

# Steps to Safe Medication Use

## Practice tips for the healthcare team

### 1. Know your patient.

- screen patients and recognize characteristics associated with higher risk of medication related problems
- for every new patient, take a thorough history of their medications by asking them to bring all prescription and non-prescription drugs, including dietary supplements and herbal remedies
- communicate with other health providers the patient is seeing who are also prescribing medications
- keep the medication list on the chart accurate and up-to-date
- screen for non-adherence by asking discretely whether the patient has been missing doses of any drugs
- ask the patient about their goals, so that they are involved in decisions regarding their drug therapy program

#### High Risk Patient Characteristics

- 85 years of age or older
- low body weight or body-mass index
- more than 6 active chronic medical diagnoses
- atypical presentation of illness
- 5 or more medications, or more than 12 medication doses per day
- multiple health providers prescribing drugs
- recent hospital discharge
- history of previous adverse drug event
- impairment in cognition, vision, hearing, or dexterity
- other factors affecting adherence to medications (eg. cultural, economic, physical, psychological, insufficient education about drug regimen and over-the-counter drugs)

Use multiple sources of information to verify a patient's drug history. In addition to pharmacy lists and medical reports, the "brown bag" method is helpful. Ask the patient to bring all prescribed medications, over-the-counter remedies, dietary supplements, and herbal products to the office visit. Recent evidence suggests that this method provides a more accurate list of drugs an elderly person takes, rather than relying on the patient's medical or pharmacy record alone (Caskie and Willis, 2004). A home assessment can also be helpful as patients often keep medications in different locations and may forget to bring some into the office.

# Steps to Safe Medication Use

## Practice tips for the healthcare team

---

### 2. Diagnose with care!

- when performing a physical exam, note and record changes in symptoms or disease status, especially if they are atypical

Always bear in mind the heterogeneity of the elderly population.  
“Atypical” disease presentations are in fact very typical in this group!

- maintain suspicion of an adverse drug reaction, rather than a disease effect, especially with symptoms like falls, lethargy, confusion, depression, lightheadedness, GI distress, changes in bowel or bladder function, or electrolyte imbalance (eg. hyponatremia, hypo- or hyper-kalemia)
- conversely, when considering drug-related signs and symptoms, include common medical disorders in the differential diagnoses, and recall that some adverse drug reactions can mimic signs of normal aging – don’t rule them out!
- keep in mind that changes in a patient’s medical status over time, including that of chronic conditions, may cause medications that have been used for a long time to become unsafe or ineffective
- if therapeutic goals are not being achieved, hesitate before increasing the dose of medication – consider the possibility of non-adherence and inquire discretely whether the patient is taking all doses of their prescribed medications
- consult a specialist (eg. a geriatrician or a clinical pharmacologist) if complicated medication-related issues are suspected that may need more thorough investigation

Studies suggest that 22-57% of elderly patients do not take their drugs as instructed, with most taking less than their prescribed dose (reviewed by Osterberg and Blaschke, 2005).

# Steps to Safe Medication Use

## Practice tips for the healthcare team

### 3. Establish clear treatment goals, and proceed with caution!

- maximize appropriate use of non-drug therapy, on its own or as an adjunct to medications

Examples of non-drug interventions:

- for dementia: environmental modification, altered care approaches, behavioural strategies like sensory intervention
- for insomnia: stimulus control, sleep restriction, sleep hygiene
- for depression: psychotherapy, cognitive behavioural therapy
- for mobility issues: physiotherapy, exercise, and mobility aids
- for urinary incontinence: bladder training, Kegel exercises, scheduled toileting
- for mild constipation: dietary modification, mobility, exercise
- for diabetes or hypertension: dietary modification, exercise, lifestyle changes

Adapted from Liu BA and Jackson LD (2008)

- prescribe medications with careful attention to risks and benefits, considering the drug on its own and within the context of the entire drug regimen; watch for potential interactions
- be aware of drugs which pose frequent problems in the elderly, such as those described in the Beers list (Fick et al, 2003), McLeod et al (1997), and the IPET (Naugler et al, 2000)
- stay aware of pharmacodynamic and pharmacokinetic changes associated with aging and adjust medication doses accordingly; estimate renal function using the Cockcroft-Gault formula:

