

Chasing Zero Events of Harm

An urgent call to expand safety culture work and consumer engagement

by Gretchen B. LeFever, PhD

Introduction

Proper hand hygiene is universally recognized as the single most powerful strategy for preventing the spread of healthcare-associated infections. Because simple human behaviors like washing hands before entering and after exiting a patient room can prevent the spread of these dangerous infections, hand hygiene has been targeted by virtually all hospital-wide patient safety initiatives. Unfortunately, achieving excellent hand hygiene performance has remained beyond the reach of even the most successful patient safety initiatives.¹ After a decade of intense focus on improving patient safety, healthcare providers still wash their hands on average less than 50 percent of the times required with rates varying from 30 percent to 70 percent among leading hospitals and healthcare systems.²

The consequences of healthcare workers' failure to execute mundane hand washing tasks are enormous. In the United States, approximately two million cases of infections develop each year and the number of Americans who die as a result is "more than double the number of people killed in car crashes, five times the number killed in homicides, 20 times the number our armed forces killed in Iraq and Afghanistan."³ Said another way, one in every 136 patients admitted to hospitals this year will be affected by a healthcare-associated infection.⁴ The number of deaths caused by medical errors was once considered to be equivalent to a jumbo jetliner crashing every day and killing all passengers on board. Now, the number of people affected by healthcare-associated infections alone is equivalent to the daily crashing of a jumbo jetliner resulting in an estimated \$28 billion to \$45 billion in direct healthcare costs annually.⁵

In theory, preventing healthcare-associated infections is easy. In reality, it is difficult to get people—even excellent physicians and nurses—to wash their hands appropriately. The recent Medicare decision to reduce payment for serious hospital-acquired conditions, including preventable infections, has further galvanized national efforts to improve patient safety.⁶ Leaders of national organizations driving the patient safety movement¹ recently issued a consensus statement that preventing all healthcare-associated infections (i.e., "chasing zero") is the only acceptable goal for hospital leaders.⁷ In 2009, the Joint Commission's newly formed Center for Transforming Healthcare focused its initial efforts on reducing the spread of healthcare-associated infections through its Hand Hygiene Project (HHP).

This article provides an overview of the HHP and in the process it also:

1. Describes core concepts that guide safety culture change initiatives;
2. Demonstrates the value of increasing consumer engagement in patient safety initiatives through the formation of community-based coalitions; and
3. Encourages healthcare professionals to implement and/or expand patient safety initiatives in their organizations and communities.

Conducting a Needs Assessment and Developing Targeted Solutions

The HHP represents collaborative endeavor between the Joint Commission and eight hospitals and healthcare systems. As Table 1 indicates, the eight HHP hospitals are diverse in terms of their geographic location and defining characteristics. However, they are all notable for their voluntary participation in the annual Leapfrog Group survey.⁸ This survey represents an evolving effort to generate nationally comparative data and transparency around quality and safety practices and thereby allow market forces to serve as the impetus for improvements in healthcare delivery.⁹ (See Table 1 on page 30.)

The HHP was launched by completing a thorough hospital-based hand washing needs assessment. This assessment identified common barriers to appropriate hand washing practices and selected four significant barriers for which the project team developed high impact solutions:

- ▶ Hand hygiene data were inaccurate or collected infrequently;
- ▶ The safety culture did not require participation at all levels of the organization;
- ▶ The sinks and dispensers were not effectively placed;
- ▶ Hands full—healthcare workers did not have a place to set items while washing hands.

The Web site for the Joint Commission's new center provides additional information about this process: <http://www.centerfortransforminghealthcare.org>. The next sections discuss a framework for systematically embedding such solutions in an organization's safety culture.

Adopting Core Principles of High Reliability Organizations (HROs)

The healthcare industry aspires to be like nuclear power facilities, chemical processing plants, and commercial aviation companies that are considered to be high reliability organizations, or HROs.¹ HROs are organizations that experience very few disasters despite the fact that they routinely engage in high risk, high volume operations.¹⁰ HROs are notable for establishing safety as a core value—meaning that safety cannot be sacrificed for other priorities. In fact, some organizations explicitly choose not to refer to safety as a top priority because priorities can be adjusted up or down according to environmental circumstances whereas a core value represents safety as a permanent keystone around which all other activities must be built.¹¹ In addition to a fundamental commitment to safety, HROs are recognized for achieving performance excellence by executing decisions according to five core principles.

