

ADULT **MEDUCATION**™

Improving Medication Adherence in Older Adults

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Medications are arguably the single most important health care technology to prevent illness, disability, and death in the older population. Of all age groups, older persons with chronic diseases and conditions benefit the most from taking medications, and risk the most from failing to take them properly.

WHAT IS MEDICATION NONADHERENCE? The extent to which individuals take their medications as prescribed by their doctor is known as medication adherence. Failure to take medications as prescribed is termed nonadherence. Medication nonadherence, either willful or inadvertent, can include:

- Failing to initially fill or refill a prescription
- Discontinuing a medication before the course of therapy is complete
- Taking more or less of a medication than prescribed
- Taking a dose at the wrong time.

WHAT ARE THE CONSEQUENCES OF NONADHERENCE? The consequences of medication nonadherence in older adults may be more serious, less easily detected, and less easily resolved than in younger age groups. If medication nonadherence were a disease, it could be termed an “epidemic.” Medication nonadherence accounts for more than 10% of older-adult hospital admissions, nearly one-fourth of nursing home admissions, and 20% of preventable adverse drug events among older persons in the ambulatory setting. It is estimated that medication nonadherence results in 125,000 deaths annually, and costs the US health care system \$100 billion per year.

IDENTIFYING OLDER ADULTS WHO ARE AT RISK The identification of older adults at risk for medication nonadherence, and attempts to improve adherence should not be the purview of health care professionals alone. Senior centers, adult day care programs, leisure clubs, health fairs, and congregate meal sites provide venues in which older adults can be encouraged to self-identify for problems with medication adherence. Many community-based service providers for seniors are also in a position to address some of the social and economic factors that affect medication adherence.

WHAT IS ADULT MEDUCATION? The American Society on Aging (ASA) and the American Society of Consultant Pharmacists (ASCP) Foundation have collaborated on the development of Adult Meducation: Improving Medication Adherence in Older Adults, a web-based program to educate ASA and ASCP members on important aspects of medication adherence in older adults. One goal of the program is to encourage ASA members to work together with ASCP member pharmacists to identify, resolve, and prevent medication nonadherence in the older adults served by community-based service providers. The web site contains:

- Information on factors that influence medication adherence, barriers to adherence, and specific strategies to improve adherence
- Tools to identify older adults at risk for medication nonadherence
- Resources to improve medication adherence
- Materials to educate older adults about the importance of medication adherence
- Educational programs targeted at community-based service providers and health professionals
- Links to other useful web resources.

Materials on the web site can be copied or downloaded for use in educational or training programs.

ASCP FOUNDATION

AMERICAN SOCIETY OF CONSULTANT PHARMACISTS

The American Society of Consultant Pharmacists Foundation has a proven track record of developing practical interventions for improving medication use in the senior population. The mission of the ASCP Foundation is to improve the health and well-being of older persons through appropriate, effective, and safe medication use. The unique focus of the ASCP Foundation is the development, integration, and application of knowledge regarding medication use in the senior population and the practice of senior care pharmacy to optimize health outcomes. The ASCP Foundation has a history of leadership, innovation, and expertise in medicines and aging, and has collaborated with numerous organizations to address the information and education needs of consumers, families, caregivers, health care professionals, and the aging network regarding medication use. The ASCP Foundation is the research and education affiliate of the American Society of Consultant Pharmacists. Visit the Foundation's web site at www.ascpfoundation.org.

The American Society of Consultant Pharmacists is the international professional association that provides leadership, education, advocacy, and resources to advance the practice of senior care pharmacy. Consultant pharmacists specializing in senior care pharmacy practice are essential participants in the health care system, and are recognized and valued for the practice of pharmaceutical care for the senior population and people with chronic illness. In their role as medication therapy experts, consultant pharmacists take responsibility for their patients' medication-related needs; ensure that their patients' medications are appropriate, the most effective available, the safest possible, and are used correctly; and identify, resolve, and prevent medication-related problems that may interfere with the goals of therapy. ASCP's nearly 8,000 members manage and improve drug therapy and improve the quality of life of older persons and other individuals residing in a variety of environments, including nursing facilities, subacute care and assisted living facilities, psychiatric hospitals, hospice programs, and in home and community-based care. Visit ASCP's web site at www.ascp.com.



The American Society on Aging is an association of diverse individuals bound by a common goal: to support the commitment and enhance the knowledge and skills of those who seek to improve the quality of life of older adults and their families. The membership of the Society is a multidisciplinary array of professionals who are concerned with the physical, emotional, social, economic and spiritual aspects of aging. The range of ASA members encompasses practitioners, educators, administrators, policymakers, business people, researchers, students, and more.

ASA offers a wide variety of renowned educational programming, outstanding publications and state-of-the-art information and training resources, and a large and dynamic network of professionals in the

field of aging. ASA offers the highest caliber education, conference, and training opportunities possible in this field. The Society's publications offer the latest information and research to help professionals stay on the cutting edge in their practice. From Aging Today, a newspaper-format, bimonthly publication featuring coverage of all issues facing professionals in their present work, to Generations, the Society's scholarly quarterly journal, to ASA Connection, a lightning-fast online update of issues facing the Society and its field, ASA's publications offer both a wealth and a diversity of knowledge and information. ASA is a valuable resource to anyone interested in aging issues. Through its constituent groups and numerous special projects, ASA carries out its commitment to education, diversity, and quality of life for older adults. ASA offers an array of educational products, such as research and publications designed to further the knowledge of those interested in aging issues. Finally, ASA hosts a variety of award programs honoring individuals and organizations that are making a difference in the lives of older adults. Visit ASA's web site at www.asaging.org.

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ADULT MEDUCATION™: Improving Medication Adherence in Older Adults
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***“Adherence is the extent to which
a person’s behavior [in] taking medication...
corresponds with agreed recommendations
from a health care provider”***

(World Health Organization, 2003)

Overview

Medication Adherence— Where Are We Today?

This section covers the following topics:

- Adherence concepts and terminology
- Statistics related to adherence
- Consequences of medication nonadherence
- Factors affecting medication adherence
- Prerequisites for adherence to medication regimens
- Predictors of medication nonadherence



Medication nonadherence is a multifaceted problem, especially for people with chronic diseases. Increasingly, our society relies upon medications to treat diseases and conditions, prevent hospitalization, and improve quality of life. Numerous studies have shown that medicines improve clinical

outcomes and reduce illness, disability, and death. Despite such findings, many people do not realize the full potential benefits of their medications; too often this situation is the result of their failure to take some or all of the medications as prescribed.

Medication nonadherence, either willful or inadvertent, can include:

- Failing to initially fill a prescription
- Failing to refill a prescription as directed
- Omitting a dose or doses
- Taking more of a medication than prescribed
- Prematurely discontinuing medication
- Taking a dose at the wrong time
- Taking a medication prescribed for someone else
- Taking a dose with prohibited foods, liquids, and other medications
- Taking outdated medications
- Taking damaged medications
- Storing medications improperly
- Improperly using medication administration devices (e.g., inhalers).

ADHERENCE CONCEPTS AND TERMINOLOGY

Compliance, *adherence*, and *persistence* are all terms commonly used in the literature to describe medication-taking behaviors. Adherence to, or compliance with, a medication regimen is generally defined as the extent to which a person takes medications as prescribed by their health care providers.

