

The Hospital Safety Crisis

Gretchen LeFever Watson¹

© Springer Science+Business Media New York 2016

Abstract After 15 years of concerted efforts of American hospitals to improve patient safety, the rate of healthcare-induced harm has not been curtailed. Over 200,000 U.S. hospital patients die and countless more are harmed each year as a result of predictable and preventable human errors. The excess costs associated with these events are estimated to be well over \$30 billion annually. Ironically, much of the work necessary to improve patient safety within hospitals must occur outside hospitals through public health initiatives designed to raise awareness, motivate civic action, and offer hospital patients manageable steps to ensure safer care for themselves and others. The best return on investment may be realized by first addressing three event types that, together, are most prevalent, predictable, and preventable. The case of healthcare-acquired infections is used to illustrate why mitigating the hospital safety crisis will require a paradigm shift that unifies efforts from healthcare systems, public health, and society overall.

Keywords Patient safety · Medical errors · Healthcare · Community coalition · Public health · Patient engagement · Patient-centered · Paradigm shift · Psychology of safety · Safety science

When I was a young mother listening to doctors at a military hospital apologize for nearly killing my four-year-old daughter, I had no idea how often human error jeopardizes safe hospital care or how rarely hospitals spontaneously apologize for staff errors. It wasn't until 15 years later, after being hired to serve as the

director of patient safety and performance excellence for a large healthcare system, that I realized our country was in the midst of a national patient safety crisis. During the 7 ensuing years, there has been no sign of the problem going away. Each year, between 210,000 and 440,000 U.S. hospital patients die and countless more are harmed as a result of predictable and preventable human errors (James 2013). Healthcare-associated infections are the most common type of preventable hospital death. The excess cost associated with these infections alone is estimated to be between \$28 billion and \$45 billion annually (Scott 2009).

This article argues that the magnitude of the crisis will not improve until the general public becomes part of the solution. It makes a case for why patient safety programs would achieve better outcomes by concentrating their efforts on a set of issues that are decidedly narrow in focus but broad with respect to potential impact. The article describes why and how hospitals and the general public would benefit by collaborating around three issues that, together, account for the majority of preventable deaths: (1) healthcare-associated infections, (2) medication administration errors, and (3) off-the-mark procedures (i.e., surgical or otherwise invasive procedures involving the wrong patient, wrong body part, or wrong procedure).¹

The Magnitude of the Crisis

Preventable hospital deaths refer to wrongful deaths. These are not deaths due to breakdowns in complex medical decision-making or the lack of access to care, but rather the

✉ Gretchen LeFever Watson
gwatsonphd@gmail.com

¹ Safety and Learning Solutions, 309 E 40th Street, Norfolk, VA 23504, USA

¹ An off-the-mark procedure refers to the same category of event as a wrong-site surgery and uses the exact same criteria set forth by The Joint Commission. The term of-the-mark procedure is offered as a substitute because the original term has contributed widespread confusion about what constitutes an event. Among other points of confusion, this category of event is not limited to surgeries.

deaths that generally result from simple human errors that occur within the healthcare system. They are commonly referred to as adverse events, incidents of healthcare-induced harm, or patient safety events. Our country's annual patient safety death toll among hospitalized patients is equivalent to at least 10 jumbo jets crashing every week and killing all passengers on board. This preventable death toll is double the number of people who die annually from vehicle accidents. It is also many times greater than the number of women who die from breast cancer or men who die of AIDS and 30 times greater than the number of US soldiers who have died in Iraq and Afghanistan (Goldhill 2009, 2013; Pound 2011). Every hour nearly 20 American hospital patients die as a result of healthcare-induced harm. All told, four Vietnam Memorials would need to be built each year to capture the names of these patients (LeFever 2010).

As outrageous as these numbers seem, they are conservative estimates that represent just the tip of the iceberg. They do not include the millions of Americans who suffer hospital-induced harm but manage to survive or those that are harmed or die as a result of errors that occur in outpatient settings. Moreover, in 2011, the Institute of Medicine noted that the national proliferation of electronic health records provides a new window into exploring the rate of serious patient safety events. Through the lens of data captured directly from electronic patient records (rather than from voluntary hospital reports), the overall rate of healthcare harm now appears to be ten times higher than previously estimated with one in three to four patients being harmed during their hospital stays (James 2013; Classen et al. 2011). Similarly, a 2012 study by the U.S. Office of the Inspector General determined that voluntary hospital reporting systems capture only about 14 % of patient harm that occurs (Levinson 2012). All estimates place expenditures for all harms in the billions; however, when adding the indirect costs for lost workdays and short-term disability claims the total outlay may be as high as \$1 trillion annually (Andel et al. 2012).

