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ISMP
An ECRI Affiliate

Acute Care
ISMP Medication Safety Alert!®
Educating the Healthcare Community About Safe Medication Practices

Safety issues with long-acting injectable (LAI) antipsychotics

Problem: Fourteen long-acting injectable (LAI) antipsychotic products are currently approved for use in the United States (**Table 1**, page 2). These products include seven active ingredients in various formulations and require different doses, injection intervals, titration schedules, and administration sites. Unlike oral antipsychotics that require one or more daily doses, LAI antipsychotics with longer dosing intervals can be a convenient option to help patients with schizophrenia maintain adherence to their treatment regimens and reduce relapses. However, despite guidelines that recommend early initiation of LAI antipsychotics for schizophrenia (www.ismp.org/ext/1175), lack of practitioner familiarity with LAI antipsychotics can often be a barrier for them to be initiated in the acute care setting. When they are used, LAI antipsychotic-related errors have occurred due to transitions of care handoffs and the product-specific nuances described below.

Medication Reconciliation Issues

It is common in many communities for patients/residents needing mental health services to transfer between home/outpatient care and acute or chronic residential care locations, resulting in different prescribers managing medication therapies. Prescribers may need to order multiple LAI antipsychotic formulations and doses for distinct phases of therapy (e.g., initiation, maintenance, subsequent initiation after missing maintenance doses). Based on product labeling, practitioners also prescribe different injection intervals (e.g., every 2, 4, or 8 weeks; every 3 months; every 6 months). Practitioners may document these medication orders in their respective paper medical records or nonintegrated electronic health records (EHRs), making record keeping for prescribed, dispensed, and administered doses a significant safety challenge. Also, initiation of LAI antipsychotics often requires patient tolerance to a corresponding oral formulation first. In fact, some regimens require an initial overlap of therapy after the first injection or require restarting concomitant oral therapy after long gaps in treatment. These variables can lead to patients receiving incorrect formulations or doses at inappropriate times.

*A patient had missed several intramuscular (IM) maintenance doses of monthly **INVEGA SUSTENNA** (paliperidone). The prescriber ordered an initial one-time dose but was unaware that the recommended schedule for managing missed doses includes a booster dose to "re-load" the patient. Another practitioner discovered the discrepancy and prescribed the booster.*

A patient transitioning from outpatient treatment to an acute residential facility received duplicate LAI doses in a single week. The acute care staff did not have information about the patient's LAI antipsychotic as a result of inadequate medication reconciliation and paper medical records.

*A prescriber ordered an IM dose of **ABILIFY MAINTENA** (**ARIP**iprazole, monthly) for a patient who had not received their LAI antipsychotic in the past year. During medication reconciliation, the prescriber did not verify the current medication list with the patient and did not know the patient was no longer taking an oral antipsychotic at home. The prescriber ordered the LAI antipsychotic dose without restarting the recommended concomitant oral therapy overlap or reassessing oral tolerance.*

*A patient's medication history from an outside facility had documentation that the patient was taking 400 mg of Abilify Maintena (**ARIP**iprazole, monthly) IM monthly. When a pharmacist was*

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SAFETY briefs

Lot number/expiration date a must for immediate container labels. ISMP strongly supports a new business item regarding medication barcodes that was presented at the June 13, 2023, meeting of the American Society of Health-System Pharmacists (ASHP) House of Delegates in Baltimore, MD. The item, introduced by Kevin Marvin, RPh, MS, FASHP, of Vermont, calls upon the US Food and Drug Administration (FDA) to require that barcodes on immediate container labels (e.g., unit dose package, syringe label, individual drug vials) incorporate the medication's lot number and expiration date to enable automated collection and validation of this information during preparation, dispensing, and administration. The current FDA barcode rule (21 CFR 201.25) requires that the National Drug Code (NDC) be incorporated in a one-dimensional (1-D) linear barcode, but these do not include the lot number and expiration date. FDA currently allows two-dimensional (2-D) barcodes that can encode this information, but the linear barcode is still required, creating space issues for small packages.

