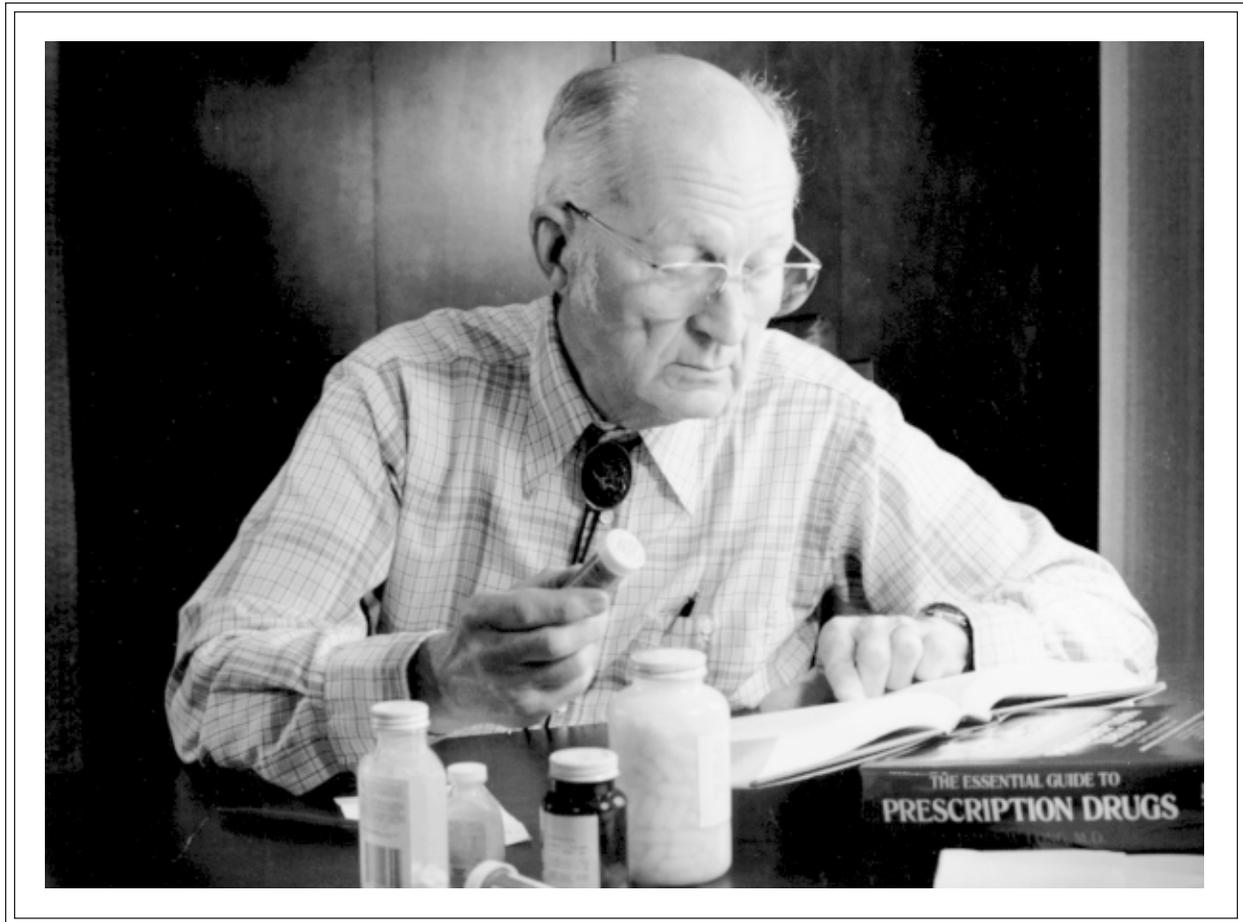

USING MEDICINE SAFELY IN LATER LIFE



PNW 393

SEPTEMBER 1993

A PACIFIC NORTHWEST EXTENSION PUBLICATION
OREGON • WASHINGTON • IDAHO



These individuals contributed significantly to this publication: George Constantine, professor of pharmacy, Oregon State University; William J. Falbe, clinical pharmacy consultant, Veterans Administration Medical Center, Nashville, Tennessee; William Simonson, associate professor of pharmacy practice, and adjunct associate professor of medicine (geriatrics), Oregon Health Sciences University, Portland, Oregon; and Ron Thalman, pharmacist, West Linn, Oregon.