By the end of 2004, many healthcare leaders around the country reported being familiar with HRO concepts, although few were using it to guide interventions.¹² In an effort to make the HRO core principles more accessible and memorable to healthcare workers, the author translated the erudite-sounding

HRO core principles (e.g., reluctance to simplify) into more user-friendly terminology (e.g., think outside the box). These terms have been well-received by frontline staff, managers, and leaders at numerous hospitals, nursing homes, and other healthcare facilities. Because these user-friendly translations may be useful for promoting safety culture work in other organizations, they are listed in Table 2 along with the original HRO language, a description of each principle, and examples of how the HHP was guided by these principles. (See Table 2 on page 32.)

Using Sound Data to Accelerate Progress

Once an organization’s senior leaders have committed to safety as a core value and established guiding principles to make decisions that favor safety, they must ensure the use of valid safety metrics to monitor performance at an individual and organizational level.¹³ Organizational psychologists often remind managers and leaders to “expect that which you measure” and are noted for using rigorous methods to measure and monitor employee performance. To be effective, a system for measuring and monitoring performance must involve data that can be described in terms of *objective* goals or SMART (Specific, Measurable, Attainable, Realistic, and Trackable) goals.¹⁴

Table 1. Characteristics of Hand Hygiene Project Hospitals and Their Surrounding Communities

			Hospital Characteristics			Community Characteristics		
State	City	Hospital	Number of Beds	Teaching Facility	Faith-Based	Population	Median Household Income	Patient Safety Coalition
CA	Los Angeles	Ceders-Sinai Health System	950	Yes	No	3,849,378	\$36,687	No
CO	Wheat Ridge	Exempla Lutheran Medical Center	400	No	Yes	30,979	\$38,983	No
MD	Baltimore	The Johns Hopkins Hospital	1,041	Yes	No	631,366	\$30,078	No
MI	Novi	Trinity Health’s St. Joseph Mercy Hospital	537	Yes	Yes	54,105	\$71,918	No
NJ	Marlton	Virtua Memorial	270	No	No	46,711	\$67,010	No
NC	Winston-Salem	Wake Forest University Baptist Medical Center	872	Yes	No*	196,990	\$37,006	Yes
TX	Houston	Memorial Hermann Health Care System	252	No	No	2,144,491	\$36,616	No
WI	Milwaukee	Froedtert Hospital	486	Yes	No	573,358	\$32,216	Yes

**The intervention hospital is a faith-based facility; however, it is participating in the project through its umbrella organization, which is not a faith-based organization. Note: The population and median household income figures refer to the most recent data available for comparing these communities, which includes 2006 population and 1999 median household income estimates. See www.quickfacts.census.gov.*

Table 2. High Reliability Organization (HRO) Principles Applied to the Hand Hygiene Project (HHP)

User-Friendly HRO Terms	HRO Core Principles, Descriptions and Applications in HHP
<p>1 Don't Rest on our Laurels</p>	<p><i>Preoccupation with failure:</i> HROs consider small lapses in processes to be sign of problems to come and focus on system failures over person failures.</p> <p>Application: Hospitals voluntarily participate in the Leapfrog Group survey. Despite national recognition, the participating hospitals scrutinized their operations to discover deficiencies in hand hygiene compliance to develop targeted solutions for identified barriers. They will continue to measure gaps and monitor progress.</p>
<p>2 Think Outside the Box</p>	<p><i>Reluctance to simplify:</i> HROs function in complex and unpredictable environments and realize that small details are important for understanding and preventing system failures. Therefore, every attempt is made to seek diverse input and avoid making assumptions.</p> <p>Application: Intra-agency and inter-agency teams were developed to study and solve the problem of poor hand hygiene. The HHP framework recognizes that merely providing more education is not sufficient to change behavior.</p>
<p>3 Watch Where the Rubber Meets the Road</p>	<p><i>Sensitivity to operations:</i> HROs realize that there may be a difference between what policies or procedures dictate and what people do, so they pay close attention to how work actually takes place—considering quantitative and qualitative information.</p> <p>Application: Hospital leaders are monitoring how changes in policy actually impact behavior-based outcomes. Everyone is encouraged to pay close attention to hand hygiene throughout the hospital—reinforcing good behavior and coaching around undesirable behavior. Hand hygiene data are collected and discussed frequently.</p>
<p>4 Find and Call the Expert</p>	<p><i>Deference to expertise:</i> HROs do not always employ hierarchical decision-making. Sometimes decisions are made by the people most affected by or most knowledgeable about a critical problem rather than the by an oversight body or management team.</p> <p>Application: The Joint Commission called on experts from around the country to find and fix the causes of improper hand washing among healthcare workers and to collaborative develop solutions.</p>
<p>5 Bounce Back</p>	<p><i>Commitment to resilience:</i> HROs recognize that every situation cannot be anticipated and that it is critical to learn from mistakes, especially by allowing those affected by error to help develop the solutions.</p> <p>Application: The Joint Commission recognized hand washing was a national problem and invited healthcare system with poor compliance rates to determine targeted solutions for the causes for their identified problems/barriers.</p>