The new business item correctly points out that barcode scanning versus manual logging of lot numbers and expiration dates is critical for patient safety, with improved data visibility

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Apply now for a Just Culture Scholarship

The Just Culture Company, in cooperation with ISMP, will award three ***Judy Smetzer Just Culture Champion Scholarships*** annually to honor Judy Smetzer, BSN, RN, FISMP, a retired ISMP vice president. Applications for the 2024 scholarships are due by **September 28, 2023**. For details, please visit: www.ismp.org/node/30840.

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*reviewing the patient's medication history, the patient said they were instead receiving **ARISTADA** (**ARIP**iprazole lauroxil) 1,064 mg IM every 2 months, and were 4 months past due on their dose. The pharmacist notified the prescriber of the discrepancy. Since the prescriber was not familiar with LAI antipsychotics, oral **ARIP**iprazole was ordered for inpatient therapy until the patient could be reevaluated by a comprehensive mental health services team.*

Table 1. Long-acting intramuscular (IM) and subcutaneous (SUBQ) antipsychotic injectable products

Generic Name	Brand Name	Dosing Interval	Injection Site and Route
First-Generation (Typical) Antipsychotics			
flu**PHENAZ**ine decanoate	generic only	2 to 6 weeks	Gluteal* IM†
haloperidol decanoate	**HALDOL DECANOATE**	4 weeks	Gluteal* IM†
Second-Generation (Atypical) Antipsychotics			
ARIPiprazole	**ABILIFY MAINTENA**	Monthly (separate doses by at least 26 days)	Deltoid IM or gluteal IM
	ABILIFY ASIMTUFII	Every 2 months (separate doses by at least 56 days)	Gluteal IM
ARIPiprazole lauroxil	**ARISTADA**	4 to 8 weeks (separate doses by at least 14 days)	Deltoid IM or gluteal IM
	ARISTADA INITIO	Given as a one-time dose, not to be repeated	Deltoid IM or gluteal IM
OLANZapine	**ZYPREXA RELPREVV**	2 or 4 weeks	Gluteal IM
paliperidone	**INVEGA SUSTENNA**	Initially, two injections separated by 1 week	Deltoid IM (initial two injections)
		Maintenance: Monthly (begin 4 weeks after second injection)	Deltoid IM or gluteal IM (maintenance)
	INVEGA TRINZA	Every 3 months	Deltoid IM or gluteal IM
	INVEGA HAFYERA	Every 6 months	Gluteal IM
risperi**DONE**	**RISPERDAL CONSTA**	Every 2 weeks	Deltoid IM or gluteal IM
	RYKINDO	Every 2 weeks	Gluteal IM
	PERSERIS	Monthly	Abdomen SUBQ or back of upper arm SUBQ
	UZEDY	Monthly or every 2 months	Abdomen SUBQ or back of upper arm SUBQ

Content adapted from Lexicomp monographs.

* Experts recommend administering in the gluteal muscle by deep IM injection; however, researchers have studied deltoid injection.

† Z-track injection techniques are recommended to limit leakage of medication into the subcutaneous tissue.

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especially for medication recalls. Current linear barcodes require scanning to verify the NDC, along with multiple mouse clicks and several keystrokes to enter the lot number and expiration date. The need for this additional data entry in the middle of a complicated intravenous (IV) workflow can also result in a sterility breach, or transcription or omission errors.

A July 25, 2022, proposed rule (www.ismp.org/ext/1202) would expand the current 10-digit NDC number to 12 digits, which is intended to minimize the impact of the FDA running out of 10-digit NDCs. However, this FDA-proposed rule will not guarantee that barcodes on immediate drug containers include the lot number and expiration date. FDA is also proposing to revise the drug barcode label requirements to allow the use of either linear or nonlinear barcodes, with consideration to further revise the rule to accommodate advances in technologies (e.g., radiofrequency identification [RFID]). Again, the incorporation of the lot number and expiration date in a standard format is not mentioned, as it should be.

