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# When Wrong Things Happen with Medications: Risk and Prevention

*by*

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# Learning Objectives

At the end of this module you will be able to:

1. Describe common causes of adverse drug events
2. Describe best drug prescribing practices for nursing homes
3. Describe roles of health care professionals and caregivers in medication management
4. Describe how quality improvement can be used to prevent adverse drug events

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# Adverse Drug Event (ADE)

*What is an Adverse Drug  
Event?*

An adverse drug event is  
“an injury resulting from the  
use of a drug”



When wrong things happen with medication, it is often called and “Adverse drug event.” An adverse drug event (ADE) is defined as “any injury which results from the use of a drug.” This broad definition of adverse drug events includes **any** type of medication error involving a patient, in this case an older person.

ADE’s are part of a larger group of issues called Adverse Medical Events

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# Adverse Drug Event (ADE)

*Why pay attention to ADE's?*

Many people suffer injuries and even death from ADE's each year

- Many ADE's are preventable, especially the more serious ones
- Nursing Homes have high rates of ADEs: nearly 2 million each year in the U.S.



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It is estimated that over 770,000 people are injured or die in hospitals from adverse drug events (ADEs) annually.

Older adults are especially susceptible to ADE's because of multiple conditions and number of medications they take.

Adverse drug events are common in many health care settings: hospitals, doctor's offices, and nursing homes.

Among the 1.6 million residents of nursing homes in the U.S., estimates are that there are 1.9 million ADEs with 86,000 of them life-threatening or fatal (Gurwitz et al, 2005). We will look more closely at why nursing homes have high rates of ADE's

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## Most Common *and* Preventable ADEs in Outpatient Care

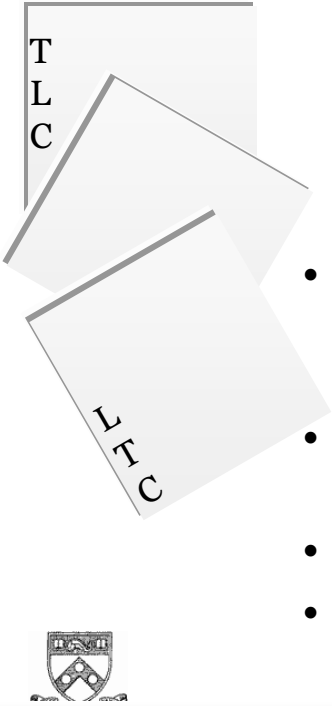
- Kidney (e.g. abnormal levels of waste products, dehydration)
- GI: (abdominal pain, diarrhea, constipation)
- Bleeding
- Sugar/Diabetes



In outpatient care, the drugs most frequently associated with ADEs are heart-related.

Problems with psychoactive drugs are much more frequent in nursing homes because of the higher proportion of persons with dementia taking these medications.

Three other areas – GI, or digestive tract, bleeding and kidney problems are common across all the settings.



## Most Common *and* Preventable ADEs in Nursing Homes

- Neuropsychiatric: (oversedation, confusion, hallucinations and delirium)
- GI: (abdominal pain, diarrhea, constipation)
- Bleeding
- Kidney (e.g. abnormal levels of waste products, dehydration)

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These adverse drug events are considered *preventable* and so it is especially important to be aware of and recognize them. The most common, preventable ADE's are listed with the most frequent at the top. As you can see, events that affect mental functioning happen the most often among older adults in nursing homes, with digestive system problems, bleeding and kidney-related problems next. On the next slide you will see that

These are also the top four among the non-preventable ADE's

The specific drugs associated with ADE's are the

- "Atypical" antipsychotics, like olanzapine and risperidone
- Warfarin (Coumadin)
- Diuretics

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# Nursing Homes Have High Rates of ADEs

In an average facility of 100 beds, every year, there will be:

- 120 ADEs
- Nearly half are preventable
- 28% are fatal, life threatening or serious

Preventable ADEs are linked to common mistakes.



Studies have shown that actual and potential adverse drug events are common in nursing homes.

Half are preventable.

It is estimated that approximately 120 ADEs are identifiable each year in an average facility. 120 ADE's would mean about 10 each month!

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# What Mistakes Lead to High Rates of ADEs?

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- **Prescribing** (wrong dose, wrong drug)
- Transcription: transferring orders manually onto med sheet
- Dispensing
- Drug administration
- **Monitoring** (poor response to signs of drug toxicity)

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Research shows that the most common errors occur at the **prescribing** and **monitoring** stages of medication care (**bolded** items). If there is an error at any of the in between steps, monitoring the person's response to medication is the next opportunity to pick up the mistake.

The most frequent prescription errors are:

- the wrong dose of a drug or
- the wrong drug or
- choosing a drug despite a known drug interaction.

At the monitoring stage, inadequate laboratory monitoring or poor response to signs or symptoms of drug toxicity were the most significant problems.