A Paradigm Shift Is in Order

Before the Institute of Medicine published its first report on patient safety in 1999, the healthcare industry had never publicly disclosed the extent to which hospital patients were needlessly harmed in the process of receiving care, nor its lack of a systematic approach to preventing such harm. This first and now seminal report, aptly entitled *To Err is Human: Building a Safer Health System*, broke a long-established wall of silence, claiming that 98,000 U.S. hospital patients died each year as a result of healthcare-induced harm (Kohn et al. 1999). At the turn of the twenty-first century, in response to the report, the federal government set a national goal of reducing preventable hospital deaths in half within 5 years. Five years later and after Herculean efforts on the part of hospitals around the country,

there was no widespread evidence of improvement (Leape and Berwick 2005). After ten more years, the same still held true (Grol et al. 2008; Jewell and McGiffert 2009). Contrary to hopeful expectations, the recent wide-scale adoption of electronic health record systems by American hospitals and healthcare systems has also not mitigated the crisis (Bria 2011; Carr 2014; Sidorov 2006).

A fundamental change in our nation's approach and assumptions about hospital safety—a paradigm shift—is in order. The shift must center on engaging patients for the purpose of collaborating with healthcare workers to eliminate a small but powerful subset of patient safety's frequently recurring events.

Zeroing in for Impact

There are significant reasons to narrow the focus of hospital safety programs. With zeal for improvement, hospital and industry leaders have been designing and championing safety programs that aim to tackle a multitude of issues simultaneously. They tend to blur the distinction between improvements in *quality care* with improvements in *safe care*. The difference being that quality improvements have more to do with the selection and timing and clinical interventions (*what* and *when* care gets delivered) while safety efforts have more to do with the manner in which people go about the business of delivering care (*how* care gets delivered). Quality-related work covers an innumerable array of complex topics and potential solutions that must be tested with a wide range of clinician groups, practice settings, and patient populations. This work of establishing what constitutes high quality or evidence-based care is initiated, validated, and incorporated into the delivery system primarily through the efforts of a select subset of healthcare professionals with ties to universities and academic medical centers. In contrast, advances in safe care generally pertain to rules, practices, and systems for getting *all* healthcare workers to consistently or habitually perform a small number of relatively straightforward behaviors such as washing hands before entering and after exiting patient rooms.

Laudable as comprehensive quality/safety efforts are for advancing medical science, as organization-wide programs or initiatives designed to improve day-to-day safety at the bedside, they set healthcare workers up for failure, disappointment, and disillusion. It seems that greater return on investment would be realized by focusing on getting providers *en masse* to exhibit excellent performance around a defined and manageable set of safety habits. Psychologists who specialize in behavior change know that that people are capable of addressing only one or two new behavioral habits or routines at a time, and the same holds true for establishing organizational habits.

In the 15 years since the hospital safety crisis was publicly exposed by the Institute of Medicine, the field of patient safety has identified specific strategies that have the capacity to eliminate the vast majority of hospital deaths due to healthcare-associated infections, medication errors and off-the-mark procedures. The safety strategies to prevent these three event types involve simple, quick, and practically cost-free actions such as the use of proper hand washing, double-checks, and checklists. As a group, they comprise the majority of all preventable deaths that occur in U.S. hospitals – a “trifecta” of sorts.² Not only are they hospital safety’s most prevalent, predictable, and preventable types of patient harm, they also happen to constitute exactly the sort of problems that public health interventions are capable of successfully addressing. In a nutshell: these event types represent the field’s low-hanging fruit. Moreover, the associated safety habits involve behaviors that healthcare workers must use regardless of where they work, so a unified public health approach has the added advantage of setting consistent expectations for physicians and staff who change jobs or work in more than one facility.

Therefore, narrowing and coordinating the focus of institutional efforts and public engagement around hospital safety’s current trifecta, or any one of its component issues, would finally place within reach the national goal of reducing cases of hospital-induced harm by 50 % over a five-year period. But patient safety programs must first be willing to do less to achieve more.

A Case in Point: Healthcare-Associated Infections

Approximately 100,000 U.S. patients die each year as a result of infections they acquire during their hospital stays (Klevens et al. 2007), making healthcare-associated infections the leading cause of preventable death in American hospitals (James 2013). Healthcare-associated infections have plagued the field for years, such that many healthcare workers have come to think of them as an inevitable “cost of doing business.” And the general public might well believe that the eradication of healthcare-associated infections requires expensive, high-tech solutions. There certainly are emerging tools like custom-engineered germ killing counter surfaces and \$100,000 robots that scan hospital rooms to kill detected germs. The fact is, however, that the single most effective solution for preventing

the spread of infection involves proper hand washing—plain and simple. Yet, after a decade of intense focus on this topic, healthcare providers were washing their hands on average less than 50 % of the times required with rates varying from 30 to 70 % among the leading hospitals and healthcare organizations (Sack 2009). Today, there still is no evidence of widespread improvement.