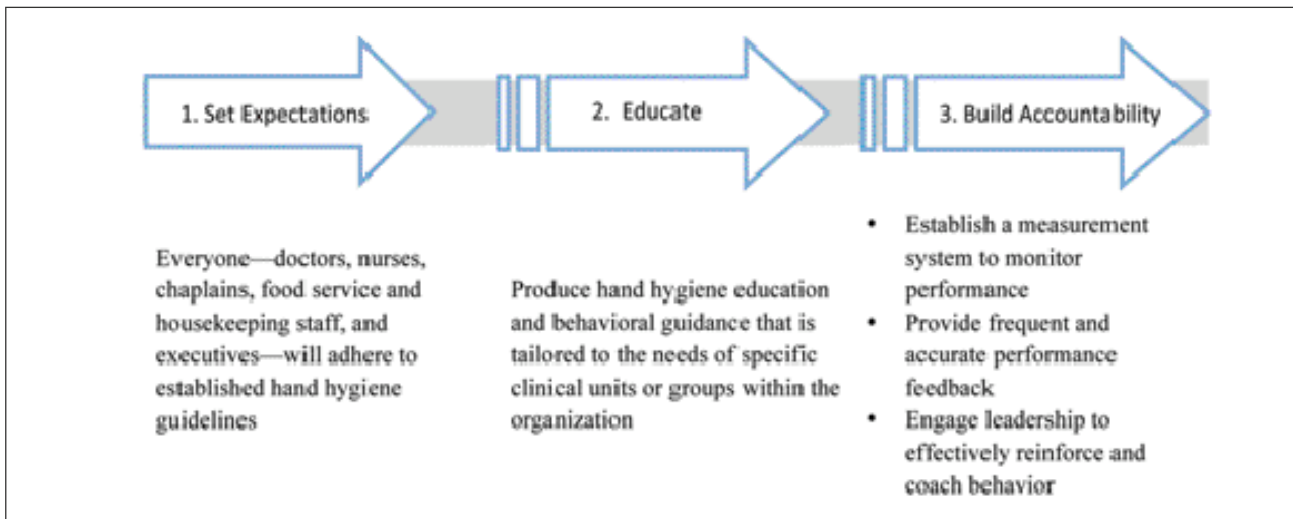
It has become increasingly apparent that in a rush to improve patient safety, many hospitals have given insufficient attention to establishing SMART safety goals before designing hand hygiene and other safety interventions. Too often, the staff members have received inadequate training on how to effectively establish, observe, and record sound (i.e., SMART) behavioral observations that can be used to validly track progress toward the desired safety goals. As a result, it is not uncommon for safety consultants to encounter hospitals that, despite their best intentions, report hand hygiene compliance rates as high as 90 percent to 100 percent when doctors and nurses actually wash their hands far less often. Improved methods for capturing and producing reliable hand hygiene compliance data are clearly needed.¹⁵ The HHP is tackling this problem by requiring participating hospitals to use a robust process improvement method.

A variety of acceptable process improvement methods exist and method selection can vary based on the nature of a project or personal or organizational preferences. Acceptable methods range from relatively new topic-specific approaches like the Comprehensive Unit-Based Safety Program (CUSP)¹⁶ to better-known programs that are used across a variety of industries (e.g., Lean or Six Sigma). It also is reasonable to use a more generic public health data-based decision making process that includes the steps indicated in the cycle diagram. It is generally less important which method is selected and more important that the method is systematically implemented using sufficiently rigorous and sound data collection methods.



