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Educating the Healthcare Community About Safe Medication Practices

Raising the Bar — Zoning in on Barcode Medication Administration Practices

Barcode medication administration (BCMA) systems are valuable tools that reduce medication administration errors, but only when practitioners use them correctly. Staff must know how to properly use the system, and procedures must include an escalation process for barcode scanning failures. Otherwise, practitioners may employ workarounds when a barcode is hidden or damaged, difficult to scan, or missing; when a medication has not yet been added to the system(s); or when practitioners bypass an alert that they do not understand.

In the March 21, 2024, acute care newsletter article, Implement Strategies to Prevent Persistent Medication Errors and Hazards: 2024, we discussed how BCMA workarounds may indicate that the devices are not configured to support safe clinical workflow, that the staff have received insufficient education related to appropriate BCMA use, or lack knowledge about the risks involved and actual organizational errors that have occurred when workarounds are employed.

Examples of unsafe BCMA practices include administering a medication even though the barcode will not scan or scanning after medication administration with or without back charting. Proxy scanning, scanning barcodes from sources other than the medication being administered, also poses a risk to patients. This includes when practitioners scan the barcode on an already hanging empty infusion bag, a barcode that is not affixed to the product that a practitioner is administering, or when a patient label or copy of the patient identification (ID) band is scanned rather than the band on the patient's extremity. These practices can increase the risk of patient harm due to a medication error and/or drug diversion. The following represent examples of BCMA-related workarounds reported to ISMP.

A prescriber modified a patient's norepinephrine infusion to a higher concentration due to fluid restriction. A nurse went to replace the infusion bag and inadvertently scanned the barcode on the bag that was already infusing instead of the higher concentration bag, and bypassed an alert, resulting in an overdose.

A wrong patient medication error occurred. When the event was formally reviewed, it was determined that the nurse would often print a copy of patient ID armbands for patients in isolation. The nurse would then scan the copy of the patient's armband and medications outside the patient's room. On this day, the nurse subsequently walked into the wrong patient's room and administered the medications to the wrong patient.

During routine monitoring, a nurse manager noted that one nurse had a higher number of medication barcode bypasses than their peers. When the nurse manager met with the nurse to understand barriers, they identified that there was a lack of barcode scanners available in each patient bay. As a result, leadership purchased additional scanners to facilitate BCMA.

The hospital's diversion monitoring software identified that a nurse's documentation habits were suspicious. Further review of the documentation issues revealed that the nurse was routinely back charting controlled substance administration. Due to this proactive monitoring, the organization's interdisciplinary diversion response committee was able to promptly investigate.

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SAFETY wire

Be Prepared! New Once-Weekly 700 units/mL Awiqli Insulin Pen. In March 2026, the US Food and Drug Administration (FDA) announced approval of **AWIQLI** (insulin icodec-abae), a long-acting human insulin analog indicated as an adjunct to diet and exercise to improve glycemic control in adults with type 2 diabetes mellitus. According to the prescribing information, each carton of Awiqli (Novo Nordisk) will contain one 1.5 mL (1,050 units) or 3 mL (2,100 units) FlexTouch prefilled pen and 13 NovoFine needles. There will also be a 1 mL (700 unit) sample pen available.

Not only is the highly concentrated 700 units/mL formulation unique, but the once-weekly dosage and corresponding dose adjustments will be new for practitioners and patients. The recommended weekly starting dose of Awiqli in insulin-naïve patients is 70 units (0.1 mL) administered subcutaneously once weekly on the same day each week. The pen delivers doses in 10-unit increments and can deliver up to **700 units in a single injection**. Practitioners may need to titrate the dose of Awiqli based on the patient's metabolic needs, blood glucose monitoring results, and glycemic control goals, with dose adjustments for renal or hepatic function and during illness. If patients need to change the day of the week to administer Awiqli, they may do so if their last dose has been at least 4 days prior. If they missed a dose, they should administer the missed dose as soon as possible if it has been 4 days or less, and then continue the once-weekly schedule 1 week from the day the missed dose was administered. If more than 4 days have passed, patients should skip the missed dose and take their next Awiqli dose on their regularly scheduled day.

A pharmacist reported concerns that the 700 units/mL concentration on the pen device is in small font, which could be overlooked by a practitioner or patient. It is also difficult to know how easy it will be for patients to differentiate between doses on the dose selector, especially since there is such a wide range of doses that can be selected from the starting dose of 70 units all the way up to 700

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Casting a Wider Net on BCMA Monitoring

Although workarounds are commonly reported to us, some organizations lack a proactive plan to monitor for, understand, and mitigate these at-risk behaviors. One health system, Nebraska Medicine, was able to address common workarounds related to BCMA. The Nebraska Medicine network is comprised of two hospitals that have more than 800 licensed beds with multiple specialties including trauma, transplant, oncology, and pediatric/neonatal populations. The health system also includes multiple infusion centers and ambulatory surgical sites.

