

Fact Sheet: Highlights from the Medication Optimization Position Paper

Medication Use in Older Adults

Medication use is ubiquitous among older adults:

- 90% use one or more prescription medications per week²
- 41% take five or more medications per week^{7, 8}
- 12% use 10 or more medications per week²

Why Optimal Medication Use is Important

Suboptimal medication use can increase the burden of illness and result in higher costs to families and society:

- Adverse drug events are a leading cause of morbidity and mortality. According to the Institute of Medicine (IOM), more than 2 million serious adverse drug events and about 100,000 deaths occur annually due to medication problems.⁴
- In one study, the risk of hospitalization was twice as high in chronically ill individuals who did not take their medications as directed, compared to chronically ill individuals who did.⁹
- The New England Healthcare Institute estimates that \$290 billion of healthcare costs could be avoided if medication adherence were improved.¹

While medications are widely appreciated, commonly used, and help many people lead longer, healthier, and more productive lives, there is still great room for improvement in medication use.

Where Medication-Use Problems Occur

Problems can occur at different phases in the medication-use process. To help pinpoint where such problems occur, what opportunities exist to solve these problems, and which technologies may be useful to support solutions, it is helpful to visualize medication-use as a five-phase process.³⁻⁵

Phases in the Medication-Use Process

1. Assess
2. Prescribe
3. Dispense

4. Administer

5. Monitor

Opportunities to Improve Medication Use

Significant opportunities to improve medication use exist in the following three areas:

- Medication Reconciliation
- Medication Adherence
- Medication Monitoring

Technology-enabled interventions are available to address problems that are important and widespread in these three areas.

- Medication Reconciliation problems mainly present in the assess and prescribe phases of the medication-use process
- Medication Adherence problems commonly occur in the dispense and administer phases

Center for Technology and Aging Initiatives

To help improve medication use in older adults, the Center for Technology and Aging launched a Medication Optimization Initiative in September 2009. This included the Center's Medication Optimization Diffusion Grants Program.

The initiative aims to increase use of technologies that:

- Help improve medication use in older adults (60+) with chronic health conditions
- Enable independent living and the ability to live in the setting of one's choice
- Lead to improvements in the cost and quality of care
- Reduce the need to move to more intensive, higher-cost care settings
- Reduce the burden on formal and informal caregivers
- Improve medication reconciliation, medication adherence, and/or medication monitoring
- Are used in the home, as well as other long-term and post-acute care settings

Chart 1: The Medication Management Process: Process Step Goals and Example Technologies for Patients and Caregivers

Medication Reconciliation		Medication Adherence		
Assess	Prescribe	Dispense	Administer	Monitor
Goals <ul style="list-style-type: none"> • Patient history includes a complete and accurate medication list • Patient needs are accurately conveyed and understood 	Goals <ul style="list-style-type: none"> • Medication orders are documented and shared with patients 	Goals <ul style="list-style-type: none"> • Medication is made available • Medication picked up by patient • Patient and caregivers understand medication instructions 	Goals <ul style="list-style-type: none"> • Individual dose dispensed • Individual dose taken by patient (on time, in the right dose, and for the right length of time) 	Goals <ul style="list-style-type: none"> • Routine dosing and tracking of medication • Reports and trending information from medication log generated • Clinician adjusts medication as needed • Prescriptions refilled
Example Technologies <ul style="list-style-type: none"> • Medication List Software • Personal Health Records (PHR) 	Example Technologies <ul style="list-style-type: none"> • Medication List Software • Personal Health Records (PHR) 	Example Technologies <ul style="list-style-type: none"> • Teleconsultations • Online Patient Education • Cognitive Assessment Tools • Pharmacy Kiosks 	Example Technologies <ul style="list-style-type: none"> • Medication Adherence Devices (integrated and standalone, simple and advanced function) 	Example Technologies <ul style="list-style-type: none"> • Personal Biometric Testing Devices • Wireless Communication Devices • Personal Health Records (PHR)

Medication Reconciliation

Medication reconciliation aims to eliminate discrepancies in medication records or “lists” and in order to avoid adverse drug events (ADEs) and focuses on creating an accurate list of all medications a patient is taking and comparing that list against new physician orders.

- Medication discrepancies are the most common drug-related problem at the time of hospital discharge in one study and the cause of half of all preventable adverse drug events 30 days after discharge¹⁵

Medication Adherence

The World Health Organization defines adherence as “the degree to which the person’s behavior corresponds with the agreed recommendations from a health care provider.”⁹

Medication non-adherence contributes to:

- 33%-69% of medication-related hospital admissions and 23% of all nursing home admissions
- Increased use of expensive, specialized medical resources; unneeded medication changes; and, unexplained treatment failures⁸

Medication Monitoring

Medication monitoring refers to the process of monitoring response to a medication. Medication monitoring can also reveal whether an individual is taking their medication as prescribed. Monitoring problems associated with ADEs tend to fall into the categories of monitoring too infrequently or not responding adequately to signs, symptoms, or laboratory test indications of drug toxicity.²

- In one study, suboptimal medication monitoring contributed to 61% of the preventable adverse drug events.²

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For a complete description of the Center for Technology and Aging Medication Optimization initiatives and the Center's complete report on medication optimization technologies for older adults, visit www.techandaging.org or contact Lynn Redington at lredington@techandaging.org.