One type of healthcare-associated infection that has received public attention is Methicillin-resistant *Staphylococcus aureus*, which is commonly called MRSA (pronounced mursa). MRSA is a flesh- and tissue-destroying bacterium that is most frequently transmitted by direct skin-to-skin contact or contact with shared items or surfaces that have come into contact with an infected person. It can live on surfaces such as bed linens, computer keyboards, and acrylic nails for several days to weeks depending on temperature and humidity (Centers for Disease Control and Prevention 2008). It is difficult to treat due to its resistance to antibiotics, making it a very debilitating and potentially lethal infection. MRSA is not only on the rise in hospitals (Boucher and Corey 2008); it has begun to spread to outpatient clinics and is now present in other community settings such as prisons, locker rooms, and daycare centers (Harris 2015).

Based on published data, an average 200-bed hospital incurs over \$1.7 million in annual MRSA infection expenses that are attributable to hand washing non-compliance. A mere 1 % increase in hand hygiene compliance can result in a savings of almost \$40,000 per year for a 200-bed hospital (Cummings et al. 2010). Of course, the savings would likely be greater because a hand-washing intervention to reduce MRSA would also contribute to a reduction in other types of healthcare-induced infections. Even a moderately successful national campaign with a public health focus could save thousands of lives and millions of dollars.

It is facts like these that prompted leaders of national patient safety organizations to meet in 2009 to discuss the escalating problem of healthcare-acquired infections (Denham et al. 2009). These leaders unanimously acknowledged the mounting evidence that virtually every healthcare-acquired infection is preventable. They signaled a new day in the patient safety movement by declaring that healthcare-associated infections could no longer be considered the “cost of doing business.” This prominent group of safety experts established the *Chasing Zero* consensus, which refers to the idea that anything other than a goal of zero healthcare-acquired infections is unacceptable in hospitals today. These leaders reasoned that the knowledge and strategies exists to address this problem.

Since 2001, The Leapfrog Group—a participant in the *Chasing Zero* consensus meeting—has periodically surveyed U.S. hospitals and publicly reported progress toward safe care. Among other issues, the Leapfrog Hospital Survey addresses the existence of hand-washing policies. Participation in the Leapfrog Hospital Survey occurs on a voluntary basis;

² Healthcare-associated infections account for about half of all hospital safety related deaths. Drug errors occur far more frequently than healthcare-associated infections with a substantial number resulting in harm, but a smaller number resulting in death (7,000 annually). Likewise, off-the-mark procedures are associated with much distress and harm, but less frequent deaths. However, all three conditions are similar in that effective error prevention is tied to specific behaviors that a layperson could learn to observe and/or request. Together, they account for over half of all preventable deaths.

however, those hospitals that choose to be surveyed must allow their scores to be publicly reported. In 2011, the survey was voluntarily completed by 1169 hospitals, or nearly half of all targeted hospitals. According to Leah Binder, CEO of the organization, a patient's risk of dying is two to four times lower if they receive care in a hospital that meets Leapfrog standards. If most U.S. hospitals followed the basic infection prevention practices tracked by the Leapfrog Hospital Survey, 57,000 lives and \$12 billion could be saved each year. Yet, years after the launch of *Chasing Zero*, only 62 % of Leapfrog reporting hospitals even had hand hygiene policies in place (Binder 2013).

Consider the fact that to be compliant with best practice hand washing standards, providers must wash their hands every time they enter and exit a patient's room. Over the course of an average day, this could easily amount to as many as forty instances of hand washing for a typical outpatient physician, sometimes more and sometimes less for hospital physicians and staff. Even among individuals who are highly motivated to comply with best practice standards, the hustle and bustle of the dynamic hospital setting will, at times, interfere with their resolve. It's no wonder that so many hospitals have avoided creating hand-washing policies or fail to enforce them. How could they build accountability around such a frequently recurring behavior that often takes place behind pulled curtains or closed doors?

Improving Accountability for Simple Safety Habits

One solution is to create a greater sense that providers are accountable to the patients they serve while also preparing patients to speak up when they observe lapses among their healthcare providers' safety habits. Now that dangerous infections like MRSA are spreading beyond hospital walls and into outpatient settings as well as the broader community, the public has good reason to be mindful of whether people walking in and out of patient rooms wash their hands. In fact, there may be no other health problem that stands gain more from urgent efforts to engage the public (LeFever 2010). If patients truly understood the importance of proper hand hygiene, they would be more vigilant about whether or not it happened in their presence. What is needed now is an approach that would raise public awareness, motivate civic action, and offer patients, lay caregivers, and hospital visitors manageable steps for ensuring consistent hand washing. The same holds true for drug errors and off-the-mark procedures, which constitute the other two components of hospital safety's current trifecta. Like healthcare-associated infections, these adverse events can be significantly reduced (medication errors) or virtually eliminated (off-the-mark procedures) through the use simple and quick safety habits.