Although Nebraska Medicine's data showed that nurses were scanning medication barcodes 97% of the time, the organization wanted to complete a deeper dive into the remaining 3% of medications that nurses were not scanning. They also wanted to know if the 97% scanning compliance represented safe practices with scanning, or if workarounds were occurring that could not be gleaned from the data alone. Below is an overview of how Nebraska Medicine implemented BCMA compliance monitoring along with corresponding safeguards.

Safe Practice Recommendations: We encourage organizations to apply the BCMA-related lessons learned shared by Nebraska Medicine by considering the following recommendations:

Create a BCMA dashboard. Nebraska Medicine created a dashboard that contains BCMA data by nursing unit. Custom groups were built so that nurse leaders have easy access to their areas of direct report. Data can also be determined by the end user to identify outliers for further investigation. A dashboard enhances data visibility, allowing nurse leaders to visually identify scanning trends, prompt follow-up discussions, and develop an action plan.

Review top drugs and users. Nebraska Medicine reviews the top 10 medications not scanned each month. They investigate whether there is a barcode (e.g., new medication barcodes not yet in the system, missing or difficult to scan barcodes) or system issues (e.g., unavailability of scanners, workflow issue). They also identify the top users who bypassed scanning, so that nurse leaders can follow up with individuals and understand barriers to scanning. This data is reviewed at their monthly medication management committee (MMC), cochaired by the system's medication safety team (a nurse and a pharmacist). The MMC reports to the pharmacy and therapeutics committee.

Observe administration at bedside. Establish standard BCMA workflows for particular challenging situations (e.g., patients in isolation, neonates), and ensure patient ID bands are directly attached to patients. To better understand bedside practices, the medication safety team at Nebraska Medicine routinely performs walkarounds to directly observe medication administration and scanning practices. Asking nurses which medications they routinely have issues scanning can help with troubleshooting issues on the spot. During one observation, a nurse attempted to scan a normal saline flush syringe to clear the medications from an intravenous (IV) line, but there was no order on the medication administration record (MAR). The observer was able to show the nurse how to access the flush order panel so the nurse could order the flush per the organizational protocol. Once ordered and verified by pharmacy, the nurse was able to scan saline flushes. Regularly observe BCMA practices within your organization to help identify and address potential workflow issues to prevent workarounds.

Understand MAR charting corrections. Although nurses may occasionally need to correct errors in charting, Nebraska Medicine emphasizes that this should be rare, and monitoring should ensure it does not become a habitual workaround. Nebraska Medicine completes an audit every other month, where the users who most commonly correct their charting are identified and are called upon to demonstrate their understanding of the workflow. Understanding why the documentation needs to be corrected can help identify workflows that need enhancement or revision. Medications that receive the highest number of corrections are also reviewed to see if there are barcode-related issues that need to be resolved.

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units! Another concern is that when switching to Awiqli from daily basal insulin therapy, there are different instructions based on the week (e.g., week 1 and week 2 have different dosing recommendations), which may also lead to prescribing or administration errors.

The prescribing information warns that serious hypoglycemia requiring hospitalization has occurred due to accidental mix-ups between Awiqli and other insulin products or once-weekly injectable antidiabetic medicines, incorrect dose selection, and dosing frequency errors. While this long-acting insulin is not available yet in the United States, it is available in other countries. A recently published case report described a patient who unintentionally administered a 10-fold higher dose of insulin icodec as his first dose.[1] He was prescribed 70 units of insulin icodec subcutaneously once weekly and was provided with a 1 mL sample pen containing 700 units. The patient misread the concentration on the packaging and administered 700 units of icodec. Fortunately, he identified the error immediately, went to the ED, and suffered no adverse effects or hypoglycemic events, as demonstrated by continuous glucose monitoring.

According to Novo Nordisk, Awiqli is expected to be available this summer (2026). Hospitals need to educate practitioners about this new insulin product and have a plan for when patients using Awiqli are hospitalized, whether or not Awiqli is on formulary. During medication reconciliation, specifically ask the patient which day of the week they take this medication (e.g., every Monday). Evaluate your electronic health record (EHR) and pharmacy dispensing software to require a weekly dosage regimen default for Awiqli and lock this field down so that practitioners cannot change it to another frequency (e.g., daily). If patients are admitted and need to discontinue Awiqli (for whatever reason), practitioners need to account for the residual effect of Awiqli and have a plan to initiate a daily basal insulin after the 7-day duration of Awiqli.