Ryanodex demo carton and vial look too much like the real thing. A hospital that stocks **RYANODEX** (dantrolene sodium) for injectable suspension in areas where patients are at risk of malignant hyperthermia, reported confusion between the actual medication cartons and demonstration (demo) cartons that look remarkably similar (**Figure 1**, page 3). When the demo product was received after a request to the manufacturer, Eagle Pharmaceuticals (Eagle), hospital supply staff shelved it with the actual product, possibly because of their similar appearance. Fortunately, the storage error was identified before the product was used for patient care. Ryanodex is available as a 250 mg vial of lyophilized powder which is administered as a single dose after reconstitution with 5 mL of sterile water for injection without a bacteriostatic agent (reconstitution yields 50 mg/mL). The manufacturer informed us that the demo vials contain actual (expired) medication. The manufacturer provides demo vials for staff to gain experience with preparing doses during training sessions. Hospital educators may take these vials to

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Formulation Confusion

Some of the LAI antipsychotics (e.g., haloperidol decanoate) have corresponding short-acting injectable formulations (e.g., haloperidol lactate) that may contribute to a practitioner selecting an incorrect formulation. Other LAI antipsychotics are available in different formulations given at different intervals (e.g., **ARIP**iprazole, monthly; **ARIP**iprazole, every 2 months), which can lead to mix-ups as well.

A patient was admitted to an acute care hospital for treatment of coronavirus disease 2019 (COVID-19) infection. Since the patient had schizoaffective disorder, the admitting physician consulted a psychiatrist who recommended haloperidol 10 mg IM every 6 hours as needed. However, instead of the short-acting haloperidol lactate, a hospitalist inadvertently ordered haloperidol decanoate 50 mg every 6 hours as needed. The patient received three doses of the LAI antipsychotic formulation before another prescriber discovered the error. During event investigation, the medication safety pharmacist ran a report to capture haloperidol orders prescribed in the last year, which revealed that similar formulation mix-ups had occurred previously.

Overdoses with Multiple-Dose Vials

Most second-generation LAI antipsychotics, also known as atypical antipsychotics, work differently from first-generation antipsychotics and are provided in kits as exact doses. However, the first-generation products are available in multiple concentrations as single-dose (e.g., haloperidol decanoate 50 mg/mL, 100 mg/mL) and multiple-dose vials (e.g., haloperidol decanoate 500 mg/5 mL), or only as multiple-dose vials (e.g., flu**PHENAZ**ine decanoate 125 mg/5 mL). During preparation or administration, having multiple-dose vials can lead to overdose errors.

*A prescriber ordered flu**PHENAZ**ine decanoate 25 mg/mL IM for a patient. The nurse, who was accustomed to administering full vials of other LAI antipsychotic single-dose formulations, administered the entire contents of a flu**PHENAZ**ine decanoate 125 mg/5 mL multiple-dose vial. When the overdose was discovered, the prescriber ordered diphenhydr**AMINE** 50 mg IM, and the patient was admitted for observation. No complications or adverse sequelae were identified.*

Documentation and Communication Issues

Lack of documentation and communication during patient transfer between units or facilities can also lead to errors. This is especially true when prescribing LAI antipsychotics as one-time doses rather than continuous therapy with defined intervals (e.g., monthly).

*A patient received a one-time IM dose of Abilify Maintena (**ARIP**iprazole, monthly) at a transferring facility. Since it was not a scheduled dose, the transfer documentation did not include the one-time order, nor was it communicated to the admitting facility. Unaware that the patient was receiving an LAI antipsychotic, the admitting prescriber ordered an alternative antipsychotic medication.*

*A prescriber ordered a one-time IM dose of **RISPERDAL CONSTA** (risperi**DONE**, 2-week) 50 mg for a patient who was later transferred to another unit before the dose was administered. The nurse documented the dose as "not given" in the EHR, thinking it would be administered when the patient was in the new unit. This resulted in an omission, as the dose fell off the medication administration record (MAR). During the patient's transfer, the other scheduled medications were discussed. But this one-time dose was missed during the nurse handoff. When the patient showed increased psychosis, the prescriber discovered the omission error, and the LAI antipsychotic was administered. Due to the delay in treatment, the patient required an increased dose of oral risperi**DONE**.*

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patient care areas (e.g., operating room) where malignant hyperthermia must be treated emergently, which may contribute to the risk of a mix-up.