About one-third of medication errors occur at the point of administration (as opposed to ordering or dispensing) (Anderson and Townsend 2010). What patient would not want to hear and see their providers review the five rights of medication administration (right medication, right dose, right time, right route, and right patient), if they understood how often doing so prevented harm and saved lives? Instead, due to insufficient exposure to relevant information, patients often feel annoyed when hospital personnel take the time to review information that seems silly or obvious.

Off-the-mark procedures are on the rise in spite of the existence of an effective error prevention tool that is familiar to most surgeons (Barry-Ipema 2011). Use of what is called the Universal Protocol can virtually eliminate this category of adverse events (Gawnde 2009). And yet, despite the simplicity and proven effectiveness of this behavioral tool, many physicians continue to resist using it or use it inappropriately (Brooks 2015). Again, if informed, what patient would not want to make sure that a simple life-saving checklist was used before they or a loved one underwent a surgery or otherwise invasive procedure?

Mastering Safety Habits

While no doctor questions the importance of precision in delivering, for example, radiation to a tumor, the idea that equal attention is necessary regarding hand washing can seem preposterous. This is the crux of the problem: eliminating instances of preventable harm depends on healthcare workers habitually using the very behaviors that can seem too simple to matter. Even among healthcare workers who are motivated to wash their hands consistently, achieving performance excellence can be difficult. Momentary lapses will occur.

According to psychologist James Reason's model of error prevention, which is used by healthcare and most other high-risk industries, human error is inevitable; however, human error need not lead to harm. In high-risk systems, harm can be averted by building a series (or layer) of protective barriers – no single barrier being sufficient (Reason 2000, 1997). Barriers can include things such as technology aids and training, but they can also involve the use of safety habits and routines.

As showcased in recent best-selling books on habit change by Charles Duhigg (*The Power of Habit: Why We Do What We Do in Life and Business*) and Gretchen Rubin (*Better than Before: Mastering the Habits of Our Everyday Lives*), the science of behavior literature has proven that establishing and maintaining new habits is challenging, but doable (Duhigg 2014; Rubin 2015). Duhigg draws on scientific research and countless examples from Fortune 500 companies and accomplished individuals to demonstrate how identifying a "keystone

habit” can transform lives and organizations; the notion being that changing one critical behavior pattern often makes subsequent changes easier. In the case of organizations, keystone habits are equivalent to essential routines. The process of forming habits or establishing organizational routines always necessitates that people: (a) identify triggers or cues, as well as rewards, that are associated with a desirable behavioral pattern; (b) establish a routine to perform in the presence of identified triggers or cues; and (c) believe change is possible. As Duhigg explains further, *belief* is the single most important aspect of the habit formation process. That is, people must believe things will get better until they actually do get better, and they need a specific ritual, routine, or program to help them get there.

Rubin details why mastering desirable habits in our everyday lives (and work) is easier for some than for others. Nonetheless, she clarifies that *everyone* benefits when the environment provides signals (triggers or cues) that support people in doing exactly what they were already motivated to do. Without sufficient environmental stimuli, people will simply fail to achieve their desired behavioral patterns. This applies to changing behaviors that are highly individualistic (e.g., writing a few lines of poetry every day) as well as those that have the potential to impact the broader society (e.g., reducing water consumption or increasing hand washing) (Gregory and Leo 2003).

Applying the analyses by Duhigg and Rubin to healthcare, there are two things that are not sufficiently abundant in hospitals today. First, *belief*: many healthcare workers have lost faith in their own hospital safety programs. Who would not in light of the field’s dismal track record? Second, *cues or triggers*: too often the cues are missing that might serve as reminders to execute specific safety habits (or routines) at the critical moment of care. Why should we expect healthcare workers to always remember to use safety habits or routines that can seem too simple to matter when they are focused on a myriad of complex care delivery actions and frequently interrupted and tired from working long shifts? Now think about the reality that populating hospitals with well-informed patients who are capable of speaking up when lapses in safety protocols are observed would be tantamount to providing much-needed reminders or cues. And imagine how much easier it would be for healthcare workers to believe that success is possible knowing that the environment would be replete with friendly reminders to do the right thing with every patient every day during every encounter.

To a large extent, the idea of getting healthcare workers to do the right thing every day with every patient, is asking them to cooperate with simple routines for the benefit of others.

Two Harvard economists and two Yale psychologists recently conducted a review of field studies that examined factors that promote cooperation, noting that this body of behavioral science research has a great deal to say about modifying habits for real-world solutions that require long-term behavior modification such as the use of safety habits (Kraft-Todd et al. 2015). When it comes to getting people to cooperate to increase desired habits, they noted that financial incentives and material rewards often fail or backfire whereas leveraging social concerns that play on people’s natural desire to be highly regarded by others are consistently effective. Two things make social interventions particularly effective are: *observability* and/or *use of descriptive norms*.