To meet the HHP standard of collecting reliable and valid hand hygiene observations, Johns Hopkins Hospital, for example, is requiring all observers to complete a standardized training course. Once trained, they conduct their observations covertly (i.e., units are unaware of when they are being observed) using a sampling method that ensures that the various clinical units are surveyed regularly. Hand hygiene compliance data are e-mailed weekly to

Figure 1. Three Steps to Performance Excellence Applied to the Hand Hygiene Project



leaders and published monthly on the hospital’s intranet.¹⁷ Frequent use of valid, real-time feedback will allow on-going attention to high-impact causes behind hand washing failures.

Further understanding of the HHP methods, including exposure to the online observer training, can be obtained from visiting the following link: http://www.hopkinsmedicine.org/innovation_quality_patient_care/services/consulting/wipes_infection_prevention_program/program_tools.html. As discussed in the following sections, conducting a needs assessment and determining targeted solutions represent only the initial steps in a robust process improvement process.

Building Intrinsic Accountability

As indicated in Figure 1, the HHP approach to operationalizing its targeted solutions can be understood in terms of the three-step process to achieving performance excellence that is being used by many patient safety initiatives.¹⁸ What this figure does not reveal, however, is that 90 percent of the effort to achieving performance excellence involves the last step.¹³ In HROs and high-risk healthcare organizations that seek to emulate the safety record of HROs, building intrinsic accountability is a major and long-term undertaking that involves strategic use of leadership methods such as Daily Check-Ins, Walking Rounds, and Action Plans. (See Figure 1 above.)

Many leaders initially find the process of building intrinsic accountability, which emphasizes the use of positive reinforcement for safe behavior, to be surprisingly awkward. Initial resistance is also common as many leaders will make comments such as, “I shouldn’t have to reinforce staff for doing their job.” In an effort to encourage leaders to buy into this approach, some facilities (e.g., Sentara Healthcare hospitals and long-term care facilities) have devoted time to educating leaders about the science behind positive reinforcement and

how it has been used successfully in other industries. Chief Nurse Executive for Sentara, Lois Kercher, often reminds leaders that *building accountability* stands in stark contrast to holding people accountable. “It’s not about leaders being seen, but about what leaders are seen doing.”

Unless leaders build intrinsic accountability among their employees, continuous monitoring by authority figures is required to achieve desired outcomes. In healthcare that is impossible, so it is critical to find ways to ensure that people do the right thing even when nobody is looking. For this reason, it is important that all leaders—from the CEO to unit managers—are seen asking employees about safety and reinforcing individuals for displaying safety behaviors, monitoring progress toward safety goals, and *demonstrating* their commitment to safety as a core value. As Dr. Don Berwick, president of the Institute for Healthcare Improvement, was quoted during the 2009 national leadership meeting that resulted in the consensus that to meet the goal of “chasing zero” healthcare-associated infections in hospitals:

“Leaders must provide the will, ideas, and execution ... Execution is the hardest part. It is the day-to-day monitoring, accountability, review, support, problem solving, moving obstacles, linkage to finance, and all the things you do whenever you are executing something in your organization.”^{19, p.211}

This leadership-oriented approach to organizational behavior management is responsive to the fact that changing behavior around evidence-based practices is a long-term process that takes months, or longer, to achieve. It also recognizes that health educators need to focus more on “post-workshop skill development, particularly appraisal, and help learners to establish new routines.”^{20, p.40} This level of leader-

ship involvement in safety is part of making sure that shared values and beliefs become entrenched in the culture and that the *correct* practice becomes the *common* practice.¹³ Finally, it fosters transparency and creates an environment that supports good peer checking and peer coaching.

