

Dispensing Errors and Counseling Quality in 100 Pharmacies
Study Summary

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How often do patients receive a prescription that is filled incorrectly, and what is the likelihood of harm? How often do patients receive important verbal drug information to which they are entitled about their new prescriptions?

Study Goals

The goals of this study were to:

1. determine the number of dispensing errors on 100 prescriptions filled in a random sample of chain pharmacies;
2. evaluate the potential for patient harm of each dispensing error;
3. determine the frequency that patients are warned about drug interactions between aspirin and Coumadin, and Sudafed PE and Toprol XL; and
4. evaluate the frequency and quality of verbal patient counseling.

Data Collection Procedures

A total of 100 pharmacies in Atlanta, Tampa-St. Petersburg-Clearwater, and New York City-Newark, NJ were randomly selected for the study. The number of chain pharmacies included in each metropolitan area was based on their market share.

Trained patient actors presented a new prescription for one of the study drugs to each pharmacy. The drugs were Coumadin, Toprol XL, Depakote ER, Novolog Mix 70/30 insulin, and Lantus insulin. The patients attempted to purchase aspirin when they picked up their Coumadin prescription, and Sudafed PE when they picked up their Toprol XL prescription. All encounters with pharmacy staff were recorded on video by ABC News using hidden cameras so that the counseling interactions could be evaluated independently by a researcher at Auburn University.

If patients were asked to sign any documents when they picked up their prescription, they were instructed to ask "What is this for?". If pharmacy staff responded that it was related to counseling, or if the patient was asked if they had any questions, the patient asked "What do I need to know?".

Definitions

A dispensing error was defined as a filled prescription that contains one or more deviations from the prescriber's written order. Categories of errors included wrong drug, wrong strength, wrong dosage form, wrong quantity, wrong instructions, and label errors.

Counseling was defined as an encounter between the patient and pharmacist for the oral or written communication of prescription-related information. The quality of counseling was defined as the number of topics covered during the counseling session.

Results

Dispensing errors were identified on 22 of the 100 prescriptions (22%). There were 16 wrong instructions errors, five wrong quantity errors, and one unauthorized drug error. Three of these errors were judged by two clinical pharmacists to have a risk for patient harm: the instructions on a Coumadin prescription read "Take 1 tablet by mouth daily as needed" instead of "Take 1 tablet by mouth every day and as directed." The second significant error was for a Depakote ER prescription that was dispensed without a child-proof cap. This medication could be toxic if consumed by a child in excessive quantities. The third significant error was on a label for Novolog Mix 70/30 insulin where the instructions were cut off. The label read "Inject 15 units subcutaneously 15 minutes before breakfast, and 15 units 15 minutes", leaving off "before dinner." The incomplete instructions may result in the patient injecting the second dose at an inappropriate time, leading to high or low blood sugars.

Aspirin was purchased without any warning from the pharmacy staff on 17 of 25 Coumadin prescriptions. Both of these medications are blood thinners, and can lead to excessive bleeding if taken together. These two medications can be used together safely only if the patient's bloodwork is monitored closely for adjustments in Coumadin dosing. Sudafed PE was purchased without warning of the drug interaction on 23 of 24 Toprol XL prescriptions. There is a precaution concerning the use of Sudafed PE in patients who have uncontrolled hypertension, so it would be prudent for pharmacists to explore the patient's reason for taking the Toprol XL, as well as the level of blood pressure control before dispensing these two medications together. [Since this study was completed, an analysis found that Sudafed PE at over-the-counter doses has a low risk of increasing blood pressure (Hatton et al., *Annals of Pharmacotherapy*, March 2007).]

Patients received verbal counseling from the pharmacist or were offered counseling on 27 of the 100 prescriptions for a rate of 27%. Six of the 27 counseling encounters were initiated by the pharmacist; the remaining 21 were a result of asking the patient if they had any questions. There were 16 additional cases where the patient stimulated the counseling by asking what they were signing. There was no verbal counseling on 57 prescriptions (including 9 cases where the patient tried to speak with the pharmacist but the request was not responded to by the pharmacy's staff).

When verbal counseling occurred, an average of 3 to 4 topics were covered for each drug. Patients with new prescriptions are required to receive verbal information on as many as 14 topics by the federal government.

These researchers also conducted a collaborative study with ABC News 12 years ago using disguised patients to fill prescriptions. The result was a 24% dispensing error rate on one of three different prescriptions filled 100 community pharmacies randomly selected in NY, NJ, and FL (Allan et al., 1995). Four of the errors were judged to clearly have the potential to harm patients. The verbal counseling rate of patients was 61%, with 46 of the encounters initiated by the pharmacist.

Conclusions

Dispensing accuracy has not improved over the past 12 years, based on this sample of 100 chain pharmacies. The frequency of verbal counseling decreased from 61% to 27%. The number of pharmacists that spontaneously counseled patients decreased from 46 twelve years ago to 6. The number of topics covered during counseling remained the same (3-4).

The low rate of warning patients about the potentially harmful interactions between aspirin and Coumadin, and Toprol XL with Sudafed PE was alarming and should be addressed.