



HHS Public Access

Author manuscript

JAMA Intern Med. Author manuscript; available in PMC 2017 February 22.

Published in final edited form as:

JAMA Intern Med. 2016 April ; 176(4): 482–483. doi:10.1001/jamainternmed.2015.8597.

Polypharmacy: time to get beyond numbers

Michael A. Steinman, MD

Division of Geriatrics, University of California, San Francisco and the San Francisco VA Health Care System

When I tell someone that I am a geriatrician, I often get the same response. I am told half-jokingly that the person needs my services. Then, I am regaled with a story of how the person's older parent, grandparent, or spouse is prescribed an enormous number of medications, thinks they might be causing problems, and doesn't know what to do about it.

It is this view of polypharmacy that often dominates patients', and increasingly clinicians', experience of medication use. This skeptical perspective is largely justified. The number of medications a person uses is by far the strongest risk factor for medication-related problems. As the number of medications rises, adverse drug reactions become more common. Adherence worsens. Out-of-pocket costs rise. Drug-drug interactions increase. Use of potentially inappropriate and unnecessary medications escalates.

Viewed in this light, the paper by Qato et al highlights that the challenges of polypharmacy are not going away.¹ Using data from a national sample of older adults, the authors found that the use of multiple medications has increased between 2005–06 and 2010–11. One decade ago, 31% of older adults were taking 5 or more prescription medications. Five years later, it was 36%. The results are more striking if over-the-counter medications and dietary supplements are included in the total. With these therapies, 53% of older adults were taking 5 or more medications in 2005–06, rising to 67% by 2010–11. Moreover, as Jou et al describe in their Research Letter, 25% of adults do not report to their doctors the herbs and supplements they are taking.² This is mostly because doctors don't ask and because patients don't think their providers need to know. We thus under-recognize the presence of polypharmacy and the multiple sources that contribute to it.

These results are consistent with a large body of research that has documented a seemingly inexorable rise in medication use among older adults. What they do not tell us is whether these changes are good or bad.³ For example, some of the biggest increases documented by Qato et al were in use of statins and Vitamin D. Is this appropriate, or overtreatment? Perhaps more importantly, it does not tell us what to do about it.

This is the rub. There are many older adults who would be healthier if they threw away half of their medications. Yet, there are people with multiple chronic diseases who can benefit

Corresponding author: Michael A. Steinman, MD, 4150 Clement St, VA Box 181G, San Francisco, CA 94121, mike.steinman@ucsf.edu.

Invited commentary on: Qato et al, "Changes in prescription and over-the-counter medication and dietary supplement use among older adults in the United States, 2005 vs 2011" and Jou et al, "Non-disclosure of complementary and alternative medicine (CAM) use to usual care providers: Findings from the 2012 National Health Interview Survey"

from multi-drug therapy.⁴ The use of multiple medications indicates that a person is at higher risk of medication-related problems. It does not tell us what those problems are or what to do about them. This is particularly true when most or all of the medications can be linked to practice guidelines for the patient's chronic diseases.

This is largely where the current state of practice is stuck. We can identify which patients are taking multiple medications. Automated screens can identify drug-drug interactions and whether prescribed medications are included in lists of drugs that should generally be avoided in older adults, such as the Beers Criteria. Yet these only scratch the surface. We don't have methods that allow us to reliably evaluate medication therapy in an ongoing way for the outcomes that really matter - whether a drug is actually helping the patient, causing adverse effects, or is necessary at all.

We can often do a reasonable job if the patient has 1 or 2 chronic conditions. But the complexity that arises when patients have multiple chronic conditions overwhelms our ability to consistently and thoughtfully keep track of this information. We are winging it. And patients' medication regimens get bloated with unnecessary, ineffective, and harmful medications despite our best intentions.

It's time to take the next leap forward. We need to create systems that support an ongoing process of monitoring medications. Such systems would help us periodically assess the benefits, harms, and ongoing need for each of a patient's medications - and the reasonableness of the medication regimen as a whole. These systems could also help doctors with deprescribing, for example by supporting gradual down-titration of a medication, and monitoring patients for adverse drug withdrawal reactions after a drug is stopped.

This is hard. Many attempts to improve these elements of prescribing quality have had disappointing results.⁵ Yet it is within our grasp. Past experience suggests that several elements may be particularly helpful.

First, we need a comprehensive, portable, and truly informative medication list that the patient helps to maintain. This list would comprise all of a patient's medications, including over-the-counter and alternative therapies. Engaging patients as key partners in maintaining the list could help close the gap, described by Jou and others, between what the doctor thinks a patient is taking and what he/she is actually taking.² Of equal importance, this list would include not only the drug name, dose, and schedule, but the indication for each drug, the target symptoms and signs it is meant to address, and how its effectiveness and adverse effects should be monitored. This will provide a common reference point for both the patient and the health care team.

Second, we need a team approach to monitoring medication effectiveness and adverse effects. Consider the success of warfarin clinics. Pharmacists, nurses, and other health care professionals can be creatively engaged to systematize the process of medication monitoring and follow-up, complementing the role of the physician.⁶

Third, we need real patient engagement, supported by the whole health care team. This includes the targeted use of health coaches, who have been shown to markedly improve outcomes by helping patients communicate with and assert themselves to their physicians.⁷

None of this is easy, but it is achievable. Advances in technology and meaningful use requirements set the stage for a truly useful, “living” medication list. The growth of the patient-centered medical home creates a foundation for team-based care. Readmission penalties and the assumption of financial risk by health systems are aligning incentives to keep patients healthy and happy by increasing their engagement in their care.

Numbers aren't the enemy; unnecessary, ineffective, and harmful prescribing is. Keeping our eye on the ball and addressing the systems of care that lead to these problems will help us meet this challenge.

Acknowledgments

Support: Supported by grants from the National Institute on Aging (K24-AG049057-01 and P30-AG044281)

Acknowledgement / Disclosure: Dr. Steinman is a consultant for iodine.com, an internet start-up company.

References

1. Qato DM, Wilder J, Schumm LP, Gillet V, Alexander GC. Changes in prescription and over-the-counter medication and dietary supplement use among older adults in the United States, 2005 vs 2011. *JAMA Intern Med.* 2016
2. Jou J, Johnson PJ. Non-disclosure of complementary and alternative medicine (CAM) use to usual care providers: Findings from the 2012 National Health Interview Survey. *JAMA Intern Med.* 2016
3. Gurwitz JH. Polypharmacy: a new paradigm for quality drug therapy in the elderly? *Arch Intern Med.* 2004; 164(18):1957–1959. [PubMed: 15477428]
4. Wise J. Polypharmacy: a necessary evil. *BMJ.* 2013; 347:f7033. [PubMed: 24286985]
5. Patterson SM, Cadogan CA, Kerse N, et al. Interventions to improve the appropriate use of polypharmacy for older people. *Cochrane Database Syst Rev.* 2014; 10:CD008165.
6. 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; 59(8): 1513–1520. [PubMed: 21797831]
7. Coleman EA, Parry C, Chalmers S, Min SJ. The care transitions intervention: results of a randomized controlled trial. *Arch Intern Med.* 2006; 166(17):1822–1828. [PubMed: 17000937]