Engaging Consumers is Crucial to “Chasing Zero”

Unless healthcare organizations begin to more effectively engage their customers in the battle to prevent healthcare-associated infections, they may continue to spread not only in hospitals but also in outpatient settings and among the general community. Dangerous healthcare-associated infections such as methicillin-resistant *Staphylococcus aureus* (MRSA) are on the rise.²¹ With the move to deliver more healthcare services in outpatient settings, MRSA is becoming increasingly prevalent in non-hospital settings.²² In fact, person-to-person transmission of MRSA has been observed among community members even in the absence of contact with healthcare facilities.²³ Therefore, there may be no other public health problem that stands to gain more from urgent efforts to engage consumers. Healthcare professionals must to do their part, but healthcare consumer organizations, community leaders, patients, families, and other lay caregivers also need to be part of the solution.

Not surprisingly, the World Alliance for Patient Safety,¹ which was launched in 2004 to coordinate and accelerate improvements in patient safety, placed special focus on the reduction of healthcare-associated infections. The

first guiding principle of the organization is “a commitment to placing patients at the centre of efforts to improve patient safety worldwide. When things go wrong, they and their families are the victims of the harm induced.”²⁴, p.4 Whereas consumer engagement in American healthcare has been a topic of considerable focus regarding decision making at a national level, the majority of hospital-based patient safety initiatives have been considerably less focused on consumer input.²⁵ A 2008 systematic review of the professional literature found no articles that addressed the views of consumers regarding their involvement in patient safety initiatives.²⁶

Despite the fact that the Joint Commission is one of the World Alliance for Patient Safety two partner organizations and the lead agency for the HHP—like almost all existing hospital-based patient safety initiatives—the HHP was not designed with consumer engagement in mind. And, although patient safety coalitions exist in two HHP communities, there was no upfront plan to connect the HHP with coalition activities. The HHP is remarkable, however, for having systematically addressing most of the major hand hygiene implementation barriers that were identified by the World Health Organization identified.²⁷ As indicated in Table 3, the HHP did attend to financial, quality, and cultural barriers at both political and institutional level. While there is no evidence that the HHP aligned financial incentives with individual behaviors, the participating hospitals may be doing so independent of the project.

When considering consumer engagement, it is important to think beyond helping patients to improve the safety of their own care to finding ways for them to participate in the planning, development, implementation, and evaluation of patient safety initiatives. An analysis and critique of five major safety guides developed for collaboration between patients and providers revealed little appreciation for the patients’ perspective regarding the messages.²⁸ For example, AHRQ’s initial attempt to produce a safety-oriented fact sheet for patients led to the production of *20 Tips for Preventing Medical Error* (AHRQ, 2000). This tip sheet contained valuable information and guidance for patients, but some of the guidance (e.g., “When your

Table 3. The Hand Hygiene Project Addresses Many Common Implementation Barriers

	Political	Institutional/Managerial	Individual/Behavioral
Financial	Established interagency collaboration among eight hospitals and The Joint Commission	Willingness to adapt facility design to accommodate identified problem of full hands interfering with hand hygiene	<i>No financial incentives included in the project</i>
Quality	Built an infrastructure to meet commitment to widespread sound data collection, feedback, and education <i>Limited or no consumer input into project design, implementation, or evaluation</i>	Exhibited activities that are consistent with core principles of high reliability organizations and the three-steps to establishing performance excellence <i>(Limited description of leadership methods for building accountability)</i>	Targeted solutions with specific expectations for all groups of healthcare workers <i>Unspecified patient expectations</i>
Perception/Culture	Raise risk awareness among all healthcare providers and provide real time feedback on progress <i>No local coalition efforts</i>	Focus on changing the organizational culture	Connecting provider behavior to patient outcomes through real time feedback <i>Unspecified or no consumer engagement</i>

Note: This table was adapted from the World Health Organization’s presentation of potential barriers to program implementation around hand hygiene.²⁷ Assessment is based on currently available HHP information.

doctor writes a prescription, make sure you can read it.”) underestimated the power differential that is common in patient-provider interactions.²⁹ Ultimately, the tip sheet needed to be revised. After obtaining consumer input and testing the materials with patient audiences, AHRQ produced a modified and condensed tip sheet entitled *Five Steps to Safer Care* that patients reported being more likely to use.³⁰

Although it was not part of the design of the HHP, one of the participating hospitals (Johns Hopkins Hospital) is exploring methods to effectively engage patients as observers of hand hygiene compliance among their healthcare providers in an outpatient setting. Engaging consumers as hand hygiene observers has the potential to be effective and to reduce costs associated with monitoring healthcare provider behavior. Results of a face-to-face pilot survey revealed that 86 percent of patients indicated that they would be willing to be a hand hygiene observer. Fewer patients (56 percent) said they would feel comfortable speaking up if they saw a provider fail to use proper hand hygiene.¹⁷ Increasing the willingness of patients to

speak up is the very sort of target that would be a suitable for consumer engagement efforts.

