CHCS Center for Health Care Strategies, Inc.

FACT SHEET | JANUARY 2019

Understanding and Addressing Medication Complexity

Medication complexity is a challenge to patients, physicians, and pharmacists alike. It occurs when an individual is prescribed multiple medications, each with its own dosing schedules and side effects, without sufficient guidance and support. In particular, people with complex health and social needs often juggle multiple medications with no single entity coordinating the overall medication regimen to ensure proper usage and avoid complications. For the most part, this issue is not getting the attention it deserves.

What is Medication Complexity?

Medication complexity is a concept encompassing factors that can put individuals with complicated medication regimens at risk for medication-related errors, including:

- The number of medications an individual is taking (polypharmacy);
- Challenges around adherence;
- Failure to accomplish treatment goals resulting from inadequate or inappropriate drug regimens; and
- Avoidable complications or harm caused by medications (adverse drug events or ADEs).

Who is at Risk for Medication Complexity?

- 29 percent of Americans take five or more medications daily;[1]
- 30 percent of those over age 65 take eight or more medications daily;[2]
- 20 percent of older adults living in the community take 10 or more medications;[3] and
- Individuals with complex health needs may take as many as 15-20 medications daily.[4]

What are the Risks of Medication Complexity?

In one study, people taking five or more medications had an 88 percent increased risk of experiencing an ADE compared to those who were taking fewer medications.[5] The increased risk of medication harm may arise from a variety of factors. These might include, for example: (1) medications that should not have been prescribed together; (2) look-alike and sound-alike medications (drugs with similar names)[6]; (3) drug allergies that were not identified before prescribing; and/or (4) high doses of medications prescribed without accounting for the patient's weight and kidney function. In the United States, an estimated 119,000 deaths annually are caused by prescription medication-related issues.[7] Additionally, one million emergency department visits and 280,000 hospitalizations occur annually from avoidable complications or harm caused by drugs or drug interactions.[8] Individuals with complex health and social needs may also suffer from their disease(s) worsening due to the complications that can arise from medication complexity. Further, medication complexity can lead to medication trauma. This occurs when complicated and uncoordinated drug regimens cause patients and their caregivers to experience fear, anger, confusion, and/or frustration, which can result not only in adverse drug events, but trauma — physical or emotional — for the patients.[9]

How Community-Based Efforts Can Address Medication Complexity

Efforts to address medication management often focus narrowly on medication adherence during brief medical appointments or hospital discharges. These approaches overlook common causes of medication issues in patients with complex needs. These patients are often overwhelmed by complicated medication regimens outside of a medical setting, have few resources, and do not know where or how to ask for help.

Community management of medication complexity shifts from a traditional provider-centric model of prescribing and dispensing medication to a patient-centered approach that extends care beyond the walls of a clinical setting to help patients and caregivers safely and effectively manage their medications. This includes listening to and empathizing with patients' stories, priorities, and experiences; establishing a trust-based relationship; and empowering patients to take ownership of their medication regimens.

Made possible through support from the Gordon and Betty Moore Foundation.

Additional innovative community-based strategies include:

Medication regimen simplification through comprehensive medication management, enhanced discharge planning, and de-prescribing medications.

Addressing social determinants of health through screening tools.

Data sharing between community pharmacies and health systems, and medication risk scores to identify patients with complex needs.

Workforce development through specialized trainings for community paramedics, pharmacy technicians, and community health workers.

Alternative financing and reimbursement for enhanced medication management services.

Community-based outcome measures that define and reward effective medication management.

Examples from the Field

The ***Community Management of Medication Complexity Innovation Lab***, led by the Center for Health Care Strategies through support from the Gordon and Betty Moore Foundation, is a national initiative supporting community-based strategies to improve medication-related outcomes among low-income populations, particularly those with complex health and social needs. Pilot site activities, representing a range of delivery systems and populations, include:

- ***Northwestern University Health Literacy & Learning Program Lab***, *Chicago, IL*, is tailoring and disseminating electronic health record-based medication reconciliation, patient education, and regimen simplification tools, guided by the Northwestern-developed Universal Medication Schedule, and assessing the efficacy of the tools among patients with multiple chronic conditions.
- ***Pharmacy Society of Wisconsin (PSW)***, *Madison, WI*, is partnering with pharmacies throughout the state to pilot Final Product Verification, which uses specially trained pharmacy technicians to dispense medications, freeing up pharmacists to provide counseling and other clinical patient management. Training will address Continuous Medication Review as well as identification of complex patients for pharmacies.
- ***ThedaCare Health System***, *Appleton, WI*, is developing a medication risk score; partnering with three local community pharmacies to enhance electronic medical record exchange and provide comprehensive medication management services; and implementing a virtual health model among pharmacists, patients, and providers by video conference during in-home visits with community paramedics and nurses.
- ***Towncrest Pharmacy***, *Iowa City, IA*, is implementing a medication risk score to flag patients at risk of medication-related problems, integrating a social determinants screening tool for pharmacy staff to assess patients' unmet social needs, and matching them with appropriate interventions, such as patient education or medication counseling.
- ***University of Minnesota College of Pharmacy*** and ***Fairview Health Services***, *Minneapolis, MN*, is enhancing comprehensive medication management to reduce readmissions for people recently hospitalized for acute behavioral health needs. The approach includes post-discharge medication evaluations and care plan coordination between patients' primary and specialty care physicians and pharmacists.

---

[1] Slone Epidemiology Center at Boston University. Patterns of Medication Use in the United States, 2006.

[2] J. Sherman, L. Davis, and K. Daniels. "Addressing the Polypharmacy Conundrum." U.S. Pharmacist. 2017. Available at: www.uspharmacist.com/article/addressing-the-polypharmacy-conundrum.

[3] D. G. LeCouteur, G.A. Ford, and A. J. McLachlan. "Evidence, Ethics and Medication Management in Older People." *Journal of Pharmacy Practice and Research*, 40, no.2, (2010): 148-152.

[4] Interview with Jim Slater, PharmD, executive director of pharmacy at CareOregon, to Caitlin Thomas-Henkel and Rachel Yard, October 8, 2018.

[5] F.T. Bourgeois, M.W. Shannon, C. Valim, and K.D. Mandl. "Adverse Drug Events in the Outpatient Setting: an 11-year National Analysis." *Pharmacoepidemiol Drug Safety*. 19(9) (2010): 901-10.

[6] Agency for Healthcare Research and Quality. "ISMP's List of Confused Drug Names." Available at: https://psnet.ahrq.gov/resources/resource/11634.

[7] Polypharmacy Initiative Statistics. University of Louisville, Kentucky. Available at: http://polypharmacyinitiative.com/statistics.html.

[8] U.S. Department of Health and Human Services, Office of Disease Prevention and Health Promotion. National Action Plan for Adverse Drug Event Prevention. Washington, DC: 2014.

[9] R.Yard. "Medication Trauma: What It Is and How to Help – A Conversation with CareOregon's Jim Slater." November 2018. Available at: http://www.chcs.org/medication-trauma-what-it-is-and-how-to-help/.