



WHITE PAPER

Enhancing Patient Safety with **Electronic Trigger Tools**

The Hospital's Guide



Executive Summary

The current state of patient safety in the United States is reflective of both incredible progress and significant challenges. While advancements have been made in recent years, studies continue to highlight the prevalence of adverse events and medical errors in hospitals, indicating that preventable harm still occurs far too frequently. The importance of improving patient safety is a growing priority for health system leaders — and effective safety event reporting systems can help.

Event reporting systems are crucial for health systems aiming to establish and cultivate a robust culture of safety. By helping to track, collect, manage, and analyze safety events as well as to understand the root causes of harm, these systems can significantly improve patient safety and decrease risks. They also can identify safety gaps within the hospital and across the organization.

Most event reporting systems require manual event documentation by staff members, but the most effective solutions use electronic trigger tools to automatically identify potential adverse events and errors. Also known as automatic event detection, or “autodetection,” this groundbreaking technology expands on human reporting activities by using data from the electronic health record (EHR) to automatically identify safety incidents that may otherwise have been missed. Not only does this improve the accuracy and completeness of documented events, but it overcomes common event reporting barriers and empowers health systems to capture more events, learn from them, and reduce risk.

[VigiLanz Safety Management](#), an Inovalon solution, is the only offering on the market currently leveraging automated event detection. This guide further explores its benefits, discusses why every hospital should deploy it, and shares how one innovative health system is using this software to enhance patient safety.

What are safety event reporting systems?

Safety event reporting systems are used by forward-thinking inpatient and outpatient healthcare facilities to capture adverse events, near misses, medical errors, and other incidents that compromise patient, staff, or visitor safety. By collecting and analyzing this data, hospitals can implement targeted interventions, enhance patient safety protocols, and proactively prevent future occurrences of harm.

Traditionally, these systems rely on manual detection and reporting processes that require healthcare staff to personally input safety incidents into the system for review.

What are electronic trigger tools?

Electronic trigger tools are advanced features of effective safety event reporting systems, defined as the automatic identification of potential adverse events that may otherwise have gone unnoticed or unreported. These events are then automatically documented in the safety event reporting system for staff to review.

When used in combination with manual event reporting, electronic trigger tools provide an additional layer of protection for both patients and clinicians by ensuring that more events are captured. As a result, health systems have a more accurate understanding of their overall safety performance, and can put better strategies in place to prevent future harm.

Why are these tools so important?

In many hospitals, the only method used to capture and report safety events is manual reporting. However, because of common barriers — such as forgetting to report or fear of negative consequences — only 10-20% of safety events are ever reported, resulting in alarming hospital safety gaps.

Other common drawbacks of relying solely on a manual approach for event reporting include:

- Less information captured when rushed staff members document events
- Delayed reporting, due to lack of urgency if staff members considered the event to be minor
- Lack of documentation due to confusion over reporting responsibilities or misunderstandings about what events should be reported

Electronic trigger tools help address all of these problems. They ensure more events are documented sooner and more thoroughly.

How do electronic trigger tools work?

By continuously monitoring real-time patient information inside the EHR, automated event detection software searches this data for concerning patterns, trends, and anomalies that may indicate a safety event has occurred. Inovalon works with clinical leaders to create customized safety event triggers, often referred to as rules, that are tailored to the organization's preferences. As a result, each event that is automatically detected and documented is highly relevant and meaningful to the health system.



Automated event detection can be extremely helpful in terms of finding more events. The better sense you have of how many events there actually are, the better you can do in terms of managing safety going forward.”

David Westfall Bates, M.D.
Medical Director of Clinical and Quality Analysis, Mass General Brigham and Chief of General Internal Medicine, Brigham and Women's Hospital

Automated Event Detection in Action: A CHRISTUS Health Case Study

About CHRISTUS Health

[CHRISTUS Health](#) is an international Catholic, not-for-profit health system comprising more than 600 centers, including community hospitals, urgent care centers, health insurance companies, and physician clinics in Texas, Louisiana, New Mexico, and Latin America. With more than 45,000 team members and more than 15,000 physicians providing individualized care, CHRISTUS aims to deliver a complete healing experience that respects every individual.

Challenge

Adverse drug events (ADEs) represent a significant, and often avoidable, problem in United States healthcare. ADEs cause approximately 1.5 million emergency department visits annually, and about 500,000 of those patients need to be hospitalized for further treatment¹ – yet it's estimated that half of ADEs in the U.S. are preventable.²

Often, when these events do occur, they are either unreported or lack critical details and context. This makes it difficult for quality, safety, risk management, and other teams to document, analyze, and prevent similar events from occurring in the future.

While many hospitals have patient safety event reporting processes and procedures in place, many lack automated event detection capabilities to make the event reporting faster, easier, and more accurate.

Solution

CHRISTUS implemented VigiLanz Safety Management, which automates the management, reporting, and detection of safety events. This patient safety software integrates clinical data from multiple sources with comprehensive detection and investigation tools. For example, the software monitors EHR data — including data related to patient demographics, medication orders, medication administrations, lab results, radiology notes, and vital signs — and documents triggered events based on CHRISTUS-defined safety event criteria. This makes it easier for CHRISTUS to quickly identify, manage, address, and prevent adverse drug events.