Accordingly, by raising the public’s awareness of specific safety habits they should expect to see healthcare workers use would render the safety habits transparent or observable to people entering hospitals as patients, advocates, or other sorts of visitors. Logically, for example, by letting healthcare workers know how many of their peers signed a pledge to use specific safety habits and to show appreciation when receiving reminders during momentary lapses would represent a powerful use of descriptive norms. After all, despite our best intentions, we make mistakes; yet, knowing that we are being watched and/or knowing what our peers are doing makes a difference (Hibbard et al. 2003).

It also stands to reason that the combination of public observations and disclosure of descriptive norms that are made in the spirit of helpfulness could have a particularly positive impact. This approach would represent an instance of what Jennifer Jacquet, (Jacquet 2015) an economist by background, describes as an appropriate use—or retrofitting—of shame. Her new book (*Is Shame Necessary? New Uses of an Old Tool*) details why and how shame, which relies on group norms, can be effectively leveraged to promote large-scale social reform that induce long-term behavior change among individuals and large organizations. While the book’s primary focus pertains to environmental sustainability, its analysis is apropos to hospital safety issues.

Valuing Patient Engagement

Effective public or community engagement refers the process of involving citizens in the institutions or decisions that affect their lives and mobilizing them to undertake activities to improve the conditions that affect them (Fawcett et al. 1995; McCloskey et al. 2015). Within the healthcare arena, there has been growing appreciation for the idea of engaging patients to improve patient outcomes and satisfaction (Coulter and Ellins 2007). As noted by physician Donald Berwick, one of the founding and most renowned leaders of the patient safety movement, adopting a more patient-centered view of health care is essential; although, at first, it will

necessitate some shifts in power and control from those who give care to those who receive it (Berwick 2009).

Whereas greater patient (or consumer) engagement in American healthcare has been a matter of considerable discussion at a national level, very few hospital patient safety initiatives have actually connected with their communities to create realistic ways for patients to fully assert their rights and responsibilities as partners in safe care. One of the last published reviews of the professional literature found no journal article that addressed consumer involvement in patient safety initiatives in the U.S. or abroad (Monash Institute of Health Services Research 2008). The review concluded that, “Evidence for consumer involvement in patient safety initiatives is limited and involvement of consumers is unlikely to occur without active recruitment programs.”

The use of in-house pamphlets to educate patients about safety is a mainstay of hospital safety programs. Such materials may be helpful, but they are not sufficient. Health literacy refers to the ability of people to read, comprehend, and apply information contained in health-related literature. Over one-third of all American hospital patients have low health literacy and the problem is more prevalent among the elderly, chronically ill, minimally educated populations (Paasche-Orlow et al. 2005)—the very people who are most likely to be hospitalized.

Health literacy is a dynamic construct that is affected by situational factors (Paasche-Orlow et al. 2005). Because patients experience heightened states of anxiety during hospital stays, it is reasonable to expect the health literacy among all patients, including the highly educated, to plummet upon admission. Therefore, waiting until people become hospital patients to prepare them for an active role in the delivery of safe care amounts to “too little too late” (LeFever 2010). First introducing patients to safety expectations through written materials and expecting them to speak up for safety does not constitute effective (nor genuine) patient engagement.

Empowering People to Speak Up for Safety

Speaking up for safety refers to someone raising concerns for the benefit of safety and quality care upon becoming aware of risky or deficient action on the part of others (Leonard et al. 2004). Empowering people to speak up for safety is a challenge in every type of organization, and there is ample evidence to indicate that this represents a serious problem for the healthcare industry. Since 2007, hospitals around the country have been completing the Agency for Health Research and Quality (AHRQ) Patient Safety Culture Survey. It allows hospitals to benchmark their culture against other hospitals. In 2011, 1128 hospitals completed the survey and AHRQ contracted an independent organization to examine the degree of improvement in culture of safety among American hospitals from 2007 to 2011. The results indicated that there had

been no overall progress with half of the employees still saying that they did not feel free to speak up for safety. They reported experiencing or fearing they would experience punitive responses from the administration for identifying and reporting errors, believing that reporting mistakes would be held against them and threaten their job security (Sorra et al. 2012).

If, after years of effort, healthcare employees still believe that they cannot speak up for safety, why should we expect patients to do so? Actually, a 2014 review of the literature on studies that sought to increase people’s ability speaking up for safety provides support for the idea. The comprehensive review determined that healthcare worker decisions to speak up are influenced by their degree of perceived *fear* of administrative retaliation (getting fired), their *motivation* based on the extent to which they believe patient safety may be at risk and the *clarity* about the proper course of action (ambiguous versus clear-cut expectations) (Okuyama et al. 2014). Patients do not need to be worried about being fired by hospital administrators, which lays the first concern to rest. Public health-oriented campaigns could successfully address the other two issues (motivation and perceived risk). Such campaigns would also have the added advantage of focusing exclusively on simple, effective safety habits as opposed to more complex quality issues that require a myriad of judgment calls involving a high degree of uncertainty about correct actions. The latter are issues with which healthcare will necessarily grapple for a longtime to come, but their existence need not obscure the benefit of tackling specific safety issues with immediate decisiveness.