Connecting Site-based Initiatives with Community Coalition Efforts

There is an emerging appreciation for how patients and their lay caregivers can influence the delivery of effective and safe care so much so that a new wave of the patient safety movement may have begun—a wave that supports connecting site-based safety culture work with community-based coalition efforts. Consumers Advancing Patient Safety (CAPS), a non-profit, consumer-oriented patient safety organization with worldwide influence, and the federal Agency for Healthcare Research and Quality (AHRQ) recently began to explicitly promote the formation of community-based patient safety coalitions to increase consumer engagement as a means to advance patient safety.^{31,32} Community coalitions represent a proven method for pooling knowledge and resources to effect change that cannot be accomplished by a single organization³³

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and they are routinely considered in the formation of comprehensive public health campaigns.³⁴ Yet, they have been conspicuously absent from patient safety work.

A key to overcoming resistance to forming community-based patient safety coalitions may involve identifying a circumscribed set of safety issues over which member organizations commit to collaboration over competition in an effort to improve safety outcomes (i.e., “safety trumps competition”). This has been a successful strategy for the formation and function of the few patient safety coalitions that currently exist in urban communities, and it will be considered as Aurora Health Care moves forward with its recent decision to build patient safety coalitions or advisory councils for each of its market areas.³⁵ It is also helpful to remember that what sometimes looks like resistance simply reflects a lack of resources having been dedicated to the problem at hand.³⁶

All indications seem to be that it is time to dedicate resources to building community-based patient safety coalitions. In addition to benefiting patients, they can serve the interests of

healthcare organizations and healthcare providers. Benefits to organizations may include: opportunities to learn what the priority concerns are for patients, hearing directly from their customers, transforming their culture toward patient-centered care, developing programs and policies that are relevant to their patients’ needs, improving consumer satisfaction (which leads to stronger patient loyalty) and strengthening their community relations. Potential benefits to providers include: becoming more aware of the patient’s perspective, learning to provide care from a patient-centered approach, recognizing the role of other caregivers (such as family and friends), appreciating barriers and opportunities for patients that were previously not understood, identifying system issues that need to be addressed to provide patient-centered care.³¹

Developing Comprehensive Frameworks for Patient Safety Initiatives

To encourage discussion about increasing consumer engagement around patient safety, a framework that connects site-based

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culture work with community-based coalition work is offered in Figure 2. The figure summarizes the safety culture concepts discussed in this article and suggests key roles and responsibilities for site-based healthcare professionals and community partners. Such a comprehensive patient safety framework is consistent with the recent “chasing zero” consensus about the importance of connecting hospital board members and patients by sharing stories about personal patient safety experiences.¹⁹

