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ISMP
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Nurse AdviseERR®
Educating the Healthcare Community About Safe Medication Practices

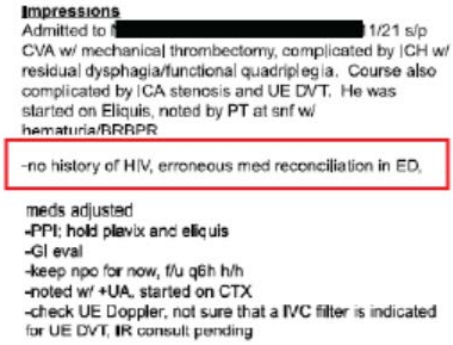
Patients are at risk during transitions of care

If a long-term care (LTC) resident's clinical condition deteriorates, the facility may need to transfer them to a hospital where their acute care issues can be treated. When the resident's condition improves, the acute care facility can transfer them back to the LTC facility to resume care. These shifts from one care setting to another, acute versus non-acute, are examples of what is called "transitions of care" as defined by the Centers for Medicare & Medicaid Services (CMS) (www.ismp.org/ext/1035).

Practitioners must take important steps during these transitions of care to ensure errors do not occur. They must communicate critical information about the resident's/patient's medical/medication history to the acute care facility so that the care remains uninterrupted. This takes coordination, especially if the LTC facility and the hospital are not part of the same health system, and the receiving healthcare team cannot access the LTC electronic health record (EHR). Some LTC facilities still use paper charting systems, especially for medication administration. If they do use an electronic system, it may not interface with the receiving facility's computer system, so resident information may not be easily accessible. Therefore, they may rely on transmitting the resident's information via fax or making a copy of the paper chart which can increase the risk of errors. The following event demonstrates this challenge.

*An LTC facility admitted a 56-year-old person who had previously experienced a stroke. The resident was at the facility for several weeks when they developed gross hematuria and rectal bleeding. The LTC facility transferred the resident to a nearby hospital for evaluation and treatment. A nurse caring for the resident at the LTC facility sent the healthcare record notes electronically to the receiving hospital but faxed the paper medication administration record (MAR) separately. The physician admitting the resident to the hospital attempted to complete the medication reconciliation process. However, they considered the resident to be a "poor historian" due to their inability to participate in care after the stroke, so the physician contacted the resident's spouse to confirm the medical information. The physician asked the spouse about the resident's "human immunodeficiency virus (HIV)" status to which they stated the resident did not have HIV. The physician documented this in the resident's hospital progress note (**Figure 1**), but the HIV medication and other incorrect medications remained on the resident's medication list.*

The resident remained in the hospital for five days, where the physician evaluated them for a gastrointestinal bleed, made the resident NPO (nothing by mouth), and ordered intravenous (IV) antibiotics. The physician held the resident's regular medications due to NPO status. Once the resident's condition improved, the hospital transferred them back to the original LTC facility for rehabilitation and the incorrect medication list was sent back as part of their health record.


Impressions
Admitted to [redacted] 1/21 s/p CVA w/ mechanical thrombectomy, complicated by ICH w/ residual dysphagia/functional quadriplegia. Course also complicated by ICA stenosis and UE DVT. He was started on Eliquis, noted by PT at snf w/ hematuria/BRBPR

-no history of HIV, erroneous med reconciliation in ED.

meds adjusted
-PPI; hold plavix and eliquis
-GI eval
-keep npo for now, f/u q6h h/h
-noted w/ +UA, started on CTX
-check UE Doppler, not sure that a IVC filter is indicated for UE DVT, IR consult pending

Figure 1. A hospital physician wrote in the hospital progress note that the resident from the LTC facility did not have a history of HIV. However, the physician still ordered medication to treat HIV for the resident.

Once back at the LTC facility, the resident's spouse noticed nurses were administering multiple medications that the resident had not previously been taking. The spouse asked the nurses about these medications and discovered that

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check it out

To help prevent medication errors during transitions of care, from non-acute to acute care settings, and vice versa, consider the following recommendations.

✓ **Verify resident's/patient's medical records.** Upon transfer from one healthcare facility to another, verify that the medical record has the correct resident's/patient's name on all pages by utilizing two resident/patient identifiers (i.e., full name and date of birth). Some LTC facilities may have pictures of the resident on the medical record pages which can help to identify that the correct records have been sent.

✓ **Reconcile medication orders.** Conduct a medication reconciliation upon admission to the healthcare facility. Practitioners must consider which medications to continue and which medications to stop. Blanket orders to "continue" or "resume" the same medications prescribed at the previous healthcare facility should not be accepted. Prescribers should provide new, complete orders for each prescribed medication, and partner with the patient/caregiver to review the medication list for accuracy. If using faxed or printed MARs, ensure all pages, with appropriate identifiers, have been transmitted by checking to make sure all sequential page numbers are present.