Involving the public (i.e., prospective patients, lay caregivers, and hospital visitors) to eliminate hospital safety’s current trifecta or any one of its component issues would constitute genuine patient engagement. It would provide patients with a specific and important role as a member of their care team – the very thing that healthcare leaders have been seeking.

Building Community-Based Patient Safety Coalitions

Mastering safety habits is something every healthcare worker must do; something every patient wants them to do; and something the public can help them do. But how can this be achieved? In the process of gathering insights for a comprehensive infection control and prevention project, Johns Hopkins Hospital conducted a brief pilot study to gather insights for improving hand-washing compliance. Study results underscore the fact that getting patients to speak up for safety is not always easy. Staff collected information from patients in one of their outpatient clinics. Results of their face-to-face pilot survey revealed that 86 % of patients indicated that they

would be willing to be a hand hygiene observer, although fewer patients (56 %) expressed a willingness to speak up if they saw a provider fail to use proper hand hygiene (Bittle and LaMarch 2009).

Empowering patients to know when and how take action is precisely the focus of many successful public health campaigns, but this is not what hospitals alone are prepared to do well. However, community-based coalitions, which typically include hospital-community partnerships, represent a well-established and proven method for engaging consumers in public health initiatives across a wide range of topics (Wandersman and Alderman 2003). They arguably represent a missing component of a comprehensive framework for tackling the hospital safety crisis, especially for problems as prevalent, predictable, and preventable as those comprising hospitals' current safety trifecta (LeFever 2010; Leonhardt et al. 2008).

Whatever reasons have existed until now for treating hospital safety as an in-house matter, it is time to take this issue to the streets. Doing more of the same and expecting better results is not rational. Besides, the essential components of a successful public health campaign to improve patient safety have already been established. This includes:

- Simple error prevention tools for eliminating events that constitute hospital safety's current trifecta;
- Proven behavioral science principles to facilitate the mastery of safety habits; and
- Experience building community coalitions to support health-related behavioral changes across large groups of people and organizations.

Understanding the problem of patient safety within a broader public health framework would represent a paradigm shift that supports the integration and application of knowledge from a number of fields – something that is evidently necessary. Recent testimonials on the webpage of the Center for Transforming Healthcare speak to the value of a new paradigm that will engaged the public in an effort to reduce healthcare-induced harm by ensuring that providers remember to use specific safety habits.

The hand hygiene initiative focuses attention on the problem of hand hygiene and offers an evidence-based way to measure the problem, implement interventions, and measure improvement. The challenge is making hand washing a habit that all health care workers do without even thinking about it. *Linda Maragakis, MD, MPH – Johns Hopkins Medical Institutions*

We will know if we have been successful with the hand hygiene initiative when we see the culture begin to change in our organizations. I hope that we will see people reminding each other to wash their hands, and

those reminders will not be interpreted as punitive, but instead as teamwork. *Beth Lanham, BSN, RN – Froedtert Hospital*

Transforming health care means taking what we have done, looking at it in a new way, taking it in a new direction, and rather than making incremental improvement, making revolutionary improvement. *Brian Regan, PhD, - New York Presbyterian Healthcare System*

The Future of Safety

No matter how sophisticated the science of medicine or clinical care delivery systems become, it is an inescapable reality that ensuring patient safety is generally a function of forming and sustaining simple safety habits among the millions of nurses, physicians, pharmacists, therapists, support staff, and others who affect the lives of patients every day. The breadth and volume of people who must exhibit safety habits begs for a unified, straightforward, and manageable approach. The new approach must be comprehensible to and involve everyone regardless of rank (physician, nurse, janitorial staff, etc.) or role (provider, patient, visitor, etc.).

Medical research and clinical practice will continue to evolve with incredible pace and brilliance. But generating consistency around a small—yet powerful—set of simple actions could save millions of lives and billions of dollars. The trifecta of healthcare-associated infections, drug errors, and off-the-mark procedures are prime candidates such an undertaking. This will require great effort from healthcare systems, public health, and society overall. Momentum, confidence, and ability to eliminate other pressing safety issues will likely build after the most prevalent, predictable, and preventable hospital safety events are successfully tackled. In the process, the essential belief that healthcare workers can reliably deliver safe care might be restored.

Acknowledgments The author would like to thank Andrea Powell Arcona, Ph.D. for discussing certain ideas contained here many times and for helping to get them articulated on paper.