Cockcroft-Gault Formula (Cockcroft and Gault, 1976)

$$\text{Creatinine Clearance} = \frac{(140 - \text{age}) \times \text{weight (kg)}}{72 \times \text{serum creatinine}} \times 0.85 \text{ (for women)}$$

- prescribe in a manner that maximizes patient adherence – simplify dosing schedules as much as possible, use combination medications if available, discuss the patient's goals and distinguish between essential and non-essential drugs (eg. vital vs. optional drugs, curative medications vs. symptom relief) to see if reductions can be made
- when prescribing a new drug, “start low and go slow” – if an adverse drug effect is suspected, reduce or discontinue the drug and monitor the effects of doing so

# Steps to Safe Medication Use

## Practice tips for the healthcare team

### 4. Monitor the patient carefully.

- perform a “brown bag” medication review every 6 to 12 months, and after any new event such as hospitalization, discontinue drugs which are not still indicated
- laboratory studies may be helpful in monitoring potential drug-related problems

#### Relevant laboratory tests:

- serum creatinine and creatinine clearance, electrolytes, albumin, and LFTs if drug toxicity is suspected
- renal function and potassium with 1 week of starting and ACE inhibitor
- electrolytes with diuretic therapy
- renal function testing with NSAID use
- phenytoin and other anti-epileptic medication levels
- INR with warfarin therapy
- TSH monitoring for thyroid replacement, amiodarone side effect
- digoxin levels
- aminoglycoside levels
- theophylline levels
- CBC on mycophenolate mofetil, tacrolimus
- renal function testing for cyclosporine
- CBC on ticlopidine
- tricyclic antidepressant drug levels
- lithium levels, renal function testing on lithium

From Liu BA, and Jackson LD (2008).

- be mindful of new symptoms that may be an adverse drug reaction and avoid “treating” them with another drug

#### Hints that suggest a symptom is a drug effect:

- previous reports of the symptom occurring with the drug
- adverse event appears after suspect drug was started
- symptom improves when drug is reduced or discontinued
- symptom worsens when drug is increased or restarted
- absence of another cause, such as another potential illness
- suspect drug is present in toxic concentrations in the blood
- patient has had a similar reaction to the drug in the past

# Steps to Safe Medication Use

## Practice tips for the healthcare team

### 5. Consider published quality indicators for medication use.

A recent review outlines numerous practices that reflect safer medication use in vulnerable elders (Shrank et al, 2007). Refer to the reference list in order to review the complete article. A summary of the discussed recommendations is listed below:

1. An accurate, up-to-date medication list, including over-the-counter products, should be readily accessible to all healthcare providers to make it possible to identify potential drug-related symptoms, to avoid duplication of medication therapy, to screen for drug-drug or drug-disease interactions, and to simplify the regimen to promote adherence.
2. A drug regimen review should be performed annually so that unnecessary drugs can be discontinued and necessary ones added.
3. All current prescribed drugs should have a clearly defined indication.
4. Patients or their caregivers should be appropriately educated about all of their medications to improve adherence and the patients' ability to monitor adverse effects.
5. For medications prescribed to treat a chronic condition, there should be documentation of the patient's response to therapy to provide rationale for its use, modification, or discontinuation.
6. Patients prescribed warfarin should receive information about diet and drug interactions and the risk of bleeding complications.
7. When warfarin is prescribed, an INR should be taken within 4 days of initiating therapy and at least every 6 weeks thereafter to maintain appropriate therapeutic ranges.
8. When an angiotensin-converting enzyme (ACE) inhibitor is prescribed, serum creatinine and potassium levels should be monitored within 2 weeks and at least yearly thereafter to help prevent the onset of renal insufficiency and hyperkalemia.
9. If a loop diuretic is prescribed, electrolytes should be checked within 2 weeks and at least yearly thereafter to monitor for hypokalemia.
10. Avoid propoxyphene if an analgesic is required as it is no more effective than acetaminophen or other safer analgesics.
11. If a benzodiazepine is prescribed for greater than a month, there should be annual documentation of discussion of risks and an attempt to taper the drug due to the risk of falls and cognitive side effects.

From Shrank WH, Polinski JM, and Avorn J (2007). J Am Geriatr Society 55: S373-S382.

