

Application of Safety-II Principles

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[Traditional approaches](#) to patient safety have often been reactive rather than proactive, seeking to identify and mitigate contributing factors after adverse events have occurred, and seeking to prevent future events by imposing constraints. This approach to patient safety is referred to as [Safety-I](#), which defines safety as a condition where as few things go wrong as possible. Safety-I focuses on minimizing adverse events by using tools such as [root cause analysis](#) to evaluate contributing factors and [risk assessments](#) to understand the likelihood of these events occurring. A goal of the Safety-I framework is to implement processes and procedures to prevent the recurrence of these root causes.

Safety-I is a valuable framework for patient safety, particularly when evaluating adverse events. But it [falls short](#) because it emphasizes the few things that go wrong rather than seeking to understand the factors that contribute to the many things that go right every day in health care. Healthcare systems have become increasingly complex, and healthcare workers operate in dynamic environments that require flexibility to operate effectively as a team despite variable and often ambiguous circumstances. This increase in complexity in the healthcare system and recognition of the importance of evaluating successes in addition to failures yielded a shift to the [Safety-II](#) framework for patient safety, which seeks to understand why things go well in health care. [Safety-II](#) views safety from an everyday, system-wide perspective and recognizes the importance of adaptation in contrast to the Safety-I approach of primarily evaluating incidents of failure.

As Safety-II has gained traction, there has been an increase in its practical application in patient safety programs and care delivery across the healthcare landscape. This essay provides an overview of Safety-II principles and discusses examples of how these principles can be applied in healthcare.

Overview of Safety-II Principles

Key principles that guide the Safety-II framework include acknowledging and embracing variability and building resilience by learning from everyday successes. Rather than defining safety as the absence of adverse events, where as few things as possible go wrong, [Safety-II](#) defines safety as a condition where as many things as possible go right. Safety-II seeks to understand and replicate processes that allow things to go right most of the time despite variable conditions.

Under a [Safety-I](#) framework, the goal is to control, limit, or reduce variability. In contrast, Safety-II views [variability](#) as inevitable and critical for obtaining success and avoiding failures. In health care, things often go right due to healthcare professionals' ability to [adapt](#) to the dynamic conditions of their working environment. While Safety-I primarily views humans as a [liability](#) or a hazard and aims to implement standardized policies and systems to avoid the recurrence of adverse events, Safety-II understands that specific healthcare circumstances are not always predictable and the decision-making of healthcare workers is an asset. A Safety-II approach assumes that with everyday performance variability, healthcare professionals provide the adaptations needed to respond to varying conditions.

Another key principle of Safety-II is its focus on [resilience](#), or the ability of a system to adjust its functioning prior to, during, or following events to sustain operations under both expected and unexpected conditions. Organizational [resilience](#) in health care is characterized by the capacity to monitor, react, anticipate, and learn in order to maximize opportunities for things to go right. From a Safety-II perspective, this means that in order to improve safety, it is important to take a proactive approach to understanding what enables and/or impedes healthcare professionals to [succeed](#) in their everyday work.

Application of Safety-II in Health Care

There are several practical applications of Safety-II principles within healthcare systems. One example is to map a process using the [Functional Resilience Analysis Method \(FRAM\)](#) to understand [work-as-done](#), which refers to everyday work as it is actually carried out, compared to work-as-imagined, which is the perception of how the work should be carried out. A FRAM analysis involves identifying functions, describing the performance variability of these functions, analyzing relationships between functions, and monitoring and controlling variability. This model to assess processes and adverse events has been used in settings such as intensive care, transitions of care, and sepsis management.¹

Another example is incorporating a Safety-II mindset into existing Safety-I tools, such as [root cause analysis](#). Traditional root cause analysis limits the learning that can be gained from assessing adverse events because it focuses primarily on what went wrong. Safety-II can be incorporated into root cause analysis and adverse event investigations by identifying misalignments between work-as-imagined and work-as-done, discussing what went well in addition to what went wrong, and discussing how to adapt and adjust the work processes that led to the adverse event. Broadening the scope of adverse event investigation by asking what normally happens and what went well can allow for a deeper understanding and strengthening of the work-as-done that creates safety on a [day-to-day basis](#) in addition to preventing failures that caused the adverse event. [Simulations](#) can also be incorporated into root cause analyses in situ in order to understand patient care situations and highlight differences between work-as-done and work-as-imagined.

Safety-II principles can also be incorporated into routine [debriefing](#). In addition to weaving a discussion of what went well into adverse event investigations, healthcare organizations can incorporate debriefing as a tool for positive events, where patients have a good outcome, to understand what led to that outcome and replicate those processes. For example, New York Health and Hospitals pioneered what they call a success cause analysis, which uses root cause analysis methodology to understand the factors that contributed to favorable outcomes as well as adverse events.² The University of Pennsylvania

implemented an activity called [One Safe Act](#), which asked perioperative staff to highlight one safe act or proactive safety behavior that they conducted in their daily practice. Participating staff reported that this activity changed their patient safety practices, improved their ability to deliver safe care, and demonstrated their colleagues' commitment to patient safety.

Safety-II principles can also be applied in communication between healthcare professionals. A newly funded pediatric [Patient Safety Learning Laboratory](#) is exploring protocols for communication channels between clinicians in order to design, develop, and test a more resilient patient safety communication system.³

Finally, to understand work-done versus work-as-imagined, the authors (CV and KH) have started implementing a learning team methodology at Inova Health System.⁴ These sessions are three-hour, in-person meetings with between 15 and 20 subject matter experts from a variety of disciplines. Learning teams may or may not be triggered by a safety incident; the goal is to examine processes from the perspective of those involved to grasp the intricacies and risks of potential mistakes, errors, and harm, and to identify what ensures successful outcomes. The authors use the 4D Question Tool to encourage authentic team discussion of what went well and what could be improved.⁵

Future Directions

Safety-I and Safety-II are not mutually exclusive; they are complementary perspectives that can be used together to understand safety and to address and mitigate failures as well as to replicate and amplify successes. While we see Safety-II being integrated at the healthcare organization level, many policies and reporting requirements from authorities and [regulators](#) still focus on what goes wrong rather than what goes well. Moving forward, successful implementation of Safety-II concepts in health care will require collaboration among stakeholders, including healthcare providers, administrative leaders, and policymakers to consider how we can best build resilient healthcare systems.

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