Patient Safety Tip of the Week

August 28, 2018

Thought You Discontinued That Medication? Think Again

In our February 2018 What's New in the Patient Safety World column "10 Years on the Wrong Medication" we noted a case in which a patient was inadvertently continued on a wrong medication for 10 years! That case illustrated how the medical record (either electronic or paper) can propagate medication errors over a long run and that medication reconciliation is not infallible (since several opportunities to identify this error failed to do so). It also emphasizes the need for regular comprehensive reviews of medication regimens (such as the annual "brown bag" review) the need for a communication other than a discharge summary or letter in order to ensure that an incorrect or unnecessary medication is not restarted.

In our May 27, 2014 Patient Safety Tip of the Week "A Gap in ePrescribing: Stopping Medications" and our March 2017 What's New in the Patient Safety World column "Yes! Another Voice for Medication e-Discontinuation!" we highlighted what we consider to be a major flaw in current e-prescribing systems, namely that they do not put the same emphasis on stopping medications as they do on starting them.

But now we find out that medications often get inappropriately continued even after they have been discontiniued in CPOE and e-prescribing systems!

In our May 27, 2014 Patient Safety Tip of the Week "A Gap in ePrescribing: Stopping Medications" we discussed a study done in a large multispecialty group practice in Massachusetts (Allen 2012) which showed that, among targeted medications that were electronically discontinued (on the practice's EMR), 1.5% were subsequently dispensed by a pharmacy at least once. And this was just at the practice's internal pharmacy. How often this happened at community pharmacies was not known. Moreover, when they did manual chart reviews of selected high-risk medications that had been discontinued they found that 12% of cases (50 cases) were associated with potential harm. The latter cases included clinical reactions (n = 18), laboratory abnormalities (n = 17), duplicated medication classes dispensed (n = 8), and potential allergic reactions (n = 7). The authors noted that when a physician discontinues a medication on an EMR he/she often (erroneously) assumes that such information is being transmitted to the pharmacy. Such is seldom the case with today's EMR systems. Further, many pharmacies today have sophisticated systems that let you know, as a patient, that you have a refill waiting for you at the pharmacy. Patients may erroneously presume that their physician restarted that medication.

Now a new study ([Copi 2018](#)) looked at a year's worth of electronic prescriptions for hypotensive, hypoglycemic, anticoagulant, antiplatelet, and statin medications picked up from 3 outpatient pharmacies within the health system. Prescriptions must have been written by a Michigan Medicine health system provider and were excluded if they were written, faxed, or phoned in. They were able to determine the temporal relationship of the order for discontinuation and the pharmacy dispensing by comparing timestamps. They found that 4.94% of over 10,000 prescriptions were picked up at the pharmacies after the prescription order was discontinued in the HER. The prescription was discontinued before final pharmacist verification for 54.56% of those prescriptions. Inadvertently dispensed prescriptions may have contributed to hospital admission 30 days after pick-up for 3 individual patients.

Copi et al. note that electronic message transmission systems to relay changes or cancellations in prescriptions from the prescriber to the pharmacy do exist and may even allow prescribers to send messages to the pharmacy for prescriptions that were handwritten, not just electronically prescribed, But the prescriber must know which pharmacy filled the handwritten prescription and both the EHR and pharmacy dispensing software must be compatible with this function and activate it for this transmission to be useful.

Much like the previous study, the pharmacies in this study were part of the health system. Therefore, the pharmacists had access to the system's EMR. That health system has now asked all its outpatient pharmacists to perform a check of the patient's current medication list to ensure that the prescriptions being filled are still active and accurate in the EMR. But the authors recognize that such would only have the potential to catch about 50% of the errors that were observed, because about 50% of these prescriptions were discontinued before the pharmacist verification step. They acknowledge that such check of the EMR also adds an extra step to the pharmacist workflow, and may add considerable time. We all know that time pressures are one factor that significantly increases the risk for errors in pharmacies. They note that pharmacy technicians might be used to participate in medication reconciliation. They also note that inclusion of a pharmacist in the interdisciplinary discharge planning meetings could facilitate letting the outpatient pharmacies know about medication discontinuations.

We always advise patients to keep a list of their current medications with them. That obviously requires frequent updating of the medication list, not only to include new medications but also to exclude discontinued medications. Pharmacists at the outpatient pharmacies should review those updated lists with their own lists of the patients' medications.

The problem is likely even worse when you consider that most community pharmacies are not integrated into health systems. Some community-wide health information exchanges (HIE's) or regional health information organizations (RHIO's) do provide electronic linkages between the health systems, hospitals, and pharmacies but these are not universal. The problem is also amplified when you consider that patients may be

receiving medications at more than one pharmacy or from an online pharmacy. Online pharmacies, chain pharmacies, and community pharmacies are often contacting patients by multiple means (phone, email, smartphone apps, etc.) to remind them to refill their medications. So the problem may be even more widespread that in the Allen or Copi studies.

Of course, there is another significant issue that arises when you discontinue a medication. In our May 27, 2014 Patient Safety Tip of the Week "A Gap in ePrescribing: Stopping Medications" we highlighted what we consider to be a major flaw in current e-prescribing systems, namely that they do not put the same emphasis on stopping medications as they do on starting them. In that column we noted a case report in the Medical Journal of Australia (Tong 2014) in which discontinuation of one medication led to excessive levels of a different medication because there had been a drug-drug interaction. Most systems are not programmed to generate any alerts at the time you discontinue a medication. Even if your system would have generated a drug-drug interaction alert when you first prescribed a medication, it would not likely generate an alert later when you discontinue that medication. If such a drug-drug interaction had been active, the discontinuation of one medication may raise or lower the blood levels or effectiveness of the other medication.

We once again highlight 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.

Lastly – back on our soapbox! Just as we have advocated for inclusion of the **indication** for new prescriptions, it is important that we always somehow **record why we have discontinued a medication**. How often have you suggested a medication and your patient says "yes, I was on that medication once" but can't tell you why they were taking it or why it was stopped. Was it simply not effective (for whatever indication it was prescribed, which may not even be the reason you are now recommending it) or was it stopped because of some unwanted effect? And was the unwanted effect an allergic response, idiosyncratic response, an anticipated side effect, or simply a dose-related side effect. It's very important to have details available about the reasons for discontinuation. Also, as we noted above, medications are often discontinued at times when a physician or other prescriber may not have access to the EHR or e-prescribing system. Often they get a phone call from a patient and tell them over the phone to stop the medication and then forget to record that in the patient record.

These examples highlight the continuing struggles we have in optimizing medication reconciliation. The need to do medication reconciliation at every office, clinic, hospital, or pharmacy visit is obvious. While we need to rely on technology vendors and HIE/RHIO's to come up with some better electronic and interoperability solutions, you also need to look at your own practice. How do you update your patients' medication lists after you do that over-the-phone medication discontinuation? How do you let the pharmacy know you have stopped a medication? How do you find out if your patient is still being dispensed a discontinued medication? How do you find out that another physician has discontinued a medication on one of your patients? And how do you recognize that the medication you've discontinued may have had a drug-drug interaction with another medication (the dose of which you may now need to adjust)? Lots of questions. Still no easy answers.

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