Further Reading

- Andel, C., Davidow, S. L., Hollander, M., & Moreno, D. A. 2012. The economics of health care quality and medical errors. *Journal of Health Care Finance*, 39(1), 39–50.
- Anderson, P., & Townsend, T. 2010. Medication errors: don't let them happen to you. *American Nurse Today*, 5(3), 23–28.

- Barry-Ipema, C. 2011. Wrong Site Surgery. http://www.centerfortransforminghealthcare.org/assesets/4/6/WSS_Press_Conf_Transcription_6_29_11.pdf.
- Berwick, D. 2009. What 'patient-centered' should mean: confessions of an extremist. *Health Affairs*, 28, w55–w65.
- Binder, L. 2013. The Leapfrog Annual Hospital Survey. Email communication.
- Bittle, M., & LaMarch, S. 2009. Engaging the Patient as Observer to Promote Hand Hygiene Compliance in Ambulatory Care. *Joint Commission Journal on Quality and Patient Safety*, 35(10), 519–525.
- Boucher, H., & Corey, G. 2008. Epidemiology of methicillin-resistant *Staphylococcus aureus*. *Clinical Infectious Diseases*, 46, S344–S349.
- Bria, W. F. 2011. The Electronic Health Record: Is It Meaningful Yet? *Mayo Clinic Proceedings*, 86(5), 373–374.
- Brooks, R. 2015. Are you using the Universal Protocol yet? In: AAOS Now: American Academy of Orthopedic Surgeons. <http://www.aaos.org/news/bulletin/marapr07/clinical6.asp>.
- Carr, D. 2014. Electronic health records: first do no harm? In: Information Week. <http://www.informationweek.com/healthcare/electronic-health-records/electronic-health-records-frist-do-no-harm/a/d-id/1278834>.
- Centers for Disease Control and Prevention. 2008. Environmental Management of Staph and MRSA in Community Settings http://www.cdc.gov/hcidod/dhqp/ar_mrsa_Enviro_Manage.html.
- Classen, D., Resar, R., Frances, G., Frank, F., Frankel, T., Kimmel, N., et al. 2011. 'Global trigger tool' shows that adverse events in hospitals may be ten times greater than previously measured. *Health Affairs*, 30(58), 1–9.
- Coulter, A., & Ellins, J. 2007. Effectiveness of strategies for informing, educating, and involving patients. *BMJ [British Medical Journal]*, 335(7609), 24–27.
- Cummings, K., Anderson, D., & Kaye, K. 2010. Hand Hygiene Noncompliance and the Cost of Hospital-Acquired Methicillin-Resistant *Staphylococcus Aureus* Infection. *Infection Control and Hospital Epidemiology*, 31(4), 357–364.
- Denham, C., Angood, P., Berwick, D., Binder, L., Clancy, C., Corrigan, J., et al. 2009. The vital link department: making idealized design a reality. *Journal of Patient Safety*, 5(4), 216–222.
- Duhigg, C. 2014. *The Power of Habit: Why We Do What We Do in Life and Business*. New York:Random House.
- Fawcett, S., Paine-Andrews, A., Francisco, V., Schultz, J., Richter, K., Lewis, R., et al. 1995. Using empowerment theory in collaborative partnership for community health and development. *American Journal of Community Psychology*, 23(5), 677–697.
- Gawnde, A. 2009. *The Checklist Manifesto: How to Get Things Right*. New York:Metropolitan Books.
- Goldhill, D. 2009. How American Healthcare Killed My Father. *The Atlantic Monthly*.
- Goldhill, D. 2013. *Catastrophic Care: How American Health care Killed My Father - And How We Can Fix It*. New York:Alfred A. Knoph.
- Gregory, G. D., & Leo, M. D. 2003. Repeated behavior and environmental psychology: The role of personal involvement and habit formation in explaining water consumption. *Journal of Applied Social Psychology*, 33(6), 1261–1296.
- Grol, R., Berwick, D., & Wensing, M. 2008. On the trail of quality and safety in health care. *BMJ [British Medical Journal]*, 336(7635), 74–76.
- Harris, A. 2015. Patient Information: methicillin-resistant *Staphylococcus aureus* (MRSA) (Beyond the Basics). <http://www.uptodate.com/contents/methicillin-resistant-staphylococcus-aureus-mrsa-beyond-the-basics>.
- Hibbard, J., Stockard, J., & Tusler, M. 2003. Does publicizing hospital performance stimulate quality improvement efforts? *Health Affairs*, 22(2), 84–94.
- Jacquet, J. 2015. *Is Shame Necessary: new Uses for an Old Tool*. New York:Random House.
- James, J. 2013. A new, evidence-based estimate of patient harms associated with hospital care. *Journal of Patient Safety*, 9(3), 122–128.
- Jewell, K., & McGiffert, L. 2009. To err is human - To delay is deadly: Ten years later, a millin lives lost, billions of dollars wasted. In: Consumers Union: Nonprofit Publishers of Consumer Reports: Consumer Reports.