# Steps to Safe Medication Use

## Practice tips for the healthcare team

### Published quality indicators (continued):

12. Drugs with strong anti-cholinergic effects should not be prescribed if alternatives are available, due to high risk of side effects.
13. Barbiturates should not be used if there is no need for seizure control, as they are addictive, cause multiple drug interactions, and increase the risk of falls.
14. Meperidine should not be prescribed for analgesia due to risk of delirium and seizures.
15. Ketorolac should not be prescribed for longer than 5 days due to a high risk of gastrointestinal side effects.
16. Cyclobenzaprine, methocarbamol, carisoprodol, chlorzoxazone, orphenadrine, tizanidine, or metaxalone, when used for back or neck pain, should not be prescribed for longer than 1 week due to anticholinergic adverse effects, sedation, confusion, and limited evidence of efficacy in the elderly.
17. Patients who have had a recent stroke or myocardial infarction, or who have peripheral arterial disease or acute coronary syndrome treated medically or with percutaneous angioplasty, should be prescribed clopidogrel rather than ticlopidine for antiplatelet therapy.
18. No more than 1 daily tablet of low-dose oral iron should be prescribed to treat an iron-deficiency anemia, as low dose therapy has been shown equally effective with fewer adverse effects than recommended or high-dose therapy.
19. If an antipsychotic drug is prescribed, there should be documentation that the patient's response was assessed within 1 month due to high risks associated with these drugs and the available option of behavioural intervention.
20. If chronic high-dose acetaminophen is prescribed, or chronic regular-dose acetaminophen in a patient with liver disease, the patient should be advised of the risk of liver toxicity.
- 21-22. If an NSAID or daily aspirin is prescribed, GI bleeding risks should be discussed and documented.
- 23-24. If a patient with a risk factors for GI bleeding (older than 75, history of peptic ulcer disease, history of GI bleeding, taking warfarin, or taking chronic glucocorticoids) is prescribed a non-selective NSAID, or a patient with 2 or more mentioned risk factors is prescribed daily aspirin, they should also be prescribed misoprostol or a proton pump inhibitor to lower the risk of GI bleeding.

From Shrank WH, Polinski JM, and Avorn J (2007). J Am Geriatr Society 55: S373-S382.

# Steps to Safe Medication Use

## Practice tips for the healthcare team

### 6. Educate your patient to empower them.

- always discuss the patient's own goals when having a conversation about drug treatment in order to tailor therapy to their needs
- keep drug regimens as simple as possible to promote adherence:
  - discontinue redundant, or non-indicated medications
  - use once-a-day dosing where possible
  - use combination medicines where possible
- encourage patients to use a single pharmacy to facilitate record-keeping and also to make it possible for one pharmacist to monitor all of their medications for potentially harmful interactions
- verify that the patient has a good understanding of their medications, including benefits, risks, and side effects to watch out for – encourage them to report suspicious symptoms and to ask questions if they have any uncertainties

#### Things the patient should know about their medications

- generic and brand names of each drug
- how to recognize each drug and tell them apart from others
- proper handling and storage of each drug
- why they are taking each drug, expected benefits, and potential risks
- how each drug is to be taken, and what to do if a dose is missed – use of memory cues such as a diary, calendar, pill box, or blister pack if needed
- side effects, including those that are common, and those that warrant quick attention – what to do if problems are to arise
- interactions: foods, beverages, dietary supplements, vitamins, minerals, herbal remedies, naturopathic preparations, over-the-counter remedies and other medications to be on the alert for while taking this drug – signs and symptoms of a harmful interaction
- how to keep a good record of their medications and to be able to provide this information at all health visits, including hospital admissions
- OHIP provides a program called MedsCheck, facilitating annual discussions with a pharmacist for patients taking 3 or more prescription medications per day:  
MedsCheck – Phone 1-866-255-6701, TTY 1-800-387-5559, Web [www.medscheck.ca](http://www.medscheck.ca)