Adherence has become the preferred term, defined by the World Health Organization as “the extent to which a person’s behavior [in] taking medication...corresponds with agreed recommendations from a health care provider” (World Health Organization, 2003). The term *compliance* has come into disfavor because it suggests that a person is passively following a doctor’s orders, rather than actively

collaborating in the treatment process. Adherence, on the other hand, requires the person’s agreement to the recommendations for therapy.

Persistence is defined as the ability of a person to continue taking medications for the intended course of therapy. In the case of chronic diseases, the appropriate course of therapy may be months, years, or even the person’s lifetime. A person is classified as non-persistent if he or she never fills a prescription or stops taking a prescription prematurely. Discussing the intended course of therapy when medications are first started has been shown to be an important factor in keeping people persistent with a medication regimen.

STATISTICS RELATED TO ADHERENCE

So what happens after a prescription is written? Here are some startling insights into the depth of the medication adherence problem in the United States. Consider these statistics (American Heart Association):

- 12% of Americans don’t fill their prescription at all.
- 12% of Americans don’t take medication at all after they fill the prescription.
- Almost 29% of Americans stop taking their medication before it runs out.
- 22% of Americans take less of the medication than is prescribed on the label.

Persistence rates, especially among those with newly diagnosed disease, also decrease over time, and in persons with newly diagnosed high blood pressure have been reported to be as low as 78% after 12 months and 46% after 54 months (Caro et al., 1999).

Surveys of older adults indicate that 55% do not follow, in some way, their medication regimens (Amaral, 1986). In an AARP survey of Americans aged 50 and older (AARP, 2004), 25% said they did not fill a prescription written by their doctor in the past two years; cost was cited as the main deterrent (Table 1). A 2002 study of 325 older persons (average age of 78 years) reported that 39% were unable to read the prescription labels, 67% did not fully understand the information given to them, and as a result 45% were nonadherent. These problems were especially prevalent in men and in people older than 85 years (Moisan et al., 2002). It is likely that the incidence of medication nonadherence is actually higher than published reports show, as methodological difficulties associated with conducting medication adherence studies may lead to an underestimation of the extent of the problem (Haynes et al., 1979).

TABLE 1.
MAIN REASON FOR NOT FILLING PRESCRIPTIONS,
AMERICANS AGE 50 AND OLDER

Cost of the drug	40%
Side effects of drug	11%
Thought drug wouldn’t help much	11%
Didn’t think I needed it	8%
Drug did not help	6%
Don’t like taking prescription drugs	5%
Condition improved	4%
Already taking too many prescriptions	3%

Source: AARP, 2004

CONSEQUENCES OF MEDICATION NONADHERENCE

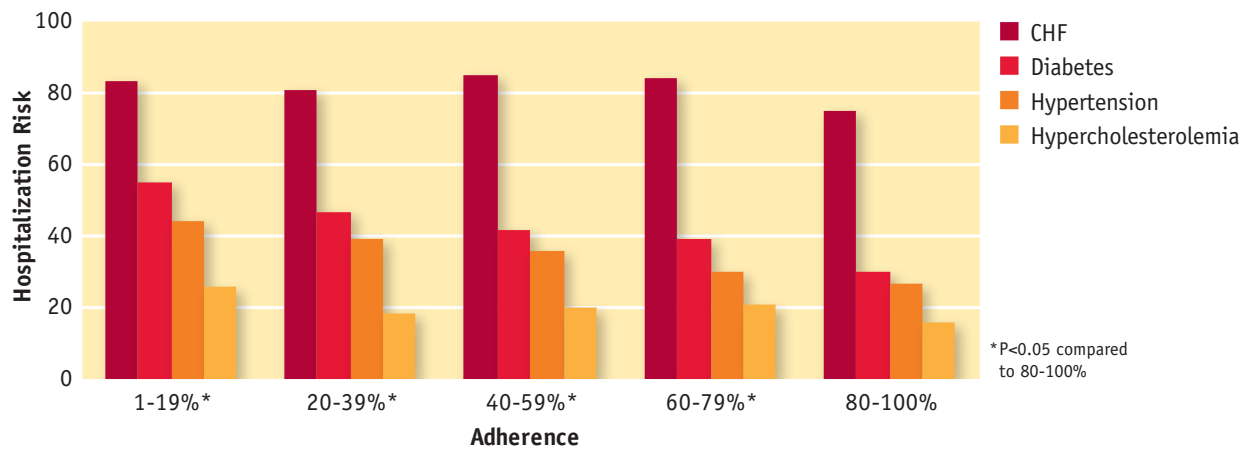
Nonadherence with medication regimens may result in increased use of medical resources, such as physician visits, laboratory tests, unnecessary additional treatments, emergency department visits, and hospital or nursing home admissions. Nonadherence may also result in treatment failure.

In the context of disease, medication nonadherence can be termed an “epidemic.” More than 10% of older adult hospital admissions may be due to nonadherence with medication regimens (Vermiere et al., 2001). In one study, one-third of older persons admitted to the hospital had a history of nonadherence (Col et al., 1990). Nearly one-fourth of nursing home admissions may be due to older persons’ inability to self-administer medications (Strandberg, 1984). Problems with medication adherence were cited as a contributing factor in more than 20% of cases of preventable adverse drug events among older persons in the ambulatory setting (Gurwitz et al., 2003). It is estimated that nonadherence costs the US health care system \$100 billion per year (Vermiere et al., 2001). In addition, approximately 125,000 deaths occur annually in the US due to nonadherence with cardiovascular medications (McCarthy, 1998).

Of all age groups, older persons with chronic diseases and conditions benefit the most from taking medications, and risk the most from failing to take them properly. Among older adults the consequences of medication nonadherence may be more serious, less easily detected, and less easily resolved than in younger age groups (Hammarlund et al., 1985).

Improving adherence with medication regimens can make a difference. A recently published study found that for a number of chronic medical conditions—diabetes, hypertension, hypercholesterolemia, and congestive heart failure—higher rates of medication adherence were associated with lower rates of hospitalization (Figure 1), and a reduction in total medical costs (Sokol et al., 2005).