✓ **Follow up on discrepancies.** If healthcare providers note any medication discrepancies, they should contact the prescriber for clarification. When discussing the medication list, repeat back the full set of medication orders. Pronounce each numerical digit in the dose (e.g., "sixteen, one six," to avoid confusion with "sixty"). Ensure each prescribed medication and dose correspond to a condition in the resident's/patient's past medical history and spell look- and sound-alike names that are often confused (e.g., **ALPRAZ**olam and **LOR**azepam).

✓ **Provide information early.** To begin the reconciliation process and ensure that required

continued on page 2 — check it out >

> **Transitions of care** — continued from page 1

a medication used to treat HIV was one of the medications being administered. The resident's spouse remembered the hospital physician asking about the HIV status and informed the nurse that the resident did not have HIV and should not be on the HIV medication, or the other incorrect medications on the list. Despite this, the nursing staff continued to administer all the medications including the HIV medication until the medical staff ordered an HIV test. Once the test results confirmed that the resident was HIV negative, the physician reevaluated all the medications prescribed for this resident. Upon further investigation, the LTC facility discovered that when the resident was initially transferred to the hospital, a nurse had inadvertently faxed another resident's (who was HIV positive and being treated for HIV) MAR with a similar last name. The hospital then sent this incorrect MAR back to the LTC facility during the most recent transition of care.

Transition of care errors are more likely to cause harm because healthcare providers at the LTC facility may administer the medication multiple times before the error is identified (e.g., during consultant pharmacist's monthly review). This example demonstrates the following contributing factors related to errors during transitions of care. Technology limitations in which not all health records are fully electronic and reliance on faxed or copied medical records increases the risk for transition of care errors, whereby practitioners may make mistakes and communicate erroneous information. Practitioners must ensure they provide and receive accurate information by checking the resident's/patient's first and last name and date of birth on all forms. Practitioners must clarify any uncertainties, such as the resident's/patient's HIV status in the case described, with other healthcare team members. In addition, any time a resident/patient or family member questions or expresses concerns about a medication, practitioners need to investigate further and in a timely manner.

To help avoid or detect medication errors during transitions of care, consider the recommendations listed in the **check *it* out!** column, in the right column, starting on page 1.

check it out

continued from page 1

medications are available as soon as possible, LTC facilities should design a system in which they receive the resident's transfer information (e.g., electronic submission, fax) several hours before the resident arrives. For residents with complex care needs, consider requiring a phone conversation between the discharging physician and the LTC facility physician to validate an accurate medical history.

✓ **Encourage feedback.** Remind practitioners to report any discrepancies in discharge orders, transfer forms, and prescriptions so that facilities can review processes and implement continuous quality improvement during transitions of care.

✓ **Collaborate with other facilities.** Schedule regular meetings with key stakeholders such as nursing administration, the medical director, and support staff from organizations that frequently refer residents/patients to your facility. Consider providing each other with direct contact information/fax number that will ensure the information does not get lost and can be verified in a timely manner.

what's in a Name?

The "-oxetine" drug stem name

Medications ending with the suffix "-oxetine" belong to a class of medications known as **FLU**oxetine derivatives and are commonly used to treat depression. They work by inhibiting the reuptake of serotonin, norepinephrine, or both, depending on the drug. There are currently five medications that contain this stem (**Table 1**) and they are further classified by their specific mechanism of action.

FLUoxetine, **PAR**oxetine, and vortioxetine act primarily by reducing the reuptake of serotonin. Therefore, these medications are known as **S**elective **S**erotonin **R**euptake **I**nhibitors (**SSRI**s). Besides depression, SSRIs may also be used to treat generalized anxiety disorder, panic disorder, premenstrual dysphoric disorder, obsessive-compulsive disorder, bulimia nervosa, and bipolar major depression in combination with other agents. However, vortioxetine is only indicated for major depressive disorder.

Table 1. Medications with the suffix "-oxetine" available in the US.

Generic Name	Brand Name
atomoxetine	**STRATTERA**
DULoxetine	**CYMBALTA**
FLUoxetine	**PROZAC**
PARoxetine hydrochloride (HCl)	**PAXIL**, **PAXIL CR**
PARoxetine mesylate	no brand available
vortioxetine	**TRINTELLIX**

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SAFETY wires

Be aware of error-prone abbreviations. Unfortunately, some US Food and Drug Administration (FDA) drug databases (www.ismp.org/ext/981) may list unsafe abbreviations and dosage units that are on the ISMP ***List of Error-Prone Abbreviations, Symbols, and Dose Designations*** (www.ismp.org/node/8) and The Joint Commission Official "Do Not Use" List (www.ismp.org/ext/983). This includes "ug" for micrograms of digoxin rather than mcg, "U" and "IU" for some insulin listings rather than spelling out units, and listing the strength without a leading zero, such as ".4 mg" of atropine rather than 0.4 mg. FDA should remove and eliminate the use of error-prone abbreviations in their drug databases since healthcare professionals use it as a drug information resource. Sadly, although rare, ISMP has received reports of serious harm and even fatalities, including in children, which resulted from misinterpretation of dangerous medical abbreviations such as these.