Awareness of older person's response to medications and prompt reporting of problem reactions are a very important opportunity for nursing and all direct care staff to improve care.



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## Which Older Persons Are Most At Risk for ADE's?

- Persons taking more medications
- Persons taking drugs from several categories
- Persons taking:
  - Anti-coagulants
  - Anti-psychotics
  - Antibiotics
  - Seizure medications
  - Diuretics



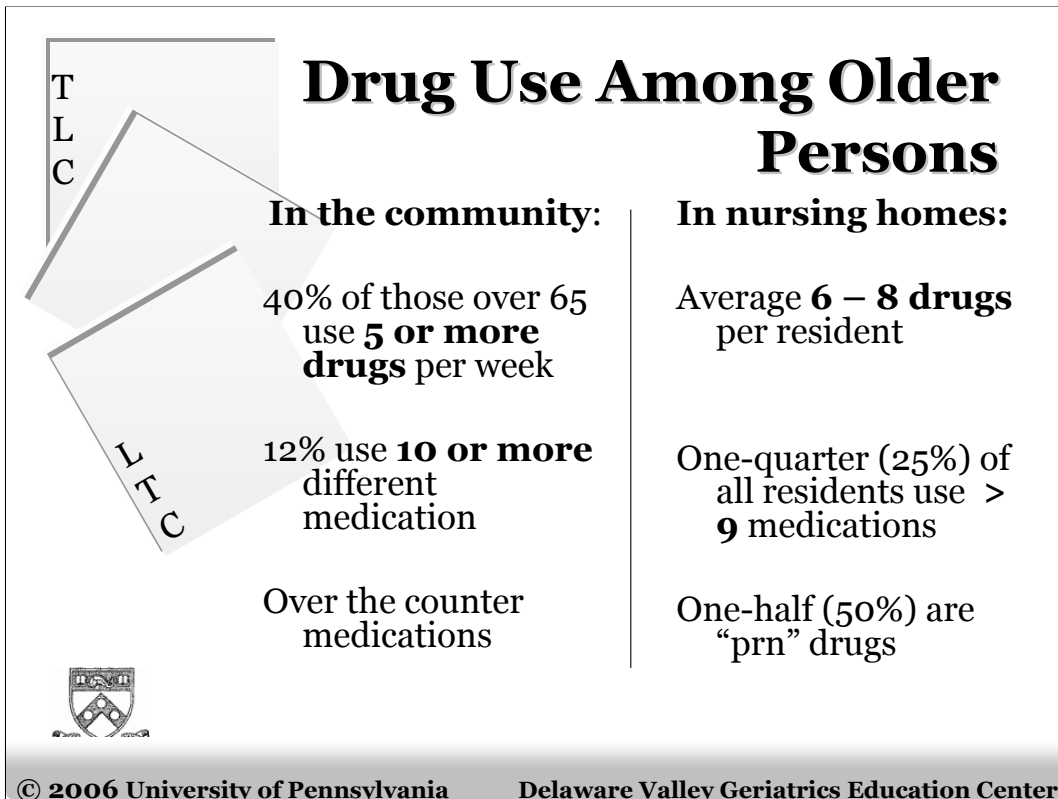
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The more medications, the more ADE's – said another way, the rate of ADE's goes up as the number of medications a person takes goes up.

The more medications of different kinds, the more ADE's

Some medications are more likely than others to lead to ADE's



The average nursing home resident takes 6 – 8 different medications; based on MDS data, over 25% use more than 9 medications. PRN medications are frequently prescribed but may be rarely used.

As the number of medications taken by older adults increase, the likelihood of adverse drug events greatly increases. Those taking a lot of medicines are more likely to be hospitalized for adverse drug reactions.

Community-based data (Kaufman et al, 2002)

Nursing Home data (Gurwitz, 2000)

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# Why So Many Meds?

- Older persons have multiple chronic medical conditions
- Many conditions are treated with multiple drugs
- Physicians feel “pressured” to prescribe
- Prescribing by telephone is common in nursing homes



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Some nursing home residents legitimately need many medications because they have multiple chronic medical problems such as congestive heart failure, diabetes, dementia, glaucoma, osteoporosis and depression.

However, pressure from residents, families and facility staff may contribute to the physician prescribing a drug for every symptom or problem. Direct to consumer advertising may also increase the pressure as people respond to “ask your doctor” suggestions from commercials.

PRN drug orders are prevalent in long-term care, in part to reduce phone calls to physicians.

Drug prescribing in facilities is often done without direct physician assessment of the resident and is based on information provided by facility staff via telephone. This practice may contribute to increased usage of prescription drugs. Verbal orders may also lead to more errors in writing down the medication name, dose, schedule, etc.