VICKI SCHMALL, EXTENSION GERONTOLOGY SPECIALIST AND
JANICE LENO, EXTENSION AGENT, JOSEPHINE COUNTY, OREGON STATE UNIVERSITY

CONTENTS

INTRODUCTION	4
WHY OLDER PEOPLE ARE AT RISK	5
ADVERSE DRUG REACTIONS	7
COMPLIANCE TO MEDICATION THERAPY	8
POSSIBLE SOLUTIONS TO COMMON PROBLEMS	10
CONCLUSION	11

If you would like additional copies of this publication, PNW 393, *Using Medicine Safely in Later Life*, send \$1.00 per copy to: Publications Orders, Agricultural Communications, Oregon State University, Administrative Services A422, Corvallis, OR 97331-2119. We offer discounts on orders of 100 copies or more of a single title. For price quotes, please call (503) 737-2513.

For additional information about using medicine, please read PNW 392, *Using Medicine Safely*.

USING MEDICINE SAFELY IN LATER LIFE

Over several weeks George became increasingly confused. He just didn't care about anything. George's wife and daughter were afraid... afraid George was developing Alzheimer's disease. A visit to the doctor revealed that the problem was not what they had suspected. George did not have Alzheimer's disease. The dementia-like symptoms he was experiencing resulted from an adverse reaction to a prescription medication he had recently started taking. Although he was taking the recommended dosage, it was not appropriate for George.

George's story is not unusual. As we grow older, we may become more sensitive to certain medicines and consequently the chance for an adverse drug reaction can increase.

Drugs include not only prescription medicine (those ordered by a doctor and dispensed by a pharmacist) but over-the-counter medicine (those bought and used without a prescription) as well. Many people make the mistake of thinking that over-the-counter medicines are without risk.

WHY OLDER PEOPLE ARE AT RISK

Older people are at risk of experiencing problems with medication for several reasons:

Multiple medicines. It's not unusual for an older person to be taking five or more medications, perhaps several times a day for different health problems. The risk of an adverse reaction increases dramatically with each additional medicine a person takes. When different medications are used at the same time they may interact. The potential risk of a drug interaction is:

- 5.6 percent for a person taking two medications
- 50 percent for a person taking five medications
- nearly 100 percent for a person taking 8 or more medications

Multiple diseases. Older adults are more likely than any other age group to have one or more chronic illnesses, including heart disease, high blood pressure, diabetes, and arthritis. Some medical conditions change the way drugs are used in the body.

Complex dosage schedules. With multiple medications taken at different times throughout the day, dosage schedules often become complicated. This increases the risk of making a mistake, such as taking the dose twice or forgetting to take a medicine as prescribed.

Types of medicine taken. Older adults are more likely to be taking powerful medi-

cations that could potentially cause an adverse reaction. For example, anticoagulant, antihypertensive, diuretic, cardiac, and central nervous system depressant medicines are commonly used by older people and each can cause adverse effects.

Age-related changes. Normal aging changes the way drugs are absorbed, metabolized, distributed, and removed from the body. These changes are described in the next section.

AGE EFFECTS HOW MEDICINE REACTS IN YOUR BODY

Age-related changes that can significantly affect drug action include:

Increase in body fat. As a person ages, the amount of lean body mass (mainly muscle) decreases and the amount of fat tissue increases, even though a person's total weight may remain the same. In older adults, medication distributed in fat has a wider distribution which may result in a less intense, but prolonged effect. For example, the effects of certain sleeping medications and tranquilizers last longer than when the person was younger.

Decrease in body fluid. The percentage of body weight comprised of water decreases with age. As a result, medicines that are normally distributed in body water may become more concentrated in an older adult—possibly exaggerating the medicine's effect—unless the dosage is decreased.

Decrease in action of gastrointestinal tract. It takes longer for food to move through the stomach and intestines. In rare instances, this may affect the absorption of certain medications into the blood stream.

Decrease in albumin. Albumin, a protein in the blood stream, decreases with age. Once a drug is absorbed into the blood stream, it binds in various degrees to albumin. Only the unbound portion of the drug is active.

As albumin decreases in the body, the amount of unbound (active) drug increases. Therefore, what would normally be a therapeutic dose for a younger adult may cause an adverse reaction in an older person. For example, usually 97 percent of warfarin (Coumadin®), a highly protein-bound drug, is bound, with only 3 percent of the drug actually working. In an older person, the binding of Coumadin® to albumin in the blood stream may be decreased to 94 percent. Consequently, the amount of unbound, active drug could be twice as much.

Decrease in liver function. Metabolism, or the chemical detoxification of many medications, takes place in the liver. Some drugs are changed into water-soluble form in the liver so they can be excreted from the body. With aging, the liver decreases in size, blood flow decreases, and some of the enzymes that break down medications decline. Consequently, certain drugs can accumulate in the body and cause problems unless the dosage is reduced.

Decrease in kidney function. Changes in the kidney are more dramatic than those in any other organ. The kidneys

become smaller, blood flow decreases, and filtering capacity decreases with age. Between the ages of 20 and 80 there is an average decline in kidney function of 35 percent. As a result, certain drugs are excreted more slowly, thus remaining active in the body longer. Medical conditions such as heart failure, anemia, or dehydration may further impair kidney function.