Figure 1. The Ryanodex medication carton (left) looks nearly identical to the demo carton (right).

Ryanodex demo vials come in the same size carton and have the same shape and coloring as the actual Ryanodex product. Each demo carton and vial is labeled, "DEMO For Training Only Not For Human Use." The demo vial does not include a barcode, National Drug Code (NDC) number, or expiration date, and the lot number includes the word DEMO. Additionally, each demo vial features auxiliary over-seal tape that must be broken in order to access the product that says, "DEMO VIAL - FOR TRAINING ONLY." Practitioners may fail to read all the information on the label, especially in an emergency such as malignant hypothermia. Or, as many do, they often read container label information in vertical order, sometimes stopping once they identify the drug and its strength. They may fail to read the rest of the label once they identify the information they think they need, sometimes missing warnings. Even if the practitioner noticed the warnings, if demo vials are inadvertently stocked instead of Ryanodex, it can lead to the delay of a time-sensitive treatment.

Mix-ups involving other demo products have happened and have been reported to ISMP. For example, in 2015, ISMP (www.ismp.org/node/552) and the US Food and Drug Administration (FDA) alerted healthcare professionals not to use Wallcur simulated (demo) intravenous (IV) products in human or animal patients. More than 40 patients received these products intended for educational use only and developed chills and/or sepsis; one patient died.

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*Two nurses administered flu**PHENAZ**ine decanoate 50 mg IM on consecutive days after the first nurse experienced trouble scanning the barcode on the vial. The first nurse documented the dose administration in the progress notes but not in the MAR. The prescriber did not think that the nurse had administered the dose, so they reentered the order, which a pharmacist verified. The other nurse administered a second dose. Shortly after, the prescriber was contacted to evaluate the patient for tachycardia. At this time, the error was identified.*

Duplicate Doses

Once a practitioner administers and documents a one-time dose in a patient's MAR, if a prescriber orders an additional dose or another LAI antipsychotic too soon, EHR alerts often do not warn practitioners about the duplicate dose. Also, if a practitioner sets up their EHR setting to display a narrow timeframe (e.g., 48 hours), doses administered outside of this window are not even visible.

*A prescriber ordered two one-time IM doses of Risper**DAL** Consta (risperi**DONE**, 2-week) 50 mg on consecutive days. A pharmacist verified and dispensed the first dose, which a nurse administered. The pharmacist verified the second dose, but prior to delivery, the pharmacist recognized the patient's name from the previous day and identified the error. Though this LAI antipsychotic should be administered every 2 weeks, no alerts were generated to warn the prescriber or pharmacist of previously ordered and administered doses.*

Difficult Dose Preparation

Manufacturers of second-generation LAI antipsychotics provide them as kits, with prefilled syringes, vials for reconstitution, separate diluent and powder syringes, or dual-chamber powder/fluid-filled syringes. The preparation instructions are often complex and time-consuming, requiring several types of preparation (e.g., shaking, tapping, flicking, reconstituting vials, combining liquid and powder syringes). In some cases, products are supplied with diluent syringes that are used as the final injection syringe, which may lead to inadvertent administration without reconstitution.

Inappropriate Injection Site or Technique

Product labeling requires different doses to be injected in specific locations (e.g., only deltoid muscle for loading doses, deltoid or gluteal muscle for maintenance doses). Practitioners without knowledge about this can inject an LAI antipsychotic at the wrong injection site. Also, many of the LAI antipsychotics are provided with multiple IM needles intended for different sites (e.g., longer needles for gluteal injection) or patient characteristics (e.g., patients with obesity), and they may require different injection techniques (e.g., Z-track vs. standard), which may lead to administration errors.

Wrong Administration Route

The second-generation LAI antipsychotics are supplied in or with luer-lock syringes with separate IM or SUBQ needles, risking inadvertent administration via the intravenous (IV) route as an IV push. In addition, SUBQ doses risk administration by the IM route, or vice versa.

Safe Practice Recommendations: To promote patient safety with LAI antipsychotics, discuss their use in your organization and consider the following recommendations.