FIGURE 1. IMPACT OF MEDICATION ADHERENCE ON HOSPITALIZATION RISK

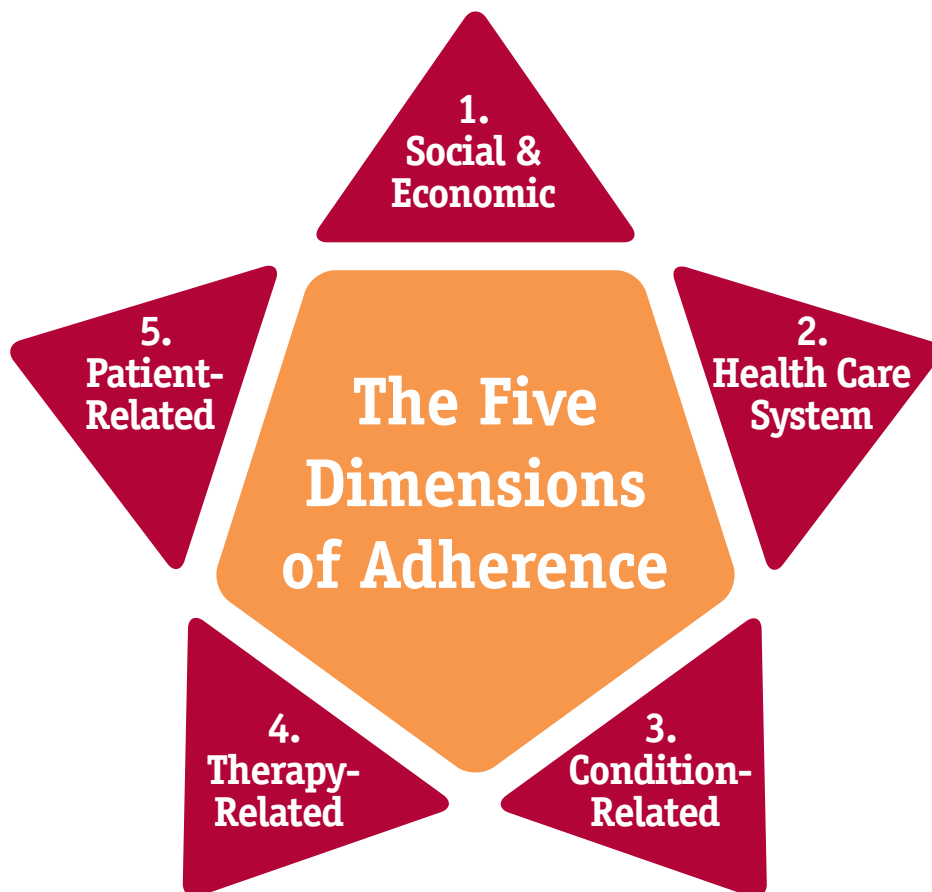


Adapted from Sokol et al., 2005

FACTORS AFFECTING MEDICATION ADHERENCE

Age by itself is not a determining factor in medication nonadherence. Rather, there are many factors that may combine to render older persons less able to adhere to their medication regimens. However, there is evidence to suggest that with the proper motivation, education, and support, older persons can overcome many barriers to medication adherence (US Department of Health and Human Services, 1990).

FIGURE 2. THE FIVE DIMENSIONS OF ADHERENCE



Source: World Health Organization, 2003

Adherence is a multidimensional phenomenon determined by the interplay of five sets of factors, termed “dimensions” by the World Health Organization (Figure 2):

1. **Social/economic factors**
2. **Provider-patient/health care system factors**
3. **Condition-related factors**
4. **Therapy-related factors**
5. **Patient-related factors**

OVERVIEW: MEDICATION ADHERENCE – WHERE ARE WE TODAY?

Patient-related factors are just one determinant of adherence behavior (World Health Organization, 2003). The common belief that a person is solely responsible for taking their medications often reflects a misunderstanding of how other factors affect people's medication-taking behavior and their capacity to adhere to treatment regimens. Factors associated with each dimension are listed in Table 2.

It is clear that adherence is a complex behavioral process strongly influenced by the environments in which people live, health care providers practice, and health care systems deliver care. Adherence is related to people's knowledge and beliefs about their illness, motivation to manage it, confidence in their ability to engage in illness-management behaviors, and expectations regarding the outcome of treatment and the consequences of poor adherence (World Health Organization, 2003).

It is important to recognize that a person may have multiple risk factors for medication nonadherence. Also, factors that can influence a person's medication-taking behavior may change over time. Therefore, it is important to continually assess a person's adherence throughout the course of therapy. In addition, because there is usually no single reason for medication nonadherence, there can be no "one size fits all" approach to improving adherence.

Many of the interventions used to improve adherence focus on providing education to increase knowledge; simplifying the medication regimen (fewer drugs or fewer doses); or making it easier to remember (adherence aids, refill reminders). However, simplifying a dosage regimen is unlikely to affect a person who does not believe that taking medications is important or that the therapy will improve his or her health, and the available evidence shows that knowledge alone is not enough for creating or maintaining good adherence habits (World Health Organization, 2003).

Based on published studies, it is evident that single interventions are less successful than multiple, long-term interventions in affecting adherence. Studies have shown that the most successful interventions have some follow-up component and address the underlying reason(s) for nonadherence (Krueger et al., 2003). Comprehensive interventions should address a variety of issues, including knowledge, motivation, social support, and individualizing therapy based on a person's concerns and needs (Krueger et al., 2003; McDonald et al., 2002).

The ideal time to initiate adherence interventions is when therapy first begins. Interventions that are initiated early in the course of therapy can support older persons through a period when they are most likely to have questions or to experience side effects from therapy.



TABLE 2. FACTORS REPORTED TO AFFECT ADHERENCE

1. SOCIAL AND ECONOMIC DIMENSION	4. THERAPY-RELATED DIMENSION
<p>Limited English language proficiency</p> <p>Low health literacy</p> <p>Lack of family or social support network</p> <p>Unstable living conditions; homelessness</p> <p>Burdensome schedule</p> <p>Limited access to health care facilities</p> <p>Lack of health care insurance</p> <p>Inability or difficulty accessing pharmacy</p> <p>Medication cost</p> <p>Cultural and lay beliefs about illness and treatment</p> <p>Elder abuse</p>	<p>Complexity of medication regimen (number of daily doses; number of concurrent medications)</p> <p>Treatment requires mastery of certain techniques (injections, inhalers)</p> <p>Duration of therapy</p> <p>Frequent changes in medication regimen</p> <p>Lack of immediate benefit of therapy</p> <p>Medications with social stigma attached to use</p> <p>Actual or perceived unpleasant side effects</p> <p>Treatment interferes with lifestyle or requires significant behavioral changes</p>
2. HEALTH CARE SYSTEM DIMENSION	5. PATIENT-RELATED DIMENSION
<p>Provider-patient relationship</p> <p>Provider communication skills (contributing to lack of patient knowledge or understanding of the treatment regimen)</p> <p>Disparity between the health beliefs of the health care provider and those of the patient</p> <p>Lack of positive reinforcement from the health care provider</p> <p>Weak capacity of the system to educate patients and provide follow-up</p> <p>Lack of knowledge on adherence and of effective interventions for improving it</p> <p>Patient information materials written at too high literacy level</p> <p>Restricted formularies; changing medications covered on formularies</p> <p>High drug costs, copayments, or both</p> <p>Poor access or missed appointments</p> <p>Long wait times</p> <p>Lack of continuity of care</p>	<p>Physical Factors</p> <p>Visual impairment</p> <p>Hearing impairment</p> <p>Cognitive impairment</p> <p>Impaired mobility or dexterity</p> <p>Swallowing problems</p> <p>Psychological/Behavioral Factors</p> <p>Knowledge about disease</p> <p>Perceived risk/susceptibility to disease</p> <p>Understanding reason medication is needed</p> <p>Expectations or attitudes toward treatment</p> <p>Perceived benefit of treatment</p> <p>Confidence in ability to follow treatment regimen</p> <p>Motivation</p> <p>Fear of possible adverse effects</p> <p>Fear of dependence</p> <p>Feeling stigmatized by the disease</p> <p>Frustration with health care providers</p> <p>Psychosocial stress, anxiety, anger</p> <p>Alcohol or substance abuse</p>
3. CONDITION-RELATED DIMENSION	
<p>Chronic conditions</p> <p>Lack of symptoms</p> <p>Severity of symptoms</p> <p>Depression</p> <p>Psychotic disorders</p> <p>Mental retardation/developmental disability</p>	