- Kilbridge, P. M., Classen, D. C. 2008. The Informatics Opportunities at the Intersection of Patient Safety and Clinical Informatics. *Journal of the American Medical Informatics Association*, 15(4), 397–407.
- Klevens, R., Edwards, J., Richards, C., Horan, T., Gaynes, R., Pollock, D., et al. 2007. Estimating Health Care-Associated Infections and Deaths in U.S. Hospitals, 2002. *Public Health Reports*, 122, 160–166.
- Kohn, L., Corrigan, J., & Donaldson, M. 1999. *To Err Is Human: Building a Safer Health System In*. Washington, D.C.:Institute of Medicine.
- Koppel, R., Metlay, J., Cohen, A., et al. 2005. Role of computerized physician order entry systems in facilitating medication errors. *JAMA*, 293(10), 1197–1203.
- Koppel, R., Wetterneck, T., Telles, J., & Karsh, B. 2008. Workarounds to barcode medication administration systems: their occurrences, causes, and threats to patient safety. *Journal of the American Medical Informatics Association*, 15(4), 408–423.
- Kraft-Todd, G., Yoeli, E., Bhanot, S., & Rand, D. 2015. Promoting co-operation in the field. *Current Opinion in Behavioral Sciences*, 3, 96–101.
- Leape, L. L., & Berwick, D. M. 2005. Five years after to err is human: What have we learned? *JAMA*, 293(19), 2384–2390.
- LeFever, G. 2010. Chasing zero events of harm: an urgent call to expand safety culture work and patient engagement. In: Nursing and Patient Care: Healthvie.com, <http://www.yoursls.com/ConnectingHospitals-Communities.pdf>.
- Leonard, M., Graham, S., & Bonacum, D. 2004. The human factor: the critical importance of effective teamwork and communication in providing safe care. *Quality & Safety in Health Care*, 13(Suppl 1), 85–90.
- Leonhardt, K., Bonin, D., & Pagel, P. 2008. *Guide for developing a community-based patient safety advisory council*. Washington, D.C.:Agency for Healthcare Research and Quality.
- Levinson, D. 2012. Hospital Incident Reporting Systems Do Not Capture Most Patient Harm. In I. General (Ed.). Washington, DC: Department of Health and Human Services.
- McCloskey, D., McDonald, M., Cook, J., Heurtin-Roberts, S., Updegrove, S., Smapson, D., et al. 2015. Community Engagement: Definitions and Organizing Concepts from the Literature. Public Health Practice Office. Atlanta: Centers for Disease Control and Prevention.
- Monash Institute of Health Services Research. 2008. Literature review regarding patient engagement in patient safety initiatives. Monash University.
- Okuyama, A., Wagner, C., & Bijnen, B. 2014. Speaking up for patient safety by hospital-based health care professionals: a literature review. *BMC Health Services Research*, 14, 61–61.
- Paasche-Orlow, M., Parker, R., Gazmararian, J., Nielsen-Bohlman, L., & Rudd, R. 2005. The prevalence of limited health literacy. *Journal of General Internal Medicine*, 20(2), 175–184.
- Pound, W. 2011. Health cost containment and efficiencies. In *NCLS Briefs for State Legislators* (pp. 1–4). Washington, D.C.: National Conference of State Legislators.
- Reason, J. 1997. *Managing the Risks of Organizational Accidents*. Burlington:Ashgate Publishing Company.
- Reason, J. 2000. Human error: models and management. *BMJ*, 320, 768.
- Rubin, G. 2015. *Better than Before: Mastering the Habits of Our Everyday Lives*. New York:Crown Publishers.

- Sack, K. 2009. A hospital hand-washing project to save lives and money. http://prescriptions.blogs.nytimes.com/2009/09/10/a-hospital-hand-washing-project-to-save-lives-and-money/?_r=0.
- Scott, R. 2009. The Direct medical costs of healthcare-associated infections in U.S. hospitals and the benefits of prevention. Centers for Disease Control and Prevention, http://www.cdc.gov/HAI/pdfs/hai/Scott_CostPaper.pdf.
- Sidorov, J. 2006. It Ain't Necessarily So: The electronic health record and the unlikely prospect of reducing health care costs: much of the literature on EHRs fails to support the primary rationales for using them. *Health Affairs*, 25(4), 1079–1085.
- Sorra, J., Famolaro, T., Dyer, N., Nelson, D., & Smith, S. 2012. *Hospital Survey on Patient Safety Culture*. Rockville: Agency for Healthcare Research and Quality.
- Wandersman, A., & Alderman, J. 2003. Community interventions and effective prevention. *American Psychologist*, 58, 441–448.
- Gretchen LeFever Watson, Ph.D.** is an adjunct professor at Old Dominion University and President of Safety & Learning Solutions (<http://www.yoursls.com>).