Reconcile medications. Patients' lists of active medications may not include LAI antipsychotics. Since these agents are not administered daily and may be provided in outpatient/clinic and long-term care settings, it may be difficult to identify previous doses or administration dates. Add scripting to your medication reconciliation procedures that specifically ask patients about periodic

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We have notified the manufacturer and the FDA regarding this issue. Demo products not intended for human use should be packaged to appear distinctly different than the actual product. When ordering demo products, provide an alternative shipping location in a non-production/storage area of the pharmacy (e.g., pharmacy administrative offices). Ensure educational products are stored separately from medications in a classroom/training area and not in patient care areas. Consider adding auxiliary labeling to the package and storage areas to warn that they are for demo use only.

Worth repeating...

Education in proper use of insulin pen needles is needed

A pharmacist reported an event in which a nurse asked if they could withdraw insulin out of an insulin pen cartridge using an insulin syringe. Since insulin sometimes dripped from the pen needle after injection, the nurse was concerned that the patient would not receive the full dose if using the pen. Upon further investigation, the pharmacist discovered that, earlier in the day, the nurse had withdrawn a dose of U-500 insulin out of the pen cartridge because pen needles were not available. The nurse used a U-100 insulin syringe (U-500 insulin syringes were not available) and withdrew the insulin volume to the 25 unit mark on the syringe, intending to provide the prescribed 25 units of U-500 insulin. However, since they used a U-100 syringe, this resulted in a 5-fold overdose. The patient subsequently required treatment for hypoglycemia.

The nurse previously worked in other organizations in which the unsafe practice of using insulin pen cartridges as vials was common. In this case, the nurse also checked with a more experienced nurse on the unit, who completed the independent double check and validated that this process was acceptable. Both nurses were unaware of the differences between U-100 and U-500 insulin concentrations, which required corresponding syringes.

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injections, as patients inadvertently may omit these drugs when discussing their medication regimen. If the patient is not a dependable historian, ask family/caregivers or follow up with the patient's primary care physician and/or their outpatient pharmacy.

Require last dose verification. Since LAI antipsychotics are intended for long-term maintenance therapy and not an emergent crisis, require practitioners to document when the last dose was administered before subsequent doses are ordered. Consider the use of short-acting oral/injectable agents if needed, until verifying this information.

Establish guidelines. Develop treatment guidelines and protocols that address both the initiation and continuation of these agents. Refer to guidelines such as *The American Psychiatric Association Practice Guideline for the Treatment of Patients with Schizophrenia* (www.ismp.org/ext/1179). Include recommendations for ensuring oral agent tolerance prior to LAI antipsychotic initiation, treatment overlap requirements, and monitoring parameters.

Create order sets. Build order sets to guide prescribers to select the appropriate doses, frequencies, and formulations. Automatically link products to the corresponding order sentences. If using one-time orders, ensure they are documented in the medication history and communicated during transitions of care. Check how long medication orders (e.g., one-time, administered, discontinued) remain visible on MARs and adjust timeframes if appropriate. Include the recommended administration site and technique information within the orders.

Restrict ordering. Restrict LAI antipsychotic ordering through an order set to prescribers who specialize in mental health or require that they be consulted prior to initiation or continuation of a patient's outpatient regimen.

Differentiate formulations. Review naming conventions in your medication systems (e.g., EHR, automated dispensing cabinet [ADC]) for antipsychotics that are available in LAI and short-acting formulations. Review how the medication names appear in drug name searches and adjust if necessary (e.g., haloperidol decanoate may appear before haloperidol lactate if sorted alphabetically). Determine if it is feasible to include the generic name, brand name, and dose interval (e.g., paliperidone, 3-month [**INVEGA TRINZA**]; paliperidone, 6-month [**INVEGA HAFYERA**]) in the product description.

Dispense patient-specific doses. When possible, have the pharmacy prepare and dispense patient-specific doses of LAI antipsychotics, especially from multiple-dose vials (e.g., flu**PHENAZ**ine decanoate, haloperidol decanoate).

Employ barcoding. Use barcode scanning prior to dispensing and before administration.

