Published in final edited form as:

JAMA Intern Med. 2013 March 11; 173(5): 375–394. doi:10.1001/jamainternmed.2013.2965.

Reaching out to patients to identify adverse drug reactions and non-adherence: necessary but not sufficient

Michael A Steinman, MD

Associate Professor of Medicine, University of California, San Francisco

Many millions of dollars have been spent on preventing adverse drug reactions at the point of prescribing. Automated systems help identify drug-drug interactions and excessive drug doses. Computerized alerts warn prescribers about potentially inappropriate drugs in older adults. Yet, only one-quarter of adverse drug reactions can be prevented by catching errors or problems at the time of prescribing.¹ The remainder of adverse drug reactions are not the result of prescriber error, but simply represent the known side effects of drugs. Some patients who take calcium channel blockers will develop peripheral edema. Some patients who take selective serotonin reuptake inhibitors (SSRIs) will experience marked sexual dysfunction. For some drugs, risk factors have been identified that place a patient at higher risk of developing an adverse event. However, in most cases, we cannot predict who will develop an adverse drug reaction, and who will not. We prescribe and hope for the best.

Unfortunately, physicians don't do a good job of identifying and appropriately managing adverse reactions when they do occur. Many patients don't tell their doctors when they are experiencing an adverse event, and we often don't ask.^{2–3} Moreover, physicians often misattribute the symptoms of an adverse drug reaction as the manifestation of an underlying disease, leading to diagnostic workups and a prescribing cascade of new medications rather than treating the problem at its source by stopping the offending drug.⁴ On a broader level, only a small fraction of adverse drug reactions are reported to the FDA Adverse Event Reporting System (<http://www.fda.gov/Safety/MedWatch/>), hindering efforts for post-marketing surveillance of drug safety. These problems with recognizing and managing adverse drug reactions occur not because physicians are incompetent, but because we lack the systems that would allow us to systematically identify and address medication-related problems.

The research described by Forster et al. in this issue of *Archives* shows a promising approach to bridge this quality gap. Building on past studies that have shown the benefits of reaching out to patients to identify adverse drug reactions, the authors developed a hybrid system. Three days after a drug was newly prescribed, the system generated a phone call to the patient. Using interactive voice response technology, the system asked the patient four simple questions about problems they may be having with their drugs and whether they wanted to talk to a pharmacist. The process was repeated two weeks later. One-third of contacted patients needed a follow-up call from the pharmacist. Overall, the system identified slightly under half of the 22% of patients who experience an adverse drug reaction. In addition, it identified one-third of the 6% of patients who were non-adherent to their medications.

Corresponding author: Michael Steinman, MD, San Francisco VA Medical Center Box 181G, 4150 Clement St, San Francisco, CA 94121, Tel: 415.221.4810 x3677, Fax: 415.750.6641, mike.steinman@ucsf.edu.

Financial conflicts of interest: None

This is exciting and highly promising. It is also not ready for widespread implementation. While the system detected a number of medication-related problems, it missed more than half of adverse drug reactions and two-thirds of episodes of non-adherence in patients - and would likely have done worse outside the controlled environment of a research setting. For most patients, the simple act of reaching out is necessary but not sufficient. People don't develop adverse drug reactions - they develop symptoms, which may be mistakenly attributed to causes other than drugs (including "getting old"), and which they may be hesitant to disclose. (Other adverse reactions may be completely asymptomatic but nonetheless serious, such as progressive hyperkalemia or anemia). Outreach calls may also be asynchronous with when the patient develops a medication-related problem. These challenges bedevil the widespread practice of calling patients several days after hospital discharge to inquire on their wellbeing and identify problems with their medications. While a wonderful idea, relatively little is known about how well these follow-up procedures actually identify problems, and although there is some evidence that these interventions are effective, the benefits are not as great as one might hope.⁵

What might be most helpful is a multifocal approach, in which the surveillance strategies being developed by Forster and like-minded colleagues are coupled with efforts to educate and encourage patients to be active partners in monitoring adverse reactions and non-adherence to their medications.⁶ This latter approach is best exemplified by health-coach based approaches pioneered by Coleman and others, in which impressive improvements in health resulted not from bringing services to patients, but by helping patients be engaged participants in their own care.⁷ These interventions are complex, and their potential benefits do not diminish the substantial contribution of surveillance-based approaches. Nonetheless, the solution to the problems of adverse drug reactions and non-adherence cannot solely rest on bringing the health care system closer to the patient. We need to empower our patients to come closer to us.

Acknowledgments

Support: Supported by the National Institute on Aging and the American Federation for Aging Research (1K23-AG030999)

REFERENCES

1. Steinman MA, Handler SM, Gurwitz JH, Schiff GD, Covinsky KE. Beyond the prescription: medication monitoring and adverse drug events in older adults. *J Am Geriatr Soc.* 2011 Aug; 59(8): 1513–1520. [PubMed: 21797831]
2. Weingart SN, Gandhi TK, Seger AC, et al. Patient-reported medication symptoms in primary care. *Arch Intern Med.* 2005 Jan 24; 165(2):234–240. [PubMed: 15668373]
3. Sleath B, Roter D, Chewning B, Svarstad B. Asking questions about medication: analysis of physician-patient interactions and physician perceptions. *Med Care.* 1999 Nov; 37(11):1169–1173. [PubMed: 10549619]
4. Rochon PA, Gurwitz JH. Optimising drug treatment for elderly people: the prescribing cascade. *BMJ.* 1997 Oct 25; 315(7115):1096–1099. [PubMed: 9366745]
5. Mistiaen P, Poot E. Telephone follow-up, initiated by a hospital-based health professional, for postdischarge problems in patients discharged from hospital to home. *Cochrane Database Syst Rev.* 2006; (4) CD004510.
6. Rennke S, Kesh S, Neeman N, Sehgal NL. Complementary telephone strategies to improve postdischarge communication. *Am J Med.* 2012 Jan; 125(1):28–30. [PubMed: 21871596]
7. Coleman EA, Parry C, Chalmers S, Min SJ. The care transitions intervention: results of a randomized controlled trial. *Arch Intern Med.* 2006 Sep 25; 166(17):1822–1828. [PubMed: 17000937]