Evaluate acute care workflows and consider if it is possible to add a patient-specific label to the insulin pen device itself (not on the removable cap), so that, before administration, the nurse can scan the patient's wristband, patient-specific barcode on the pen, and the

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Oversight of armband printing. A high volume of patient ID armband printing can be an example of at-risk behavior that may stem from an individual's choice or the culture of a nursing unit. Nebraska Medicine completes a review of an armband printing report, used to identify outliers. The report can be generated by department or user, so it is easy to identify where armbands are being reprinted. If an individual nurse is printing armbands more often than their peers, the medication safety team reaches out to the unit's nurse leader to investigate why. It is important to understand the workflow around printing copies of patient armbands. Nebraska Medicine found that in some cases, nurses needed to print armbands for direct admissions or for replacement. However, if an individual user has a high volume of printing, this could be an early indicator of a workaround that should be addressed.

Monitor for drug diversion. If a BCMA workaround seems to be related to drug diversion, ensure there is a process in place for escalation, such as reporting concerns to your organization's Controlled Substance Diversion Prevention Program or interdisciplinary diversion response committee/team. Consider implementation of software that can integrate with the electronic health record and automated dispensing cabinets to help flag suspicious activity.

Escalate the issues. Organizations must have a process for escalating issues related to barcode scanning. When issues occur, encourage staff to consider using a peer as a double check to understand why the barcode scanning failed. Ensure there is a clear process for how to handle a barcode scanning issue prior to administering the medication. At Nebraska Medicine, a practitioner fills out a Medication Troubleshooting Form and sends it to pharmacy. The form is easily accessible on the organization's intranet via a Nursing Resources page and via the Drug Information page, which is available via both the intranet and through a direct link from the MAR. Pharmacy then follows up and provides feedback to the user.

Report errors and share learnings. Educate staff on when and how to report BCMA-related workflow issues, close calls, and errors that have reached a patient. Discuss concerns and findings with pharmacy and nurse leadership to foster a culture of safety. Use internally and externally published events related to incorrect BCMA utilization to educate staff to further highlight the importance of BCMA. At Nebraska Medicine, time is devoted at each MMC meeting to share external learnings (e.g., ISMP newsletters) and internal events reported via their event reporting software.

Assume positive intent. It is important to remember that BCMA-related workarounds are typically not an indicator of intentional bad practice. Situations like proxy scanning can occur as an at-risk behavior. Staff may unknowingly create at-risk situations to increase workflow efficiency. Organizations should take the time to discuss situations where practitioners have bypassed barcode scanning to ensure they truly understand the root cause(s). Promote optimal workflow and provide opportunities for feedback from end users. Taking the time to directly observe administration and promote safe practices, along with comprehensive reporting with data review, can help organizations have a proactive approach to BCMA-related error prevention.

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manufacturer's barcode to ensure it is the correct product for the patient. Practitioners and patients must be educated not to use an insulin syringe to withdraw Awiqli from the pen cartridge, and to only use the NovoFine needles that come with the pen. Determine if additional strategies (e.g., store separately from other insulin products such as in the controlled substance safe, conduct an independent double check prior to dispensing and administration) are needed to safeguard the 700 units/mL pens. If it is a nonformulary product for your organization, consider whether the drug is appropriate for formulary addition, so that system safeguards can be optimized.

Organizations (e.g., hospitals, clinics, pharmacies) should provide patients with education for all Awiqli prescriptions and ensure that they understand the correct weekly frequency. When dispensing from the outpatient or community pharmacy, staff should apply a label on the pen devices, not the removable caps. When Awiqli is picked up at the pharmacy, provide mandatory counseling and require the patient to repeat back the instructions, at every encounter, to validate that the patient understands the once-weekly dosing schedule and hypoglycemic effect of the medication if taken more frequently than prescribed. Tell patients to always check the product label before each injection to confirm they are using Awiqli and not another insulin product. Instruct patients to visually verify the dialed units on the dose selector of the Awiqli pen before each injection and not to dial to the maximum single dose (700 units) of Awiqli unless this is the prescribed dose. Ensure patients understand how to recognize and manage hypoglycemia.

Please maintain a heightened awareness when administering this product. Report errors to ISMP, FDA, and the manufacturer.

Reference

1) Hawker K, Morein J, Gill G, Druce I. Tenfold insulin icodec overdose. *Can J Diabetes*. 2025;49(8):470-472.

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