WHAT ALL THIS MEANS

The action of a medicine may be less predictable in an older person and its intended action may be altered. Sometimes the effect is insignificant; other times it can be dramatic. For example, while 10 mg of Valium might relax the muscles of a young adult, it could cause unsteadiness in an older person and result in a fall and possibly a broken hip. Older people more frequently experience dizziness from medications such as antihypertensives.

A drug may remain active longer in an older person's body and accumulate to toxic levels. Less medication may be required so the standard adult dose may be inappropriate. Dosages for some medications may need to be reduced by one-third or one-half of the usual adult dose.

The more medicines a person takes, the higher the risk of drug interaction. A drug interaction occurs when the effect of one drug is altered by the presence of another drug in the body. One drug might reduce or increase the effects of another, with harmful consequences. Two drugs used concurrently may produce a new and dangerous reaction. Two similar drugs taken together may produce an effect that is greater than expected from one drug.

ADVERSE DRUG REACTIONS

On the average, the chances of an adverse drug reaction occurring in older people is three times greater than in younger adults. Forty percent of people who suffer an adverse drug reaction are over age 60. Adverse drug reactions frequently go unnoticed or are misdiagnosed in older people for the following reasons:

- Changes resulting from adverse drug reactions may be assumed to be the result of normal aging.
- Symptoms may be attributed to worsening of an existing medical condition or the onset of a new health problem.
- Drug reactions often mimic signs or symptoms of disease, such as Alzheimer's disease.
- Adverse drug reactions in older adults sometimes differ from those characteristic in younger adults, or they may appear in some unexpected way. For example, confusion could be caused by a medication taken for stomach or heart problems.

Signs of adverse drug reactions vary, but may include:

- a change in health
- fatigue
- constipation
- diarrhea
- anorexia
- confusion, fluctuating mental status
- incontinence

- frequent falls
- depression
- weakness or tremor
- excess drowsiness
- hallucinations
- agitation, anxiety, or excitation
- dizziness
- decreased sexual response
- rash

It's easier to recognize that a change in a person's behavior or physical condition may be due to a medicine if problems develop shortly after the person begins taking the medicine. However, *sometimes it takes several weeks or even months for an adverse reaction to become apparent*. When the onset of symptoms is far removed from the time the person first started taking the medicine, you may be less likely to associate changes with the medicine.

When a change occurs in an older person's behavior or physical or mental condition, consider that a medication may be the cause. The first sign of an adverse drug reaction in an older adult is often a change in mental functioning. The person may appear forgetful, confused, "spaced out," or hallucinating.

Do not attribute such changes to "old age." There is a cause! *Changes in mental functioning are not normal in an older person.*

COMPLIANCE TO MEDICATION THERAPY

Although aging affects how medicines are processed in our bodies, a major factor affecting how well a medicine works is whether or not medicine is taken correctly. Approximately 50 percent

of people taking medications do not take them correctly. The consequences of mistakes in medication-taking can be dangerous and expensive. Sometimes mistakes can also be life threatening.



There are many reasons people do not take a medicine as prescribed. If you or someone you know is not taking medication as prescribed, use this checklist to determine the reason. Ask the person if they:

YES NO

- Thought “more was better” or “a larger dose would make them well sooner.”
- Believed medicine was not working, so stopped taking it. (All medicines work differently. It may take several days or weeks to get the full benefit.)
- Felt better so stopped taking medicine.
- Didn’t understand instructions. (The person may not have heard instructions correctly or misinterpreted them.)
- Didn’t get prescription filled/re-filled.
- Thought the taste was unpleasant.
- Had problems remembering when to take the medicine. (Multiple medicines and a complex dosage schedule make it difficult to keep track of when and how to take medicines; verbal instructions may not be remembered or doses may be missed due to short-term memory loss; or sometimes the medicine causes confusion and creates problems in taking the correct dose.)
- Tried to make up for a forgotten dose by doubling the next dose.
- Experienced adverse effects.

- Disliked or feared side effects.
- Feared becoming drug dependent.
- Was not able to afford the medicine. (Tried to reduce costs by taking old medicine, taking half the dose, diluting the dose, skipping a day, or not having a prescription filled.)
- Accidentally misused the medicine. (Produced an undesirable effect by taking a prescription medicine with an over-the-counter medicine, a food, or beverage with which it should not be mixed.)
- Found it difficult to get to the pharmacy or store to purchase medicine.
- Had difficulty taking the medicine (e.g., swallowing a pill, putting drops in eyes, or giving insulin injection).
- Could not read medication labels because of poor vision.
- Could not open childproof containers.
- Found the drug-taking schedule too complicated.
- Felt taking the medicine disrupted daily activities and normal functioning.
- Disliked or distrusted taking the medicine. (Person may have felt the medicine was not needed, the doctor was wrong or just did not want to take it.)