# Who's on the Medication Team?



- Physician or NP Prescriber
- Nurse
- Pharmacist
- Direct care staff (DCS): CNA, personal care aide, or other
- Patient
- Family

How do we reduce ADE's among older patients whether they are in nursing homes, home care, day care, or in the community?

Whenever possible, a team approach works best, so there are more people to be alert to errors and make sure the right things happen. Who is on the team depends on the setting; in some settings, the personal care aide and family map comprise the team in addition to the older person; in a nursing home or other large setting, more individuals will be involved.

Each member of the team will have different responsibilities and different opportunities to observe the impact of medications, hear from the older person and family and report or take action when aware of a problem.

A cooperative relationship between physician, nurses and pharmacist promotes optimal use of medications, reduces adverse drug events and promotes cost-effective drug prescribing practices.

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# All Team Members Are Alert to the Five Rights

- Right Patient
- Right Drug
- Right Dose
- Right Time
- Right Route



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Whenever medications are administered, but especially in a nursing home or assisted living settings, use the “five rights” as a mental check list

## Five Rights

**Check to see that this is the:**

- Right Patient.** Check ID bracelet. Call patient by name.
- Right Drug.** Inform patient of each drug’s name and purpose. Medications should be opened at bedside.
- Right Dose.** Check medication dose against orders. Check packaging or wrappers.
- Right Time.** Follow institutional policies. Make sure medications are spaced out.
- Right Route.** Check if to be given orally, intradermally, rectally or IV.

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# Medication Team: Prescribing Physician or NP

Use best prescribing practices

- Best drug or combination for condition
- Start low and go slow
- Avoid drug-drug interactions
- Avoid potential drug-disease interactions

Monitor drugs and patient reaction as needed

Provide individualized medical care



Whether in the office or in the nursing home, the physician or nurse who prescribes medicines is responsible for using appropriate prescribing practices such as those listed.

Some drugs require close monitoring through blood tests or observation to look for side effects or indications that the drug is or is not working.

Nursing home physicians should provide individualized quality medical care to residents in accordance with current disease treatment guidelines. Physicians also need to stay abreast of regulatory changes which may affect medication management.

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# Medication Team: Prescribing Physician or NP

## *In the Nursing Home*

- Verify the need for each drug
- Record diagnosis for each drug
- Record results of drug monitoring
- Collaborate with Consulting Pharmacists
- Be aware of OBRA regulations regarding prescribing
- Collaborate with Quality Improvement efforts re medications



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In the nursing home, compliance with regulations and documentation about medications become very important.

The physician is responsible to see that the need for each drug is clear and that there is a specific diagnosis for each drug.

**Records.** Each time a drug is ordered, a corresponding medical diagnosis or specific reason for the drug should be documented on a summary medical problem list, in a progress note or in the medication order itself in the medical record

**Necessity.** For any resident, a medication should only be ordered for a specific indication and if the risk-benefit consideration favors usage of the drug.

**OBRA.** The 1987 Omnibus Reconciliation Act (OBRA) established many new rules and regulations for nursing home care (See Handout). This act addressed drug usage with a special focus on anti-psychotic drug usage. Federal law has also mandated the active involvement of a consultant pharmacist in long-term care.

The physician works with the consulting pharmacist who can be helpful in pointing out potential adverse drug interactions. For example, Coumadin plus Zoloft or Paxil may result in elevation of the INR. Several commonly used antibiotics such as Bactrim or penicillins can also increase the INR.

Examples of drug-disease interactions include caution when using beta-blockers to treat coronary artery disease in residents with COPD, peripheral vascular disease or diabetes. Non-steroidal medications may be inappropriate for residents with renal insufficiency, congestive heart failure or peptic ulcers.

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# Medication Team: Nurse

- **Administer medications**
- **Inform staff of drug changes and possible side effects**
- **Encourage staff reporting**
- **Educate patients about medications and how to report problems**
- Use best nursing practices
- Monitor and keep records
- Safeguard against potential errors

Where nurses are responsible for the distribution of medication and record keeping, they play a pivotal role in medication management.

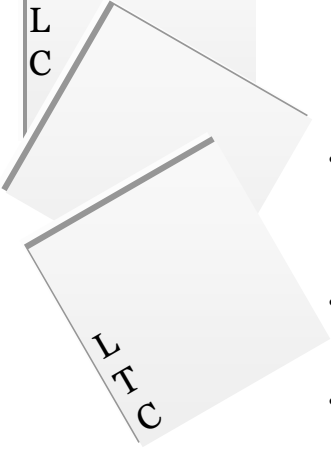
Ideally, nurses work as a team with physician-NP prescribing staff, a consulting pharmacist to safeguard against potential errors and with CNAs who often have the most opportunity to observe older persons. Nurses should work cooperatively with CNAs and inform them when significant drug changes occur. The CNAs can then assist in monitoring for problems and benefits. CNAs can be the first line of defense for nurses in monitoring. Remember that ADE's occur frequently at the stage of monitoring because side effects and other problems are not picked up. CNAs can be alert to and report changes in behavior such as restlessness, irritability and confusion while caring for older persons in other ways.

