The Preventable Harm Index: An Effective Motivator to Facilitate the Drive to Zero

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earily a decade ago, the Institute of Medicine’s (IOM) report on the state of American Healthcare focused attention on the need to develop systems and processes to improve patient safety in hospitals. Although initially debated, it is now generally accepted that preventable medical errors are common and preventable deaths occur. In response to the IOM report, healthcare providers have implemented strategies and tactics, some adopted from industry, that create an organized approach to identifying and minimizing error. An issue that has generated significant discussion since the IOM report is preventable harm. This concept assumes that complications are not inevitable and many untoward outcomes are preventable. Although debate continues about how to define preventable versus inevitable harm, few people, including patients and their families, would question the value of striving to reduce or eliminate preventable harm where it is identified. We will describe a motivational tool, the preventable harm index (PHI), that we developed in our hospital to facilitate our drive to reduce preventable harm.

By using the science of improvement, multiple authors have demonstrated important progress on specific and system-wide quality outcomes. However, the drive to zero preventable harm will likely require novel interventions, especially those that change hospital staff behaviors. Leape and Berwick point out, “the combination of complexity, professional fragmentation, and tradition of individualism, enhanced by a well-entrenched hierarchical authoritarian structure and diffuse accountability, forms a daunting barrier to creating the habits and beliefs of common purpose, teamwork, and individual accountability for successful interdependence that a safe culture requires.” Changing that kind of culture requires two essential ingredients: clear metrics for monitoring and effective motivation.

The Ascension Health System began the journey to eliminate preventable harm in 2002 and recently summarized its efforts. It has not yet eliminated preventable harm, but did report significant reductions in hospital mortality rate. An essential part of its 8-stage process of change was the need to “establish a sense of urgency.” This message of urgency motivated staff, from senior physicians to junior administrative personnel. Furthermore, it suggested that the tool for measuring its success or failure needed to be straightforward and understandable by individuals at all levels in the organization. In other words, the answer to the question, “How will we know when we get there?” demands a metric that is accurate, understandable, and motivational.

Ascension used a “priorities for action” tool consisting of 8 domains of preventable injuries or death. In contrast, other healthcare systems emphasize statistical process control (SPC) charts to characterize their data. SPC charts portray data in ways that help clinicians and Quality Improvement experts determine when to intervene and sometimes when to avoid tampering with a system that does not require intervention. The use and interpretation of SPC charts is an important component of system improvement. It is the responsibility of leadership to train and educate staff to use and understand the value of data portrayed in this manner. For example, rates of catheter-associated blood stream infections (CA-BSI) are often cited when comparing institutional hospital-acquired infection rates. This benchmark is valuable, but impersonal. Recently, the CA-BSI rate for our hospital was 0.9 infections per 1000 catheter days. This rate is quite low compared with published data, yet it still represents 36 patients in that 12-month period. Rates, displayed in run or control charts, allow the healthcare team to forget that each event is a patient harmed. Furthermore, published data suggests most of these infections are preventable with strict adherence to CA-BSI prevention bundles. When a hospital celebrates a low CA-BSI rate, the leadership and staff may lose sight of the most important goal: no patient should be harmed when they come to a hospital. As a result, SPC charts and rates of events often fail to motivate an organization’s needs in driving cultural change for patient safety.

Our hospital has begun a journey to eliminate hospital-acquired preventable harm by 2013. We fully understand both the audacity and difficulty associated with aspiring to achieve such an aim; however, we believe our patients deserve nothing less. Heifetz pointed out, “attention is the currency of leadership,” meaning that what leadership pays attention to

CA-BSI Catheter-associated blood stream infections
IOM Institute of Medicine
PHI Preventable harm index
SPC Statistical process control

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The authors declare no conflicts of interest.