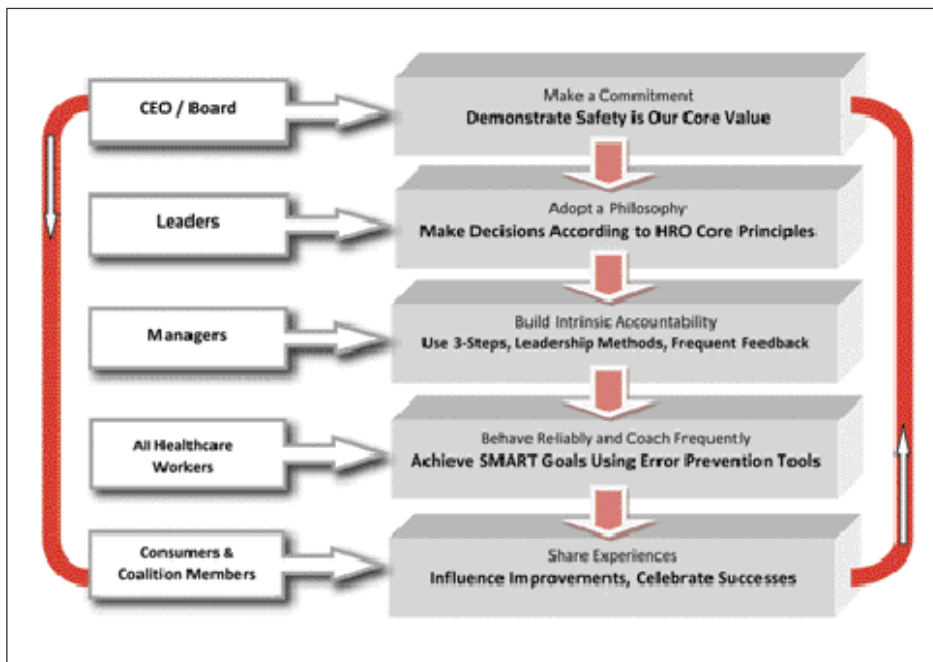
It is clear that to prevent healthcare-associated infections, healthcare professionals will need to adopt a more consumer-oriented view of their industry—a view that will necessitate some shifts in control and power from those who give care to those who receive it.³⁷ Such shifts in the healthcare industry, although foreign and uncomfortable initially, can be advanced through the work of community-based patient safety coalitions. In addition to addressing the mounting crisis around healthcare-associated infections, community-based coalitions can play a critical role in coordinating efforts to prevent safety events that occur in nearly half the transitions of care from hospitals to nursing homes and other healthcare and community settings.³⁸

Human error is inevitable even among the most dedicated healthcare workers, but harm to patients is not. The goal of patient safety initiatives is not to eradicate all human errors, but the goal is to reduce errors and prevent them from reaching patients by erecting a series of protective barriers. Involving patients and their loved ones in designing and delivering safe care represents one of the protective barriers that is necessary to achieve the ultimate goal of zero events of harm.³⁹ Improving hand hygiene is a critical patient safety issue to which many healthcare consumers can relate and contribute. In fact, consumer engagement may be essential to achieve or approach the goal of zero hospital acquired infections.³⁶

Summary

Nationally, we’re making progress in our resolve to improve patient safety. However, the high rate of healthcare-associated infections signals that we have a long way toward achieving the ultimate goal of zero events of harm to patients. The Joint Commission’s Transforming Healthcare Center has developed a collaborative hospital-based project to combat this problem by improving hand washing among healthcare providers. The Center’s Hand Hygiene Project has incorporated and expanded components of leading hospital-based safety culture initiatives. It is poised for success, although the full measure of success may require greater consumer engagement. Effective community-based coalitions represent a proven method for engaging consumers in public health initiatives and they are urgently needed to stop the spread of healthcare-associated infections and to prevent other common patient safety events. It will take time to establish community-based patient safety coalitions; however, healthcare organizations can begin immediately to adopt, adapt, or expand the HHP’s hospital-based framework to address barriers to effective hand hygiene in their facilities. †

Figure 2. Chasing Zero Events of Harm Framework: Key Roles and Responsibilities for Healthcare Professionals and Community Partners



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As a psychologist who has worked in healthcare settings for more than 20 years, Dr. Gretchen LeFever is passionate about improving the health and safety of people and the environments in which they work and live. A popular speaker with a strong media presence, she has appeared on national TV and radio programs such as CNN and the National Public Radio Diane Rehm Show. She has served as the executive director of a regional school health coalition and won millions of federal, state, and non-profit grant dollars to conduct epidemiologic and system-wide research and led an award-winning patient safety and performance excellence initiative in Sentara's regional and integrated healthcare system. Results of her studies appear in professional publications such as American Journal of Public Health, Scientific Review of Mental Health, Critical Care Medicine, Family and Community Health, Journal of Educational Research, and Managing Infection Control. Her work has also been discussed in popular magazines such as Psychology Today, Science, Popular Science, and The Weekly Standard as well as newspapers across the United States and in Europe. In 2008, she was included in a list of 100 scientists who the British Medical Journal recognized for their unbiased reviews of health research. Dr. LeFever graduated summa cum laude from Boston University. She earned a doctorate in both clinical and developmental psychology from the University of Illinois, Chicago and completed post-doctoral training in pediatric psychology at Georgetown University Medical School. She is an adjunct faculty member at Old Dominion University and president of Safety and Learning Solutions (www.yoursls.com). She can be contacted at Gretchen@yoursls.com.