There may be more than one reason a person is not taking medicine as prescribed. Once you know why a medicine is not being taken properly, talk to the doctor or pharmacist.

POSSIBLE SOLUTIONS TO COMMON PROBLEMS

In later life, certain conditions are more common and may make a person more vulnerable to errors in taking medication properly. Some possible solutions are listed below:

POSSIBLE SOLUTIONS TO COMMON PROBLEMS	
PROBLEM	POSSIBLE SOLUTION
Impaired vision	<ul style="list-style-type: none"> • Ask pharmacist to use larger print on label. • Use a magnifying glass to check labels before taking medication.
Impaired hearing	<ul style="list-style-type: none"> • Let others know if you did not hear the instructions. • Ask doctor and pharmacist to write instructions. • Ask someone to go with you to the doctor.
Forgetfulness	<ul style="list-style-type: none"> • Use memory aids and daily or weekly medicine dispensers.
Limited mobility	<ul style="list-style-type: none"> • Use a pharmacy that delivers prescriptions.
Limited use of hands	<ul style="list-style-type: none"> • Ask pharmacist for easy-to-open medication caps (keep out of reach of children.)
Multiple medications	<ul style="list-style-type: none"> • Have doctor evaluate medication regime regularly. • Use a pharmacy that keeps a patient medication profile for customers.
Multiple doctors	<ul style="list-style-type: none"> • Make sure each doctor knows all medications, including over-the-counter, you are taking. • Purchase your prescriptions at only one pharmacy. (This enables the pharmacist to check for drug interactions.)
Cost of medications	<ul style="list-style-type: none"> • Take advantage of discount programs. • Call local pharmacies and compare prices. • Ask doctor or pharmacist whether a generic drug will be as effective and less costly. • Ask doctor to prescribe generic medications if possible.

CONCLUSION

Today's medicines have tremendous benefits—they cure disease, help manage symptoms, reduce pain, and speed recovery. But along with benefits, some medications carry risks, and all medicines can produce undesirable side effects. Although medication problems can increase in later life, many complications are both predictable and preventable.

Proper use of medicines can enhance quality of life. However, improper use or not recognizing adverse effects of a medicine can deprive a person of self control and independent living. If you are taking medicines, you have a responsibility to be knowledgeable about the medicines you use and to take them as instructed. Find out how to maximize the treatment results of your medications and how to reduce risks.

If you are responsible for helping someone to take medicines, learn all you can about the person's medicines, how

they should be taken, and the side effects to watch for.

If you see more than one doctor, be sure that each doctor knows about all medicines you take. Remember to tell about over-the-counter medicines you take, such as cold remedies, pain relievers, laxatives, and antacids. If you drink alcohol, tell the doctor the amount and frequency. Have all of your prescriptions filled at the same pharmacy—one that maintains a patient medication profile.

If you are taking prescription medicines, be cautious about self-treating with over-the-counter medicines. Even common over-the-counter medicines—for example, aspirin, cough and cold products, and laxatives—contain chemicals that can produce side effects or interact adversely with prescription medicines. Before purchasing an over-the-counter medicine, check with the pharmacist to be sure the product is safe for you.

Trade-name products and services are mentioned as illustrations only. This does not mean that the participating Extension Services endorse these products and services or that they intend to discriminate against products and services not mentioned.

Pacific Northwest cooperative Extension bulletins are jointly produced by the three Pacific Northwest states—Oregon, Washington, and Idaho. Similar crops, climate, and topography create a natural geographic unit that crosses state lines. Since 1949 the PNW program has published more than 450 titles. Joint writing, editing, and production have prevented duplication of effort, broadened the availability of faculty specialists, and substantially reduced costs for the participating states.

Published and distributed in furtherance of the Acts of Congress of May 8 and June 30, 1914, by the Oregon State University Extension Service, O.E. Smith, director; Washington State University Cooperative Extension, Harry B. Burcalow, interim director; the University of Idaho Cooperative Extension System, LeRoy D. Luft, director; and the U.S. Department of Agriculture cooperating.

The three participating Extension Services offer educational programs, activities, and materials—*without regard to race, color, national origin, sex, or disability*—as required by Title VI of the Civil Rights Act of 1964, Title IX of the Education Amendments of 1972, and Section 504 of the Rehabilitation Act of 1973. The Oregon State University Extension Service, Washington State University Cooperative Extension, and the University of Idaho Cooperative Extension System are Equal Opportunity Employers.

\$1.00/\$1.00/\$1.00