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681
becomes of paramount importance to the rest of the organization.17 We have developed a simple tool that has been highly motivational at all levels in our hospital, from our Board of Directors and executive leadership to the front-line staff. We call it the PHI (Table). The PHI is designed to aggregate the total number of harm events in time and to supplement other, more traditional hospital metrics that codify “rates of untoward events.” The PHI emphasizes the numerator and de-emphasizes the denominator, keeping the focus on the patient (the numerator)—a key reason why we believe the PHI has been so motivational to our staff. An additional value of the PHI is that numbers of events can be summed. The PHI aggregates all events of harm into one summary number, as outlined in the Table. The number of blood stream infections can be added to the number of medication errors, which can be added to the number of falls, etc. The total preventable harm episodes (PHI) can be used as a key hospital safety metric. We acknowledge that not all events on the PHI are equal—a serious fall with fracture may not be equal to a medication error causing temporary harm. However, in our experience, it is the ability to simply “add” all events into one large aggregate number of patients harmed that has motivated our hospital staff to aspire to reduce harm events and dare to try and achieve zero. Some people will also argue that definitions of such events are imprecise and not comparable between institutions. We agree. However, if each hospital uses their data as an internal metric and uses internally consistent definitions for each domain within their own PHI, this index can be a powerful tool for the high reliability, zero defect healthcare system to which we all aspire.

Because the PHI is a simple concept, its value as an effective motivational tool should not be underestimated. Our governing body has enthusiastically endorsed the use of the PHI and has authorized the necessary resources to institute a robust patient safety program. Although some hospitals focus on serious safety events or hospital-acquired infections as key measures of harm reduction, the PHI emphasizes the larger problem of nearly all hospital acquired preventable patient harm. For example, serious safety events are an important but only small part of the aggregate PHI. By using the PHI, the dialogue around the importance of patient safety has been raised to a level not previously observed in our hospital. The PHI serves as our internal measure of success and is the primary yardstick we use to measure our hospital’s progress toward preventable harm reduction. Our hospital’s newly revised strategic plan, recently approved by our Board, has placed patient safety as a centerpiece of our work for the next 5 years. PHI reduction and attention to safety behaviors and concepts are now live items on annual employee evaluations, giving it added importance. Performance expectations with an internally developed accountability grid within the framework of a just culture have been rolled out through our human resources department. PHI reduction can also be used as a target metric for annual incentive plans.

We suggest the PHI can be an effective and motivating safety tool for the overall healthcare industry as we strive to a zero-defect healthcare system. It is possible to total the PHI numbers for multiple health systems within an entire region, and we currently are involved in those discussions. For example, in central Ohio, 4 separate healthcare systems (adult and pediatric) are considering a “community-wide PHI,” which would codify the number of harm events per quarter across our entire region. The use of this tool comes with a commitment to collaborate between institutions to drastically reduce that harm in time.

The many changes we are implementing to achieve the goal of zero preventable harm will take several years to reach fruition. We have found that the PHI is a valuable tool to generate the necessary “sense of urgency,” to motivate our organization toward change, and to provide an outcome measure that is patient centered and easily understood by everyone in the organization. We suggest that hospitals can and should generate their own PHI and begin the drive to zero defects. In conclusion, we assert that discussions on preventable harm reduction in healthcare should include a focus on a hospital-specific internally consistent numerator (the number of patients harmed or PHI) as an important tool to motivate organizational change.

### Table. Template of data for preventable harm index: domains of harm

<table>
<thead>
<tr>
<th>PHI</th>
<th>Year (events)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital-acquired infections</td>
<td>n</td>
</tr>
<tr>
<td>Adverse drug events (severities D-H)</td>
<td>n</td>
</tr>
<tr>
<td>Non-ICU cardiac arrests</td>
<td>n</td>
</tr>
<tr>
<td>Significant complications after surgery</td>
<td>n</td>
</tr>
<tr>
<td>Serious falls: inpatient/outpatient</td>
<td>n</td>
</tr>
<tr>
<td>Serious safety events</td>
<td>n</td>
</tr>
<tr>
<td>Preventable harm not reported elsewhere (e.g., joint)</td>
<td>n</td>
</tr>
<tr>
<td>Commission never events</td>
<td>n</td>
</tr>
<tr>
<td>Total patients with preventable harm</td>
<td>Sum</td>
</tr>
</tbody>
</table>

*Standard Centers for Disease Control and Prevention definitions.