Sources: Miller et al., 1997; Nichols-English and Poirier, 2000; Vermiere et al., 2001; World Health Organization, 2003; Krueger et al., 2005; Osterberg and Blaschke, 2005

PREREQUISITES FOR ADHERENCE TO MEDICATION REGIMENS

Berger and Felkey (2001) summarized the prerequisites for adherence to medication regimens. Adherence requires that a person:

- Show interest in his or her health and understand the diagnosis
- Understand the potential impact of the diagnosis
- Believe that the prescribed treatment will help
- Know exactly how to take the medication and the duration of therapy
- Find ways to fit the medication regimen into his or her daily routine
- Value the outcome of treatment more than the cost of treatment
- Believe that he or she can carry out the treatment plan
- Believe that the health care practitioners involved in the treatment process truly care about him or her as a person rather than as a disease to be treated.

Levine (1998) demonstrated that the following steps increase adherence:

- Assessing the person's understanding about the disease and the treatment regimen and then providing information where knowledge gaps exist
- Tying the medication-taking process to other daily routines
- Using adherence aids, such as medication organizers or charts
- Simplifying medication regimens
- Providing human support within the health care team
- Recognizing difficulty in coping and other socio-behavioral issues that may affect the person's ability to follow the treatment regimen.



PREDICTORS OF MEDICATION NONADHERENCE

Predictors of medication nonadherence may be useful to identify older adults who are most in need of interventions to improve adherence (Table 3). Nonadherence warning signs may include:

- Not filling a new prescription
- Not obtaining refills as often as expected for medications taken on a chronic basis
- Not refilling prescriptions for chronic medications
- Not completing the entire course of therapy for short-term treatment.

TABLE 3. PREDICTORS OF MEDICATION NONADHERENCE

- Low literacy/limited English language proficiency
- Homelessness
- Depression
- Psychiatric disease
- Substance abuse
- Lower cognitive function or cognitive impairment
- Forgetfulness
- Anger, psychological stress, anxiety
- Lack of insight into illness
- Lack of belief in benefit of treatment
- Belief medications are not important or are harmful
- Complexity of medication regimen
- Tired of taking medications
- Inconvenience of medication regimen
- Side effects or fear of medication side effects
- Cost of medication, copayment, or both
- Barriers to access to care or medications
- Inadequate follow-up or discharge planning
- Missed appointments

Sources: Krueger et al., 2005; Osterberg and Blaschke, 2005

OVERVIEW: MEDICATION ADHERENCE – WHERE ARE WE TODAY?

Identification of older persons at risk for medication nonadherence is just the first step in addressing this potential problem. In order to have an impact on adherence, health care providers must understand the barriers to adherence and tools and methods that can be used to overcome these barriers.

Overcoming one barrier or providing a single intervention will not guarantee medication adherence. In fact, studies show that no single intervention is adequate to ensure medication adherence (Hughes, 2004). A combination of approaches tailored to the individual person's needs that target specific barriers to adherence and reinforce positive behaviors is the most effective (Krueger et al., 2005).

As illustrated in Figure 2 and detailed in Table 2, factors that affect medication adherence can be grouped into five categories. This document is organized accordingly: each of the five following sections will discuss the specific factors in each dimension that create barriers to medication adherence in older adults and will provide suggested strategies to overcome those barriers. Useful techniques, tools, and forms to promote adherence are contained in the subsequent sections, and a list of all references cited in the text concludes this publication.

Dimension 1

Social and Economic Factors

This section covers the following topics:

- English language proficiency and health literacy
- Social factors
- Economic factors
- Cultural beliefs and attitudes
- Elder abuse

DIMENSION 1: SOCIAL AND ECONOMIC FACTORS

Low literacy, lack of health insurance coverage, poor social support, family instability, and homelessness are the most consistently reported factors to impact medication adherence (Krueger et al., 2005). People who have social support from family, friends, or caregivers to assist with medication regimens have better adherence to treatment. Unstable living environments, limited access to health care, lack of financial resources, cost of medication, and burdensome work schedules have all been associated with decreased adherence rates. The amount of education a person has may influence adherence; however, understanding the importance of the treatment and the treatment instructions may be more important factors than level of education (Krueger et al., 2005).

ENGLISH LANGUAGE PROFICIENCY AND HEALTH LITERACY

Low health literacy and limited English language proficiency are barriers to adherence that deserve special consideration. Health literacy is the ability to read, understand, and act on health information in order to make appropriate health decisions. Poor health literacy results in medication errors, impaired ability to remember and follow treatment recommendations, and reduced ability to navigate within the health care system.

People with low health literacy and limited proficiency in the English language are at high risk for unsafe use of prescription medications due to the complex nature of the printed information that is available (which often requires reading skill at the high school level or above in order to understand it), and because these people often do not receive sufficient time or adequate verbal communication from health care providers (National Quality Forum, 2005).

Nearly 90 million people—45% of the adult population in the US—have literacy skills at or below the 8th grade reading level (Scott, 2003). Inadequate health literacy increases steadily with age, from 16% of those aged 65-69 to 58% of those over age 85 (Gazmararian et al., 1999). Literacy levels are lowest among the elderly, those with fewer years of education, lower socioeconomic levels, minority populations, and those with limited English proficiency (Krueger et al., 2005). Nearly one in five adults in the US reported speaking a language other than English at home in the 2000 US Census (US Census Bureau, 2000).



Older adults with low health literacy may have trouble reading health information materials, following prevention recommendations, understanding basic medical instructions, and adhering to medication regimens (Scott, 2003). A study of patients aged 60 years and older at two public hospitals found that 81% could not read and understand basic materials, such as prescription labels (Williams et al., 1995).

People with low health literacy or limited English language proficiency may be unaware of the health risks associated with medication nonadherence, and may be too ashamed or embarrassed to seek help with medication instructions (Mayeaux et al., 1996). The US Healthy People 2010 goals note the need for better education for people with limited health literacy in order to avoid problems associated with improper medication use (US

Department of Health and Human Services, 2000). The need to move quickly to implement strategies to improve adherence among persons with limited health literacy has been identified as a high priority by the National Quality Forum (National Quality Forum, 2005).

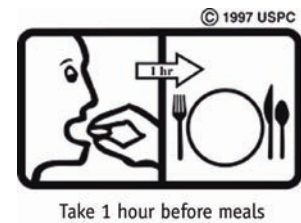
The Rapid Estimate of Adult Literacy in Medicine Revised (REALM-R) is a brief screening instrument used to assess a person’s ability to read common medical words. It is designed to identify people at risk for poor literacy skills. (See discussion in [Dimension 5](#) and [Assessment Tools](#) sections)

There are many programs and resources addressing health literacy. “Ask Me 3” is a patient education program designed to promote communication between health care providers and patients in order to improve health outcomes. “Ask Me 3” suggests three simple but important questions people can ask their health care providers:

- What is my main problem?
- What do I need to do?
- Why is it important for me to do this?

