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# Patient Safety Tip of the Week

# August 6, 2019  Repeat Adverse Drug Events

Some adverse drug events may be unpreventable. But how about those that are **repeat adverse drug events**? Most of those are preventable. How often do those occur? A new Canadian study quantifies that issue and offers insight into contributing factors.

Hohl and colleagues (Hohl 2019) analyzed data from patients who visited the emergency department for adverse drug events in 3 hospitals in British Columbia. They found that 32.5% were repeat events (1.8% had two repeat events), and 75.3% of these were deemed probably or definitely preventable, as re-exposure to the culprit medication or repeat withdrawal of an indicated medication was inconsistent with best medical practice.

Patients having renal failure or a mental health diagnosis were more likely to have repeat adverse drug events. Most repeat adverse drug events were moderate in severity (66.5%) and resulted in temporary harm (81.5%). Significantly, among patients with repeat events, 38.4% were admitted to the hospital.

Among repeat events, 64.6% were due to re-exposures to previously harmful medications, while the remainder were attributed to other causes, including repeat medication withdrawals or dosing problems (e.g., repeat nonadherence with antiepileptics causing repeat seizures). 75.5% of repeat events were attributable to a single drug. Coumarin derivatives (12.4%), opiates (12.1%) and insulins (8.1%) were most commonly implicated.

Hohl et al. note that repeat adverse drug events associated with outpatient medications in their study "were 100 times more common than events resulting from medication transcribing, dispensing and administration errors and 7 times more common than drug interactions, which are the focus of interaction-checking software". They hypothesize that the high rate of repeat events in their study is due to a lack of standardized documentation of adverse drug events in medical records and to suboptimal communication between care providers who diagnose and treat serious adverse drug events to outpatient medications (typically hospital-based providers) and physicians who prescribe outpatient medications for chronic disease management (typically community-based providers).

The authors state that patients who have a documented adverse event associated with a medication should probably only be re-exposed to a culprit medication if there is a clear indication for re-exposure and a strong contraindication is absent. Aye, there the rub! Where is the documentation of a prior adverse event?

In our August 2019 What's New in the Patient Safety World column "Including Indications for Medications: We Are Failing" we again mentioned a theme we've stressed in multiple columns (listed below): we need to be **documenting reasons for discontinuations of medications**. It may be important to know whether a medication was discontinued because of:

- Ineffectiveness
- Side effects (dose-related or non-dose-related)
- Allergy (true allergy)
- Adverse event
- Cost considerations
- Other

For example, I might consider prescribing a beta blocker for migraine prophylaxis and the patient tells me that he/she was once on that medication. It would be important for me to know whether it had been discontinued because it was ineffective for the initial indication (other than migraine prophylaxis) or because of an untoward side effect or true allergy.

Not only do we lack systems for documenting reasons for discontinuation, we also do a poor job in communicating when a drug has been discontinued. The columns listed below have all dealt with the issue of documenting drug discontinuation, not only to other potential prescribers for a patient, but also to pharmacies that might continue to dispense drugs that had been discontinued.

In our August 28, 2018 Patient Safety Tip of the Week "Thought You Discontinued That Medication? Think Again", and other columns. we highlighted a critical issue: **stopping a medication is much different than starting one**. Starting a medication requires an active process – you either write a prescription, enter one into a computer, or call the pharmacy. You are usually in a situation where you can utilize an electronic order system (CPOE or e-prescribing tool) and you may have access to the many clinical decision support tools in those systems. But discontinuing a medication is often more passive – you might get a call from your patient after hours and just tell the patient over the phone to stop it when the patient tells about a potential side effect. You don't call the pharmacy to stop it. And, if there was no associated office visit, you might even forget to update the patient's medication list in your EMR (or paper records) until the patient's next office visit.

With today's integration of the EMR to the physician's smartphone, almost all opportunities to do e-discontinuation should be done with a formal process that should include more than just the discontinuation order. The EMR system could ask "Have you notified the patient to discontinue the medication?", "What is the reason for the discontinuation?", and "Do you wish to notify the patient's pharmacy of the discontinuation?". The system's clinical decision support tools should then also consider whether any drug-drug interactions might be in play that would necessitate changing the dosage of another medication.

And don't forget there is one other mechanism by which discontinued medications get inappropriately continued. Our February 28, 2017 Patient Safety Tip of the Week "The Copy and Paste ETTO" reminds us how the copy/paste function in today's healthcare IT systems can lead to erroneous medication lists that might result in a patient being inappropriately restarted on a medication that had actually been discontinued.

Once systems are in place to capture drug discontinuations and reasons for discontinuation, clinical decision support systems need to be capable of flagging these when someone attempts to prescribe a medication the patient had previously been taking. In some cases, such as a dose-related side effect, it may still be appropriate to re-prescribe a medication. But in others, where an allergy or adverse reaction occurred, a flag should warn the prescriber of that prior problem.

We'd be remiss if we did not mention two other recent excellent resources that deal with a related issue – documenting and communicating drug allergies. ISMP (ISMP 2019) just published an alert "New Recommendations to Improve Drug Allergy Capture and Clinical Decision Support" that draws heavily on ECRI Institute's Partnership for Health IT Patient Safety (Partnership 2019) publication "Safe practices for drug allergies—using CDS and health IT". They review the many issues related to both capturing allergy information and designing clinical decision support tools that provide actionable alerts without overloading the system with useless ones. They then make the following 4 recommendations:

1. Use technology to standardize the documentation of drug allergy status.
2. Provide actionable drug allergy alerts to improve the safety and effectiveness of drug allergy communications.
3. Use technology to monitor the effectiveness of allergy alerts.
4. Engage patients through the use of technology to provide accurate drug allergy communications.

We encourage you to read both the ISMP and Partnership documents. They stress the importance of patient engagement in correctly documenting and categorizing drug allergies and maintaining an up-to-date list. The same can be applied to documenting discontinuation of any medication and reasons for such discontinuation.

**Some of our other columns on failed discontinuation of medications**:

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| May 27, 2014 | "A Gap in ePrescribing: Stopping Medications" |
| March 2017 | "Yes! Another Voice for Medication e-Discontinuation!" |
| February 2018 | "10 Years on the Wrong Medication" |
| August 28, 2018 | "Thought You Discontinued That Medication? Think Again" |
| December 18, 2018 | "Great Recommendations for e-Prescribing" |
| August 2019 | "Including Indications for Medications: We Are Failing" |

**References**:

Hohl CM, Woo SA, Cragg A, et al. Repeat adverse drug events associated with outpatient medications: a descriptive analysis of 3 observational studies in British Columbia, Canada. CMAJ Open 2019; 7(3): E446-E453 July 18, 2019
http://cmajopen.ca/content/7/3/E446.full

ISMP (Institute for Safe Medication Practices). New Recommendations to Improve Drug Allergy Capture and Clinical Decision Support. ISMP Medication Safety Alert! Acute Care Edition 2019; 24(14): July 18, 2019
https://www.ismp.org/resources/new-recommendations-improve-drug-allergy-capture-and-clinical-decision-support
(ISMP 2019)

Partnership for Health IT Patient Safety. Safe practices for drug allergies—using CDS and health IT. ECRI Institute. 2019; 1-42
https://assets.ecri.org/PDF/HIT-Partnership/ECRI-Drug-Allergy-Toolkit.pdf
(Partnership 2019)



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