Nurses also teach residents about the medications prescribed for them. They

- Maintain quality nursing practices
- Distribute prescribed medications
- Monitor whether drugs are being effective
- Recognize possible adverse drug events
- Legibly document in the medical record accurate accounts of
  - signs and symptoms,
  - side effects, and
  - benefits of medications.



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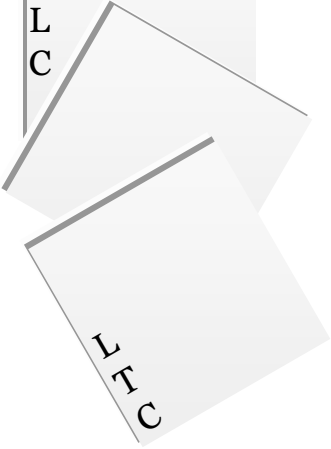
## **Medication Team: Direct Care Staff**

- **Observe patients for reactions to medication changes**
- **Report changes in patients to nurses**
- Provide direct care following best practice guidelines
- Work in your team to solve medication problems

Direct care staff such as CNAs and Personal Care Aides, have the most opportunity to observe subtle behavioral changes or other symptoms in older adults. Therefore:

- Direct Care Staff should be informed of significant medication changes for a resident.
- Nurses and physicians can help Direct Care Staff learn about the potential benefits or adverse reactions of a medicine, enabling the m to be valuable reporters of potential problems.
- Direct care staff staff should also participate in problem-solving sessions when adverse drug events occur.

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# Medication Team: Pharmacist

- **Perform periodic drug review**
- **Safeguard against potential errors**
- Work as a member of the team
- Educate team members



Federal law mandates the active involvement of a consultant pharmacist in long-term care. Most facilities have a specific policy regarding monthly review of medication orders by a pharmacist. It is helpful to be familiar with your facility's policy.

The pharmacist's recommendations are usually communicated to the resident's attending physician in writing. The physician is required to address the pharmacist's comments in writing. The intent is to improve medication prescribing, administration and monitoring. In most facilities, the consulting pharmacist is a member of the facility Quality Improvement Committee. The pharmacist is also a valuable educational resource for facility staff and physicians.

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# Medication Team: Patients and Families

- Communicate new complaints to caregivers and health care team
- Learn about their current and new medications
- Check medicines each time they are taken
- Report any side effects of medications



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Patients and families may not be aware that a new symptom or problem could be a medication side effect or new issue that should be addressed.

Patient and family knowledge and involvement can help reduce errors. The National Institute of Medicine has a helpful fact sheet that can be found on the Web and is included in handouts.

<http://www.iom.edu/Object.File/Master/35/945/medication%20errors%20fact%20sheet.pdf>

Knowing medications means knowing their names, what they are for, colors, and when they are to be taken.

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# Medication Team and QI

- In any setting with a QI process, be involved in monitoring and problem solving
- Refer medication problems to QI team
- Involve all medication team members in identifying root causes of problems



In some settings, such as home care or senior day care, there may not be a formal quality improvement program.

There it is up to staff, family and patients to collaborate to keep ADEs to a minimum.

If you view the video that accompanies this module, you will see an example of how a QI team can be helpful.

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# Videotape “When Wrong Things Happen...”

The first segment of this video contains two scenes. Please watch the segment with these questions in mind:

- Do you see examples of good nursing practice?
- Do you see conditions that could lead to adverse drug events?



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# Videotape “When Wrong Things Happen...”

The second segment of this video shows a QI team meeting about the medication event involving Mrs. Saeger.

How does each of the team members contribute to solving the problem?

- Administrator
- Consulting pharmacist
- Nurse
- Direct Care Staff (CNA)



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# Learning Objectives: Did we meet them?

Are you now able to:

1. Describe common causes of adverse drug events?
2. Describe best drug prescribing practices ?
3. Describe roles of 4 health care professionals and caregivers in medication management?
4. Describe a quality improvement approach to preventing adverse drug events?



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## Leadership and Staff:

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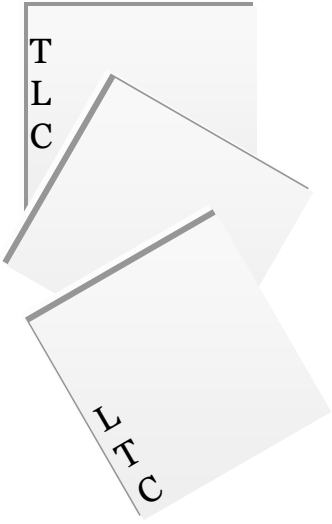
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The End

Thank you for  
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