Alert practitioners. EHR warnings should screen for antipsychotic agent therapeutic duplications and drug-drug interactions. Consider creating an alert to also warn practitioners of previously administered or discontinued LAI antipsychotic doses that may be outside of established order view timeframes.

Document and communicate. During handoffs, relay the last dose administered and confirm it is documented on the MAR. If an ordered LAI antipsychotic cannot be administered prior to transfer, educate nurses about the risk of documenting "not given" in the MAR. Explain that this action will remove the task from the MAR and could lead to omitting the dose. Consider running a report to identify one-time doses of LAI antipsychotics documented as "not given" and follow up appropriately.

Monitor patients. Ensure guidelines and order sets include LAI antipsychotic-specific patient monitoring. For example, a practitioner should directly observe patients receiving **ZYPREXA**

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>*Worth* repeating

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It has been a while since we wrote about errors with U-500 insulin, but some key points are ***Worth* repeating**. ISMP highly recommends the use of insulin pens for patients who require U-500 insulin. There is not a safe way to use U-500 insulin vials in hospitals since available U-500 syringes lack a safety guard to prevent needlestick injuries. Use of a U-100 syringe with U-500 insulin is also not safe because it often leads to dosing errors, as happened in this case. However, even with U-500 pens, healthcare professionals must recognize that pen cartridges should never be used as an insulin vial. Pharmacy and nurse educators should reinforce this information since pockets of "air" have been observed in cartridges of insulin pen injectors after aspirating some of the insulin with a needle. If the pen injector or cartridge is not discarded, and the air is not eliminated before delivering a subsequent dose, the patient could receive less than the desired dose of insulin as well as a subcutaneous injection of air.

Ensure there is an adequate supply of insulin pen needles on patient care units. Review proper administration techniques, such as using a new pen needle with each injection, keeping the needle under the patient's skin for at least 10 seconds after administration to reduce leakage from the injection site or needle once it is withdrawn (www.ismp.org/ext/1130), and never using the pen for more than one patient. Educate staff about the differences between U-500 and U-100 insulin and their associated insulin syringes. If U-500 insulin vials must be used instead of U-500 pens, consider having pharmacy dispense patient-specific doses in U-500 syringes. Consider building these reminders into applicable order comments in the electronic health record and medication administration record.

For more strategies on preventing errors with insulin, review the ***ISMP Guidelines for Optimizing Safe Subcutaneous Insulin Use in Adults*** (www.ismp.org/node/93), which discuss additional risks associated with the use of U-500 insulin, as well as insulin pens, and offers safe practice recommendations.

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RELPREVV (**OLANZ**apine pamoate) injectable for a minimum of 3 hours after administration to monitor for signs of post-injection delirium/sedation syndrome, which is thought to be caused by inadvertent IV injection. This is characterized by the onset of sedation, confusion, ataxia, anxiety, and agitation, often within the first hour, and patients may become stuporous or comatose. Aspiration during injection for the appearance of blood is suggested to avoid inadvertent IV administration. If this occurs, care is supportive until symptoms resolve, typically within 24 hours. Because of this risk, Zyprexa Relprevv is available only through a Risk Evaluation and Mitigation Strategies (REMS) restricted distribution program called the Zyprexa Relprevv Patient Care Program (www.ismp.org/ext/1180), which requires prescriber, healthcare facility, patient, and pharmacy enrollment.

Educate patients. In addition to asking about LAI antipsychotics during the medication reconciliation process, educate patients and caregivers to proactively keep track of periodic medication injections and to share this information during transitions in care.

Educate practitioners. Educate practitioners who may handle LAI antipsychotics about the various formulations and guidelines. Ensure they understand the risk of harm associated with missed doses, duplicate doses, and wrong formulations, as well as the best workflow to reduce the risk of these error types. Review common adverse effects including extrapyramidal symptoms, tardive dyskinesia (especially with first-generation products), QT prolongation, neutropenia, akathisia, hyperprolactinemia, sedation, and metabolic effects (e.g., glucose dysregulation, hypertriglyceridemia, hypercholesterolemia, increased weight gain). LAI antipsychotics should never be administered to antipsychotic-naïve individuals, and the approval of new orders must include validation of the last dose administered and previous oral therapies.