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what's in a Name?

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As with many neurological medications, the exact mechanism of action is not known for certain, and some drugs may also exhibit other actions. For example, vortioxetine is also classified as a serotonin receptor agonist and antagonist since it exhibits activity at other serotonin receptor sites, which add to its therapeutic effect.

Atomoxetine acts to selectively reduce the reuptake of norepinephrine. Thus, it is referred to as a selective **N**orepinephrine **R**euptake **I**nhibitor (**NRI**). Its focus on norepinephrine acts to increase attention span and reduce impulsive behavior and hyperactivity in patients with attention-deficit/hyperactivity disorder (ADHD).

Lastly, **DUL**oxetine combines these two mechanisms of action to reduce the reuptake of both serotonin and norepinephrine. So, it is categorized as a (not so selective) **S**erotonin/**N**orepinephrine **R**euptake **I**nhibitor (**SNRI**). Like SSRIs, **DUL**oxetine is used to treat depression and generalized anxiety disorder, but it also has indications for treating chronic musculoskeletal pain, fibromyalgia, and some neuropathic pain syndromes.

The remainder of this article will focus on SSRIs and SNRIs as their indications, side effects, and safety profiles are more comparable. All medications with the "-oxetine" stem are available as oral formulations.

SSRIs and SNRIs have other medications within their class with different name stems, as the stem (suffix) itself can be associated with either the chemical structure (as is the case with those ending in -oxetine), indication, or action at a specific receptor. For example, besides **FLU**oxetine and **PAR**oxetine, other medications in the SSRI class include sertraline, citalopram, escitalopram, fluvoxa**MINE**, and vilazodone.

In general, SSRIs and SNRIs are better tolerated than other medications used to treat depression as they have more targeted effects. Common side effects include feeling agitated, shaky, or anxious; indigestion, gastrointestinal effects, loss of appetite, and weight loss; dizziness, blurred vision, dry mouth, headaches, excessive sweating, insomnia, drowsiness, and sexual dysfunctions. With the exception of sexual dysfunction, most of the other side effects diminish over time with continued use.

Although rare, other important risks with SSRIs and SNRIs include hepatotoxicity, bleeding, hyponatremia, fragility fractures, acute angle-closure glaucoma, and serotonin syndrome (elevated levels of serotonin in the body that cause agitation, insomnia, rapid heart rate, and increased blood pressure, among other things). Patients with other risk factors or those taking other medications that carry these risks may need increased monitoring. These medications all carry a Boxed Warning for increased risk of suicidal thinking and behavior in children and young adults. While SSRIs and SNRIs do carry varying risks to the mother and fetus during different trimesters of pregnancy, patients should consult with their prescriber as the benefits of use may outweigh the risks.

It is important to note that **FLU**oxetine and **PAR**oxetine products are available under different brand names that may have different salt (e.g., mesylate, hydrochloride) or dosage forms, and have different indications and/or doses. Therefore, it is important to verify the exact medication and indication with the patient.

In addition, it is important to educate patients that it can take at least 2-4 weeks until the clinical benefits of the medication are noted. Healthcare practitioners need to reassure and encourage patients to continue taking the medicine even if they do not see immediate improvement. Similarly, if a patient has been taking these medications for a long time, they should not stop the medication abruptly as patients may notice withdrawal or the reemergence of symptoms.

>SAFETY wires

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Fewer high-alert drugs prescribed by dentists. ISMP has warned of the risk of respiratory depression associated with most sedatives used by dentists for pediatric sedation. In fact, we have written about dozens of error reports related to chloral hydrate and other drug-related oversedation in pediatric patients, some resulting in death.

In a recent study (Kim KC, Khouja T, Burgette JM, et al. Trends in dispensed prescriptions for opioids, sedatives, benzodiazepines, gabapentin, and stimulants to children by general dentists, 2012-2019. *Pharmacoepidemiol Drug Saf*. 2022; 1-10), we were pleased to see that prescriptions for opioids, benzodiazepines, sedatives, and other high-alert drugs prescribed by dentists for pediatric use declined by 63% from 2012 to 2019. However, the authors noted that in some low-income regions, there were still high rates of these medications being prescribed for dental procedures for both older teens and children, and recommend additional research in these populations.

Special Announcement

Nominations open for CHEERS Awards

Each year, ISMP honors various healthcare disciplines that have demonstrated an exemplary commitment to medication safety with an ISMP **CHEERS Award**. Nominations are now open and will be accepted through **August 6, 2023**. For more information, visit: www.ismp.org/node/123.

To subscribe: www.ismp.org/node/138

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