“Ask Me 3” is sponsored by the Partnership for Clear Health Communications, a national coalition of health organizations that are working together to promote awareness and solutions for low health literacy. Funding is provided by Pfizer (<http://www.pfizerhealthliteracy.org>). The “Ask Me 3” web site (<http://www.askme3.org>) includes presentation tool kits for professionals and patients, fact sheets, brochures, statistics, logos and guidelines, and other information.

Pictures and diagrams can be used to communicate information to all people, especially those with limited health literacy. Most people, even those who read well, use visual clues to reinforce learning. The United States Pharmacopeia (USP) has developed pictograms that help convey medication instructions, precautions, and/or warnings. USP Pictograms are available at: www.usp.org/audiences/consumers/pictograms/.



BARRIER	STRATEGIES
<p>Limited English language proficiency</p>	<p>Do not talk loudly or exaggerate speech</p> <p>Do not direct communication to companion</p> <p>Use translator</p> <p>Provide written information in relevant language</p> <p>Use nonverbal cues and body language</p> <p>Use pictures, diagrams, or pictograms to help communicate information</p> <p>Verify understanding by having the person “teach back” the instructions they have been given (explain to them what they need to do, breaking up the information into understandable parts; then ask the person to repeat what they have heard)</p> <p>Reinforce information with a family member if available and appropriate</p>

DIMENSION 1: SOCIAL AND ECONOMIC FACTORS

BARRIER	STRATEGIES
Low health literacy	<p>Create a “shame free”, safe environment where the person feels comfortable talking openly</p> <p>Avoid mentioning you suspect a reading problem</p> <p>Use plain language instead of technical language or medical jargon</p> <p>Give clear verbal instructions</p> <p>Provide information written at a fifth grade or lower level; use large font size</p> <p>Use pictures, diagrams, or pictograms to help communicate information</p> <p>Use video instruction</p> <p>Verify understanding by having the person “teach back” the instructions they have been given (explain to them what they need to do, breaking up the information into understandable parts; then ask the person to repeat what they have heard)</p> <p>Involve family members in teaching sessions</p> <p>Telephone follow-up to determine how the person is doing</p>

SOCIAL FACTORS

Social support in general, and the availability of help from family or friends, is positively associated with medication adherence (Morrison and Werthheimer, 2004). People who have social support from family, friends, or caregivers to assist with medication regimens have better adherence to treatment. A person’s perception of and need for a social support network can be assessed with the Duke-UNC Functional Social Support Questionnaire, an eight-item instrument to measure the strength of the person’s social support network (Broadhead et al., 1988). (See [Assessment Tools](#) section)

BARRIER	STRATEGIES
Lack of family or social support network	<p>Involve family members</p> <p>Refer to support group</p>

BARRIER	STRATEGIES
<p>Unstable living conditions; homelessness</p> <p>Sources: Dixon et al., 1993; Caminero et al., 1996; Teeter, 1999; Tulskey et al., 2004</p>	<p>Meet fundamental needs for housing and food</p> <p>Address comorbid conditions, such as psychiatric disease and substance abuse</p> <p>Directly observe medication administration</p> <p>Offer cash incentives for adherence</p> <p>Encourage routine participation in health care visits</p> <p>Provide information about medications and side effects</p>
<p>Burdensome schedule</p>	<p>Tailor medication regimen to daily routine</p> <p>Reminders or compliance aids</p>

ECONOMIC FACTORS

BARRIER	STRATEGIES
<p>High cost or lack of availability of transport to access pharmacy</p>	<p>Mail order pharmacy</p> <p>Pharmacy delivery service</p>
<p>Medication cost</p>	<p>Switch to generics or lower-cost alternatives</p> <p>Refer to local programs or agencies that provide medication assistance</p> <p>Benefits Check Up RX (Available at: www.benefitscheckup.org/before_you_start.cfm?screen=BenefitsCheckUpRx)</p> <p>Pharmaceutical assistance programs (www.helppatients.org)</p> <p>Enroll in Medicare Part D prescription drug plan</p>

CULTURAL BELIEFS AND ATTITUDES

Within the next ten years, the US population will grow significantly older and more diverse. The minority older population will triple by 2030, when one quarter of the elderly population will belong to a minority racial or ethnic group (US Census Bureau, January 2000). Different racial and ethnic groups have diverse beliefs and attitudes about health and medicines, which may affect adherence to therapy. A failure to appreciate these differences may contribute to misunderstanding or miscommunication about health care.



No one list can define the values that older adults may place on medications, or their beliefs about how health and healing take place. Each person must be considered individually. Listening and asking nonjudgmental questions begins the process of understanding people's diverse beliefs and practices about health and healing and how to integrate them into interventions to improve medication adherence.

"Culture" refers to integrated patterns of human behavior that include the language, thoughts, actions, customs, beliefs and institutions of racial, ethnic, social, or religious groups (California Endowment, 2003). Every culture has beliefs about health, disease, treatment, and health care providers. People from the many immigrant cultures, as well as American Indians, bring their beliefs, and the practices that accompany them, into the health care system. This often proves challenging to health care professionals who have been trained in the philosophy, concepts, and practices of Western medicine (California Endowment, 2003).

People within any cultural group are not homogeneous, even though they may hold many beliefs, practices, and institutions in common. Messages and materials must respect the variations within cultural groups. Some of the major areas of difference within groups include educational level, English language proficiency, financial resources, adherence to folk customs and beliefs, sexual orientation, geographic location, health status, and preferred language.

Respect

In cultures where elders receive great respect, such as in the American Indian community, caring requires kindness and respect without any appearance of scolding (Salimbene, 2005), even if non-adherence may endanger the elder's life. Trust-building comes with storytelling, listening, respecting silence, and honoring the desires of the American Indian elder (University of Washington, 2005). Because of the experience of many African American elders who grew up with segregated health care and social service systems in which they faced continual discrimination, it is extremely important to show respect to them in order to put them at ease and establish rapport. This includes at the least, using respectful forms of address (e.g., Mr., Mrs.) unless they give the permission to do otherwise (University of Washington, 2005).

Mistrust of the Health Care System

Based on personal history and experience, many African Americans may view receiving health care as a degrading, demeaning, or humiliating experience. Some may even fear or resent health clinics because of the long waits, medical jargon, feelings of racism or segregation, loss of identity, and a feeling of powerlessness and alienation in the system (Spector, 2000).

The African American experience in America has left many African Americans mistrustful of mainstream institutions and providers who are members of the dominant culture. The 40-year Tuskegee Experiment, which recruited African American men with syphilis to be a part of a research project in which they were promised but never given treatment, is notorious in the African American community. Memories of such practices, in addition to the widespread discrimination most have faced in their lifetimes, are likely to provide reasons for African American elders to be more than a little suspicious of health care providers, especially those who suggest any type of experimental treatment or research (Stanford University). In the American Indian or Native American culture, there is historical mistrust of mainstream institutions due to centuries of abuses such as broken treaties and forced relocations. Acknowledging this history is an important step in building trust with the person and their family (University of Washington, 2005).