Learn from errors. Review internally reported LAI antipsychotic-related errors as well as published external events, such as those described in this newsletter. Encourage staff to report close calls and actual errors that have occurred. Include a review of events from outpatient locations, focusing on errors that occur during transitions of care.

Welcome 2023-2024 Fellows

Shawn Bookwalter, PharmD, MSHI, BCPS, is the ***2023-2024 ISMP Safe Medication Management Fellow***, supported by the US Army. Shawn is an active-duty US Army Officer and has most recently worked as the Director of Pharmacy Services at Martin Army Community Hospital in Fort Moore, GA. He received his Doctor of Pharmacy from The Nesbitt School of Pharmacy, Wilkes University, in Wilkes-Barre, PA, and a Master of Science in Health Informatics from Liberty University, Lynchburg, VA. Shawn aspires to develop a holistic understanding of medication safety during his year at ISMP.

Jessica Trinh, PharmD, is the ***2023-2024 FDA/ISMP Safe Medication Management Fellow***. She completed her Doctor of Pharmacy degree at Loma Linda University in Loma Linda, CA. She completed a PGY-1 acute care residency at St. Joseph Medical Center in Tacoma, WA. Jessica is excited to learn more about drug safety advancements and hopes to use the skills learned in a regulatory agency or in the pharmaceutical industry following this fellowship.

Marian Gawdat, PharmD, MS, is the ***2023-2024 FDA/ISMP Safe Medication Management Fellow***. She completed her Doctor of Pharmacy and Professional Science Masters in Biomanufacturing and Bioprocessing at Albany College of Pharmacy and Health Sciences in Albany, NY, where she also completed an ambulatory care residency. In addition, she completed a Bachelor of Science in Biology at Siena College in Albany, NY. Marian aspires to use her medication safety skills in making positive impacts on patients' health by promoting safe and effective medication-use practices and innovative pharmaceuticals.

Special Announcements

Increase your medication safety knowledge

Pharmacists, pharmacy technicians, and nurses can earn 41 continuing education (CE) hours by completing the ***ASHP/ISMP Medication Safety Certificate*** online self-guided program. Medication Safety Officers Society (MSOS) members will be able to purchase the program at the discounted ASHP member price through **December 31, 2023**. For more information, visit: www.ismp.org/node/770.

Foundations in Medication Safety

ISMP's new online, interactive course offers healthcare organizations a standardized, cost-effective way to ensure staff involved in the medication-use process have the basic knowledge they need. The course is available through an annual organizational subscription. For more information, please visit: www.ismp.org/node/74900.

Virtual MSI workshops

Do not miss the opportunity to register for one of our unique 2-day, virtual ***ISMP Medication Safety Intensive (MSI)*** workshops. Learn how to identify risks before they cause harm and how to use data for continuous improvement. These programs fill up quickly, so register early. Join us for our fall session, scheduled for **October 4-5, 2023**. For more details about the program and additional workshop dates, please visit: www.ismp.org/node/127.

Report medication and vaccine errors to ISMP: Please call 1-800-FAIL-SAF(E), or visit www.ismp.org/report-medication-error. ISMP guarantees the confidentiality of information received and respects the reporters' wishes regarding the level of detail included in publications.

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Judy Smetzer Just Culture Champion Scholarships

Become a Just Culture Certified Champion

In cooperation with The Just Culture Company, ISMP will award three scholarships for the next calendar year to a team of three individuals from the same organization to participate in a 15-hour Just Culture certification course. For more details, visit: **ismp.org/node/30857**.

Candidate Qualifications

For a team to be considered for a scholarship, they must:

- Be working currently in the field of healthcare in any setting
- Have at least 5 years of fulltime post-graduate experience in healthcare
- Obtain a commitment to the Just Culture model from at least one executive leader in their organization

For more information and to apply, visit:
ismp.org/node/30840

Application Deadline: September 28, 2023

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These scholarships will be awarded in honor of **Judy Smetzer, BSN, RN, FISMP**, former vice president at ISMP who retired in 2022.