



## Technology Failures

By Shirley Dominick, MSN, RN

**Technology in healthcare has expanded substantially over the last two decades.** From electronic health records and barcode scanning to intravenous pump integration and best practice alerts, the work of healthcare providers is more automated now than ever before. But does this technology always make patient care safer? What happens when things don't go as planned? The following are examples of reported events that illustrate errors based, at least in part, on the reliance of technology.

A new registered nurse (RN) went to administer insulin but realized that the medication was dispensed in vial form, which they were not familiar with, as their clinical training in nursing school had been limited to administering insulin via patient-specific pens. Consequently, they failed to recognize that they needed to use an insulin syringe instead of a 10 milliliter syringe that was used for many other vial-based medications. They relied on the dispensing instructions from Pharmacy which read “dose 28 units, dispense 1” instead of the medication administration record (MAR) instructions. They then proceeded to scan the medication vial appropriately and entered the correct amount to match the order, assuming that the contents of the vial contained the dose of units. The patient received more than 35 times the intended dose, developed hypoglycemia, and was transferred to the intensive care unit (ICU). The patient recovered and was discharged from the ICU three days later.

In this scenario, the RN was not familiar with the use of an insulin syringe and did not realize that the Pharmacy instructions were different from the MAR. Creating alerts, such as having a picture of the syringe in the MAR to indicate there is something “different” about the administration of this medication, could be an option

to prevent the recurrence of a similar event in the future. Adding an alert that notifies the user of a “partial” dose may also help to mitigate risk.

During an unplanned downtime, a patient who was nonverbal and had a documented allergy to strawberries received a meal tray with a fruit salad. The fruit salad contained strawberries and was fed to the patient. The patient developed an anaphylactic response which led to respiratory arrest. They were coded successfully and transferred to the ICU. Upon review of the event, it was determined that Dietary did not have established downtime procedures. Their computer system was linked to the electronic medical record (EMR), and they were unable to account for any allergies. The patient care assistant who was working with the patient was from the float team and was on the floor temporarily to assist as needed. They were asked to feed the patient and were not told about any allergies. The RN assigned to the patient was also acting as the charge nurse and in the middle of implementing the downtime processes for the floor when the patient received their meal tray.

Downtimes, whether planned or unplanned, can cause many challenges for staff. Most staff are unfamiliar with the use of paper charts as they have used EMRs for many years. One strategy which has been shown to be effective is to initiate the facility’s command center to help manage overall operations.<sup>1</sup> More frequent drills of downtime procedures can increase staff knowledge and comfort with the process. Consider including all ancillary departments in these drills, such as Environmental Services and Dietary. Debrief staff after all downtimes to provide a just-in-time learning opportunity.

An overreliance on technology can lead to reduction in critical thinking skills when faced with complex or ambiguous situations. Critical tasks, such as medication administration, can become routine, causing the nurse to not consider important aspects of the patient’s overall condition or their health record.

It is essential for healthcare workers and healthcare organizations to mitigate errors related to overreliance on technology by recognizing its limitations; actively cultivating critical thinking skills through ongoing education, training, and opportunities for reflection and discussion; identifying how technology can fail and proactively working to mitigate those failures; and practicing downtime procedures frequently.

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1. Larsen E, Fong A, Wernz C, Ratwani R. Implications of Electronic Health Record Downtime: An Analysis of Patient Safety Reports. *J Am Med Inform Assoc.* 2017;25(2):187–191. doi: [10.1093/jamia/ocx057](https://doi.org/10.1093/jamia/ocx057)

## Event Reporting Case Study: Medication Administration: Insulin Vial Overdose

This case study is an example of how to report an event into PA-PSRS.

**Narrative:** A patient received an order for 28 units of insulin via vial administration. The RN was unfamiliar with this type of dosing for insulin and thought the entire vial was to be given via a 10 mL syringe. When scanning the vial, the correct units came up (no partial dose indication), and they proceeded to administer the entire vial. The patient developed hypoglycemia and required transfer to the intensive care unit (ICU).

## 2024 Keystone Surgical Site Infection Surveillance and Reporting

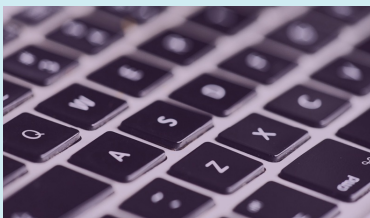
The Patient Safety Authority (PSA) is excited to announce our newest Keystone for ambulatory surgical facilities (ASFs) starting July 2024. This Keystone will focus on surgical site infection (SSI) surveillance and reporting. Patient safety advisors will consult with ASFs to review current practices relating to surveillance and reporting. Additional support, resources, and improvement strategies will be individualized for ASFs based on the results of the initial consultation.

In conjunction with this Keystone, the ASF Symposia will return this fall with in-person education offered at various locations across Pennsylvania. Additionally, the PSA infection prevention advisors will offer webinars in the early part of 2025 developed specifically to address the unique infection prevention needs of ASFs. Be on the lookout for save the date and registration announcements for these educational opportunities.

With so much important information coming soon, this is a good time to check that your Facility User Information in PA-PSRS is accurate and complete. If you require assistance, please refer to the Pennsylvania Patient Safety Reporting System Training Manual and Users' Guide, Chapter 3: Facility Management, available in the Resources tab in PA-PSRS. You may also reach out to the [PA-PSRS help desk](#) or your facility's patient safety advisor for assistance.

## CHANGEMAKERS

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### Buttoning Up a System

While changing the directions for insulin, a nurse identified that the “No Print” button in her hospital’s electronic medical record (EMR) was sending a prescription (Rx) cancellation to the pharmacy. When the EMR system went live, using the “No Print” button to adjust directions without sending a new Rx to the

pharmacy had been a common practice because the patient did not need a refill, and since pharmacies were not yet integrated with the EMR, they had not been receiving cancellations. However, as more pharmacies integrated with the system, cancellations from using the “No Print” button began to occur more often. This was a major safety issue because the patient medication list needs to reflect current dosage orders accurately.

The nurse recognized the potential for a very serious patient medication error due to the EMR constraints and took appropriate elevation measures. In response, the hospital placed an EMR optimization ticket and held many discussions to find a better solution to this issue. The nurse contributed to these focused discussion groups, advocating for patients and their safety, and after many months and much collaboration they decided to remove the “No Print” button and use the “Edit/Change” button instead. They also created a smart phrase in the EMR to send the pharmacy instructions that the directions have changed, but a refill is not necessary.

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