Cause of Illness and Traditional Therapies

Religion, spirituality, and kinship ties may have an important role in older adults' understanding and treatment of illness. Some older adults may view illness and death as a natural part of life, or believe illness is a result of natural causes, improper diet or eating habits, exposure to cold air or wind, the will of God for improper behavior, or a lack of spiritual balance. Some older adults may delay seeking medical care, preferring self-treatment and giving God a chance to heal, or may seek care from folk healers, lay advice, home remedies, and prayer to treat illness.

For example, the Latino older adult may see illness as an imbalance between internal and external forces, and may seek medical care from folk healers (University of Washington, 2005). Many American Indians believe that harmony among the body, heart, mind, and soul contributes to one's overall health (University of Washington, 2005), and that illness may be caused by the breaking of sacred tribal taboos, unhealthy relationships with humans or nature, or by witchcraft (Salimbene, 2005). The person may turn to Western medicine for treatment of the symptoms of illness, but may also seek traditional healers to address the disharmony that caused the illness (University of Washington, 2005). In Hinduism the law of cause and effect (karma), which one creates through thoughts, words, and deeds, may result in illness or accidents as a means to purification. Karma is believed to accrue over many lifetimes; hence, an illness may be seen as a result of actions in this life or a past life. Acceptance of one's karma may influence a person's attitude toward medical intervention (University of Virginia, 2004).

In the Chinese culture, health may be viewed as finding harmony between complementary energies (called yin and yang), such as cold and hot, or dark and light (University of Washington, 2005). Cultures following Chinese or Ayurvedic health beliefs may try traditional approaches to treating illness first, such as using foods and herbs to restore yin/yang balance, and will seek Western medical care

DIMENSION 1: SOCIAL AND ECONOMIC FACTORS

if these treatments fail. The traditional systems of medicine are believed to remove the cause of the illness, and therefore, some Asian ethnic groups rely on traditional remedies for long-term treatment (Institute for Safe Medication Practice, 2003).

Older adults in some cultures, such as Chinese, Vietnamese, and Latino, are more likely to try home therapies, such as herbal remedies or certain foods, before trying traditional Western medicine. If a person believes the health care provider may disapprove, they may not be forthcoming with information about the use of nontraditional remedies. This may result in drug-food or drug-drug interactions with prescribed medications.

Information Dissemination

Cultural beliefs may also dictate how medical information is disseminated or received. For example, in some Arab cultures it is preferable for a family or community member to act as a “buffer,” communicating directly with the health care provider and then discussing findings with the patient. In the Latino culture, the mother determines when a family member requires medical care; the male head of the household gives permission to seek medical care (University of Washington, 2005). For other cultures, more than one reliable source must provide the information, such as a doctor, spiritual leader, or family elder.

Medication

For some people the size and color of the medication, or the dosage form, may be important. For instance, some Cambodians equate pill size with potency; a large tablet may be thought of as too large a dose. This example is similar to the common, but erroneous, Western belief that a greater number of milligrams (mg) in a pill or capsule make a medication stronger. Chinese older adults may believe that Western medicine is too strong and may not take the full dose or complete the course of treatment (University of Washington, 2005). Some cultures from Latin America view injections as more effective than oral medications (Institute for Safe Medication Practice, 2003). In some countries, medications are in short supply, so prescribing smaller amounts may be the norm; if people from these countries do not clearly understand the role of chronic medications, they may discontinue them prematurely (Tobias, 2003).



Lesbian, Gay, Bisexual and Transgender

When considering cultural communities, the Lesbian, Gay, Bisexual and Transgender (LGBT) community often is forgotten. Approximately 10% of the older population identifies with LGBT concerns. It is important to distinguish between gender identity (male, female, transgender) and sexual orientation (lesbian, gay, bisexual). The sexual orientation of transgender people may fall anywhere within the range exhibited by nontransgender people (i.e., lesbian, gay, bisexual).

Trust in the provider can attract or discourage LGBT older adults from acting on health messages and adherent behavior. Two actions generating trust and credibility include the use of welcoming language, and respect for privacy and confidentiality. Using terms such as partner instead of family, and avoiding heterosexual-relationship terms (e.g., married, family, husband/wife) engenders a greater feeling of trust. Many LGBT people have experienced discrimination and sometimes violence. Targeted messages must convey a nonjudgmental stance, respectful of individual preferences and identity. An appropriate tone should impart a safe environment, especially if the message promotes services, courses, or community activities.

Cultural Competence

The Office of Minority Health, in the U.S. Department of Health and Human Services, has developed National Standards for Culturally and Linguistically Appropriate Services in Health Care (CLAS Standards). The 14 CLAS Standards serve as a guide to quality health care for diverse populations, and include a recommendation that health care organizations ensure cultural competence in their professional staff by offering them education and training in the field. The CLAS Standards, along with an in-depth discussion of how they were formulated, are available at www.omhrc.gov/assets/pdf/checked/finalreport.pdf (US Department of Health and Human Services, 2001).

No one becomes culturally competent overnight or with one or two hours of training; certain attitudes need to be learned, skills transmitted, and knowledge absorbed (California Endowment, 2003). Cultural competence training often involves attitude changes and the examining of personal biases and stereotypes as an initial step to acquiring the skills and competencies necessary for quality cross-cultural care, which requires careful guidance and skillful group facilitation (California Endowment, 2003). Skills that enhance a health care provider's ability to recognize different cultural values, beliefs, and practices and to address these factors in interventions are likely to lead to more successful treatment outcomes (Bonder et al., 2001).

General knowledge about specific cultures can increase understanding; however, a fact-centered approach risks replacing one stereotype with another. The new stereotype may be more positive but still fail to capture the complex nature of an individual's culture. Often, information taught as cultural awareness isn't as generalizable as it seems, and cultural beliefs and behaviors are ever changing (Interplay, 2005).

DIMENSION 1: SOCIAL AND ECONOMIC FACTORS

BARRIER	STRATEGIES
Cultural beliefs	<p>Establish a positive, supportive, trusting relationship with the person</p> <p>Seek an understanding of the causes of illness from the person's cultural point of view</p> <p>Elicit information about use of nontraditional therapies in non-judgmental way</p> <p>Determine person's preference regarding group learning or individual, private instruction</p> <p>In providing information consider:</p> <ul style="list-style-type: none">- Whether primary importance is placed on the individual or on the community- What roles for women, men, and children are generally accepted- Whether the preferred family structure is nuclear or extended, one generation or multigenerational, and who receives the information <p>Acquire the skills and competencies necessary for quality cross-cultural care</p>

ELDER ABUSE

Elder abuse occurs more often within the family setting rather than in outside institutions. In relationship to medication adherence, abuse may include withholding medications, overmedicating the older adult, or neglecting to provide access to medical treatment.

The following have been identified as risk factors for elder abuse based on current research (Center for Substance Abuse Prevention):

- Living arrangements, such as cohabitation of family member and older adult or an older adult who is living alone
- Social isolation of abuser and victim
- Presence of Alzheimer's disease or related dementia
- Presence of mental illness or increased levels of hostility in the abuser
- Alcohol abuse on the part of the abuser
- Dependency of the abuser on the victim
- History of marital violence, also known as intimate partner violence.

A 2000 nationwide survey of Adult Protective Service Departments found 13.2% of elder abuse cases involved caregiver neglect or abandonment (Teaster, 2000). Identifying the characteristics of the caregiver may help predict elder abuse. The problems caregivers face and their views of the care recipient may trigger abuse (Anetzberger, 2000).

