2012. http://www.who.int/patientsafety/implementation/bsi/bacteriemia_zero/en/index.html#.</p> <p>Website: http://www.who.int/patientsafety/implementation/bsi/bacteriemia_zero/en/</p>	<p>The World Health Organization (WHO) Bacteriemia Zero project’s purpose was to assess the applicability and effectiveness of the Michigan Keystone ICU project interventions in reducing CLABSI rates throughout Spanish ICUs. This multifactorial nationwide intervention project was implemented between April 2008 and June 2010, with data collected at regular intervals to evaluate the progress of the project. A total of 192 ICUs (68% of all Spanish ICUs) participated in the project.</p> <p>The key components of the project were engagement, education, execution and evaluation, which included clinical and safety related activities at the ICU level. Materials were modified according to organizational and cultural characteristics, and data were regularly collected for evaluation.</p> <p>The intervention was effective in reducing the incidence of CLABSI by approximately 50% in hospitals of all types with different structural, social, economic, and cultural characteristics.¹⁷</p> <p>A package of documents is now being defined by WHO for adaptation and use globally with the aim of reducing catheter-related bloodstream infections internationally.</p>

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CLABSI Reduction Initiatives and Campaigns (continued)

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