Key Benefits



Improved efficiency, accuracy, and completeness of events reported



Ability for patient safety teams and claims managers to intervene quickly



Safety events recorded in near real-time



More comprehensive capture of safety events

CHRISTUS team members can also use the solution to quickly document and self-report safety events through customizable forms, mobile access, mandatory fields, and anonymous reporting. The solution includes:

- Patient safety event reporting analytics and investigative tools that can be used within specific departments, sites, and across the organization.
- Customizable and automated email notifications and automated escalations to ensure timely reviews and management.

Results snapshot:

400%

increase in ADRs reported with auto-detection compared to manual reporting

7X

more ADRs identified in facilities with auto-detection than facilities that identified ADRs via voluntary reporting

<77%

of auto-detected ADEs leading to investigation and analysis

66%

overall increase in ADRs reported for harm categories with auto-detection compared to manual reporting



Automated event detection saves us a significant amount of time, and gives us more peace of mind that more events are captured. As a result, we can now spend more time analyzing events and identifying improvement opportunities.”

Tina Collins, PharmD

Corporate Director of Medication Safety at the Division of Clinical Excellence and CHRISTUS Health

Outcomes

Over an 18-month period, CHRISTUS deployed 21 surveillance rules to auto-detect ADEs. This led to a 400% increase in ADRs reported compared to manual reporting.

CHRISTUS facilities with Vigilanz Safety Management identified 8.7 times more ADRs than facilities that relied on voluntary reporting. In addition, more than 77% of the auto-detected ADEs led to an investigation – a testament to the accuracy of the software’s rules.

CHRISTUS saw a 66% overall increase in ADRs reported for harm categories (including mild harm, moderate harm, severe harm, and death) with auto-detection compared to manual reporting. Auto-detection also identified 4.8 times more near-miss ADRs, 2.3 times more moderate-harm ADRs, and 1.6 times more mild-harm ADRs as compared to manual reporting.

“Our number of reported events is increasing due to automated event detection and reporting,” said Collins. “The technology, which is now used across all of our hospitals, ensures we’re capturing more events and gathering more insights.”

Sources

1. FastStats: Medication Safety Data, U.S. Centers for Disease Control and Prevention, April 17, 2024, <https://www.cdc.gov/medication-safety/data-research/facts-stats/index.html>.
2. Medication Errors and Adverse Drug Events, Patient Safety Network, September 7, 2019, <https://psnet.ahrq.gov/primer/medication-errors-and-adverse-drug-events>.

What other capabilities should hospitals look for when evaluating safety event reporting systems?

While automated event detection is crucial to effective safety event reporting, health systems should watch for other key capabilities when evaluating event reporting solution partners.

Two of the most important functionalities to seek out in a solution include event form auto-population in addition to advanced analytics and reporting tools. While many safety event reporting solutions might claim to have these capabilities, it's very important during evaluations to assess the depth of functionality that is truly built into the tool.

- 1. Form auto-population.** As noted, automated event reporting systems use various data feeds to detect safety events. A similar approach can be used to streamline documentation for staff members when they are manually reporting events. With form auto-population, standardized and normalized data are pulled in real-time from data feeds while staff members are documenting events. This significantly reduces staff time spent filling out forms and enhances reporting accuracy.
- 2. Advanced analysis and reporting tools.** While automated event detection and form auto-population are critical to ensuring safety events are identified quickly and documented properly, these capabilities are also key to enabling quick and thorough investigation and analysis of safety events. Since organizations without automated detection and auto-population tend to capture fewer events and fewer details related to events, their reporting and analytics platforms are working with incomplete data. That means these organizations are missing key safety trends and improvement opportunities. When automated event detection is used in tandem with a robust set of reporting and analysis tools — such as timelines, cause mapping, solution maps, and fishbone diagrams — hospitals can identify more safety events and safety trends quickly. This helps them intervene faster to prevent future problems.



The leader in data-driven patient care

For more than 20 years, VigiLanz solutions have helped hundreds of healthcare institutions dig deeper into their data to streamline their operations, prevent adverse events, and optimize patient safety. Now part of Inovalon, our safety management software is the only solution on the market currently utilizing both voluntarily reported and automatically detected safety incidents to help health systems gain visibility into the true state of patient safety inside their institutions. Our auto-populating forms, comprehensive reports, and detailed analysis tools additionally give leaders the information they need to effectively improve safety, reduce costs, and optimize care.

To learn more about how Inovalon can help your health system automatically identify and capture more safety incidents to build a robust culture of safety, [contact us](#) to request a demo today.

About us

Inovalon is a leading provider of cloud-based SaaS solutions empowering data-driven healthcare. The Inovalon ONE® Platform brings together national-scale connectivity, real-time primary source data access, and advanced analytics into a sophisticated cloud-based platform empowering improved outcomes and economics across the healthcare ecosystem. The company's analytics and capabilities are used by nearly 20,000 customers supporting more than 53,000 sites of care. For more information, visit www.inovalon.com.

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