Social isolation is a risk factor for abuse. Social isolation may be a strategy for keeping the abuse secret, or may result from the stresses of caring for a dependent older family member. Social isolation is problematic because it cuts off family members from the outside help and support they may need to cope with the stresses of caregiving (American Psychological Association).

Caregiver substance abuse is a risk factor associated with elder abuse and neglect. Caregivers may turn to substance abuse as a coping mechanism for the demands required in their role as care provider. For spouses who are care providers, substance abuse increases the likelihood of partner violence. Especially among men, problem drinking increases the chance of partner abuse eightfold (Sharps et al., 2001)

When elder abuse is suspected, interventions should emphasize changing the dynamics of the relationship. Addressing the needs of the victim and the abuser begin to change this dynamic. At the same time, abusers must be held accountable (Center for Substance Abuse Prevention). Reporting abuse to the local or state Adult Protective Services begins the process.

BARRIER	STRATEGIES
Elder abuse	Report abuse to local or state Adult Protective Services

Dimension 2

Health Care System- Related Factors

This section covers the following topics:

- **Provider-patient relationship**
- **Provider communication skills**

DIMENSION 2: HEALTH CARE SYSTEM-RELATED FACTORS

The quality of the doctor-patient relationship is one of the most important health care system-related factors impacting adherence (Krueger et al., 2005). A good relationship between the patient and health care provider, which features encouragement and reinforcement from the provider, has a positive impact on adherence (Krueger et al., 2003). Poor provider communication concerning the benefits, instructions for use, and side effects of medications can also contribute to nonadherence, especially in older adults with memory problems (Vermiere et al., 2001).

More broadly, health care systems create barriers to adherence by limiting access to health care in the following ways: making appointments difficult to schedule; lacking continuity of provider care; using restrictive formularies and changing formularies; and through high drug costs, copayments, or both (Osterberg and Blaschke, 2005; Tabor and Lopez, 2004).

BARRIER	STRATEGIES
<p>Provider-patient relationship</p> <p>Source: Krueger et al., 2005</p>	<ul style="list-style-type: none"> Establish a positive, supportive, trusting relationship with the patient Involve the patient in the decision-making process Assess the patient's understanding of the illness and treatment Clearly communicate the benefits of treatment Involve the patient in setting treatment goals Assess the patient's readiness to carry out the treatment plan Identify and discuss any barriers or obstacles to adherence the patient may have and formulate strategies for overcoming them with the patient Tailor medication regimens to the patient's daily routine Reduce complexity of medication regimen Provide appropriate follow-up care Reward adherence and good or improving performance Involve family members for social support
<p>Provider communication</p> <p>Source: Gottleib, 2000</p>	<ul style="list-style-type: none"> Adopt a friendly rather than a business-like attitude Spend some time conversing about nonmedical topics Avoid medical jargon Use short words and short sentences Give clear instructions on the exact treatment regimen, preferably in writing Repeat instructions Make advice as specific and detailed as possible Ask the patient to repeat what has to be done

Dimension 3

Condition-Related Factors

This section covers the following topics:

- **Chronic conditions**
- **Lack of symptoms**
- **Depression**
- **Psychotic disorders**
- **Mental retardation/developmental disability**

CHRONIC CONDITIONS AND LACK OF SYMPTOMS

Medications have to be taken indefinitely for many chronic illnesses, and adherence to such treatment regimens often declines significantly over time (Berger et al., 2004). This is especially true for chronic illnesses that have few or no symptoms—e.g., high blood pressure, osteoporosis, and hyperlipidemia—and lack the “cues” that may remind people to take their medication. Without symptoms, a person may not be motivated to adhere to a treatment regimen. It is important that the older adult understand the illness and what will happen if it is not treated.

BARRIER	STRATEGIES
<p>Therapy for asymptomatic conditions</p> <hr/> <p>Preventative therapies with no immediately discernible benefit</p>	<p>Inform about disease process, importance of treatment or prevention, and consequences if not treated</p> <hr/> <p>Reinforce benefits of prevention/treatment versus risks</p>

Depression and psychiatric disorders are associated with poor medication adherence (Krueger et al., 2005). This discussion will be limited to depression and psychosis, and medication adherence issues associated with these conditions.

DEPRESSION

Studies show that persons with chronic illnesses who are depressed have significantly lower rates of medication adherence (Krueger et al, 2005, Appendix A). Professionals working with older adults should be aware of the effects of depression on adherence, and should evaluate older adults who appear sad or withdrawn or have unexplained physical complaints or sleeping problems to identify or rule out clinical depression (National Advisory Council on Aging, 2002).



For older adults receiving medications to treat depression, one factor that may decrease adherence is the delayed onset of action of antidepressants, which may take four weeks or longer to exert effects. Side effects are most likely to occur early in therapy, therefore the person may experience side effects prior to the relief of symptoms, which can lead to early discontinuation of therapy (Keller et al., 2002). Some people may discontinue antidepressant therapy once they begin to “feel better” (Demyttenaere, 2003). People who prematurely discontinue antidepressant therapy are at greater risk for relapse (Geddes et al., 2003).

BARRIER	STRATEGIES
Lack of knowledge regarding nature of depression	Discuss depression as a common, treatable condition Refer to depression as a medical condition
Guilt associated with diagnosis of depression	Discuss chemical basis for depression
Need for reassurance and support	Reinforce that depression is treatable Discuss appropriate duration of treatment
Lack of belief in treatment’s effectiveness	Discuss efficacy of medications
Belief that treatment does not help with symptoms associated with depression	Discuss delayed onset of therapeutic effects of antidepressants
Fear of side effects	Review most common side effects Reinforce that most people do not have to stop therapy because of side effects Reassure person that over time side effects should be less of a problem
“Felt better” and stopped taking medication	Discuss the importance of an adequate duration of therapy and risk of relapse

Source: Bucci et al., 2003

PSYCHOTIC DISORDERS

Medication nonadherence is a significant problem in persons treated with antipsychotic medications; as many as one-fourth may be nonadherent (Nose et al., 2003). Nonadherence is responsible for up to 50% of hospitalizations for patients with schizophrenia (Perkins, 2002). An individual’s experience with unpleasant side effects is commonly cited as a reason for discontinuing antipsychotic therapy. Newer antipsychotic agents, which have fewer movement-related side effects, may have a modest impact on improving adherence (Dolder et al., 2002; Lacro et al., 2002).

Interventions to improve adherence to antipsychotic medications are more likely to be successful if they focus on the person’s attitudes and beliefs about medications, rather than focusing only on knowledge (Zygmunt et al., 2002). Compliance therapy, which combines cognitive behavioral techniques with motivational interviewing, has been shown to improve medication adherence and outcomes (Kemp et al., 1996).