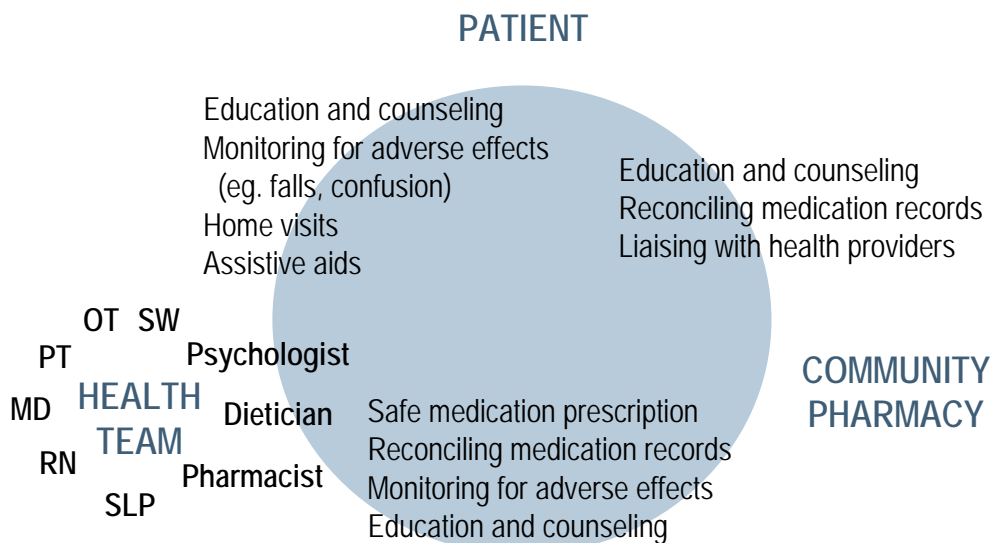
# Steps to Safe Medication Use

## Practice tips for the healthcare team

### The interprofessional team

Safe medication therapy is a team responsibility. Signs and symptoms of adverse drug events can appear with incredible subtlety and heterogeneity in the frail elderly. Just as a “neighbourhood watch” program provides multiple sets of eyes to ensure a community’s safety, the interprofessional team is in a good position to detect a patient’s response to medications as each discipline observes the patient using a slightly different lens. Team members can also collaborate in their capacity to educate and to counsel patients and families who are having difficulty with their medication therapy.

Pharmacist and social worker care teams in the community have been described as an alert and adaptive system to meet the medication needs of elderly and chronically ill individuals. Each discipline thrives on its individual strengths – clinical, client-centred, pharmacy practice in the case of the pharmacist; and effective communication, problem solving skills, and mobilization of community resources in the case of the social worker – to form an effective triad with the patient at the centre of focus (Conry, 2001)



# Steps to Safe Medication Use

Practice tips for the healthcare team

## Collaborating to improve safety with medications

### PRIMARY HEALTH TEAM

- perform a thorough medication history and review at initial visit, after a hospitalization or medication change by a specialist, and every 6-12 months
- discontinue unnecessary drugs, optimize dosing
- maximize benefit of non-drug therapy
- liaise with community (eg. pharmacy, hospital) to reconcile and ensure accuracy of drug regimen
- every health team member should be on constant lookout for signs of adverse drug reactions over the course of their patient interaction
- provide education and support to patient in all relevant areas (eg. OT for dexterity and memory aids to increase adherence, PT for fall risk management and exercises, SW for counseling and to mobilize community resources, dietician to optimize dietary needs relevant to medications)

PROMOTE ACCURATE AND OPTIMAL MEDICATION REGIMENS

MONITOR AND RESPOND TO SIGNS OF DRUG PROBLEMS

PROMOTE PATIENT KNOWLEDGE AND ADHERENCE

### PATIENT AND CAREGIVER

- bring all medications, over-the-counter remedies, vitamins, and herbal supplements so they can be reviewed
- keep an accurate list of all medications and doses to provide to medical or hospital visits
- report all previous problems with any medications, and any difficulties in taking all doses of current medications
- report any change in health status, especially if there was a recent change to medications or dosing
- seek information and stay informed about drug treatment program

### OTHER ORGANIZATIONS

#### HOSPITAL OR HEALTH SPECIALIST

- ensure accuracy when taking health and medication history
- ensure medication issues and medication changes are accurately reported to primary health team so they can be reconciled

#### COMMUNITY PHARMACY

- verify accuracy of patient's medication regimen and provide printed records
- screen for drug interactions and inappropriate medication usage
- educate patient and caregiver on appropriate drug usage and precautions
- find opportunities for lower cost alternatives if patients cannot afford medications