BARRIER	STRATEGIES
Patient-related	Cognitive therapy Education about the illness Education about the treatment Memory aids (phone reminders, alarms) Involvement in therapeutic alliance
Physician-related	Provide information on common side effects and strategies to address Use of “patient-centered” approach Address patient’s attitudes and beliefs about medications
Social/Environment-related	Involve and educate family Improve access to mental health services (case management, home visits, convenient clinic hours and locations) More attractive clinic environment Improved coordination among service providers
Treatment-related	Minimize complexity of medication regimen Titration to optimum dose Provide clear instructions on medication use Minimize impact of side effects Select medication with fewer side effects

Source: Perkins, 2002

MENTAL RETARDATION/DEVELOPMENTAL DISABILITY

A developmental disability is associated with many conditions that originate prior to birth, at birth, or in early adulthood, but the primary disability is intellectual. Developmental disability presents with varying degrees of intellectual deficiency, as well as other physical and/or sensory incapacities and health risks (National Advisory Council on Aging, 2004). As a result of progress achieved in medical science and health care, persons with developmental disabilities now have a life expectancy that extends beyond mid-life.

Older adults with developmental disabilities have the same prevalence of sensory, visual, and auditory impairments as the general older adult population; however, the degree of impairment may be more severe due to preexisting problems or undiagnosed conditions resulting from the older person's inability to clearly communicate needs. Physical changes that more severely affect older adults with a developmental disability include loss of flexibility, as age-related changes in joint function and bone density combine with their existing mobility problems; in addition, they may be more prone to arthritis at an early age (National Advisory Council on Aging, 2004). Severe physical and sensory impairments coupled with inability to clearly communicate, increase the risk of nonadherence in older adults with developmental disabilities.

Caregivers of developmentally disabled adults play a crucial role in providing emotional, functional, and instrumental support, including managing medications. Two factors have changed the role of caregiving for adults living with developmental disabilities: the deinstitutionalization movement over the past decades, and the increased longevity of developmentally disabled adults. Many parents in their eighties or nineties may find themselves caring for a developmentally disabled "child." Siblings, usually a sister, may have assumed the primary caregiving role. With this demographic change, adherence messages and support should focus on the caregiver.

Dimension 4

Therapy-Related Factors

This section covers the following topics:

- **Complexity of medication regimen**
- **Medications slow to produce effects**
- **Actual or perceived unpleasant side effects**

DIMENSION 4: THERAPY-RELATED FACTORS



The complexity of the medication regimen, which includes the number of medications and number of daily doses required; duration of therapy; therapies that are inconvenient or interfere with a person’s lifestyle (Krueger et al., 2003); and medications with a social stigma attached to its use (Tabor and Lopez, 2004) have been associated with decreased adherence.

When medications such as antidepressants, are slow to produce effects, the older person may believe the medication is not working and may stop taking it (Tabor and Lopez, 2004). If administration of a medication requires the mastery of specific techniques, as with injections and inhalers, adherence may also be affected. Medication side effects can decrease adherence if patients believe they cannot control or manage them (Krueger et al., 2005).

BARRIER	STRATEGIES
<p>Complexity of medication regimen (number of daily doses; number of concurrent medications)</p>	<p>Identify and discontinue unnecessary medications</p> <p>Reduce dose frequency for medications where possible; use long-acting dosage forms where possible</p> <p>Identify combination medications that can replace two separate prescriptions</p> <p>Identify opportunities to use one drug to treat more than one medical condition</p> <p>Identify medications prescribed to treat the side effects of other medications</p> <p>Introduce reminder strategies tailored to the individual, such as pill organizers, calendars, phone reminder systems, etc.</p> <p>Provide updated written list of medications</p>

BARRIER	STRATEGIES
Lack of immediate benefit of therapy	Educate about what to expect from treatment (e.g., how medication works, time to onset of effect, expected goals of therapy, how to monitor for effectiveness)
Chronic or long-term therapy	Simplify regimen Refer to support group Use reminder strategies Involve family members Cue medication taking to daily tasks or routine
Actual or perceived unpleasant side effects	Educate about what to expect from treatment and risks vs. benefits (e.g., tolerance might develop to certain side effects) Suggest ways to manage minor side effects Identify alternative medications with less side effect potential
General treatment regimen concerns	Explore preferences and issues with treatment regimen: <ul style="list-style-type: none"> - Does person believe treatment is needed or effective? - Does person want to use medicine to treat condition? - Does person have concerns about long-term treatment? Involve person in determining goals of therapy Address medication-related issues that make adherence difficult, such as the need to master specific administration techniques (e.g., injections, inhalers)

Dimension 5

Patient-Related Factors

This section covers the following topics:

Physical factors

- **Visual impairment**
- **Hearing impairment**
- **Cognitive impairment**
- **Impaired mobility or dexterity**
- **Swallowing problems**

Psychological/behavioral factors

- **Knowledge about disease**
- **Motivation**
- **Alcohol or substance abuse**

PHYSICAL FACTORS THAT INFLUENCE ADHERENCE

Physical impairments and cognitive limitations may increase the risk for nonadherence in older adults.

Visual Impairment

Today in the United States there are approximately 5.5 million persons aged 65 and older who are blind or visually impaired (American Foundation for the Blind). Vision impairment is associated with a decreased ability to perform activities of daily living and an increased risk for depression (Rovner et al., 1996; Rovner and Ganguli, 1998). There are many medication safety issues associated with vision loss. Low vision and blindness affect a person's ability to read prescription labels and information sheets about medications, determine the color and markings distinguishing a medication, and see gauges on testing devices. People who cannot read prescription labels or distinguish among different medications must rely on memory or depend on someone else for help, and may not take their medications correctly or at all.

Not all vision loss is the same and the issues differ depending on the nature of the visual impairment. For example, the needs of people with glaucoma who have tunnel vision are different from those with macular degeneration who have central vision loss. Also, individuals who are blind have different issues from individuals with low vision. Individuals who are blind may need audible devices, tactile devices, or Braille.



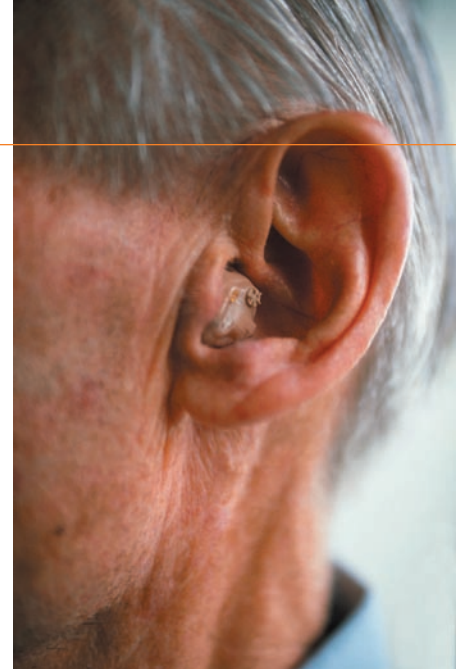
The National Institutes of Health has a health-related web site specifically for older adults, which can be found at www.nihseniorhealth.gov. The web site's senior-friendly features include large print, short, easy-to-read segments of information, and simple navigation. A "talking" function reads the text aloud and special buttons to enlarge the text or turn on high contrast make the text more readable.

The American Foundation for the Blind's web site (www.afb.org) provides information about living with vision loss for the consumer, friends and family, and professionals. It contains an online directory of services and resources available in the US and Canada for persons with visual impairments. Additional resources for information on eye disease, low vision, and vision rehabilitation are available at the National Eye Institute web site, www.nei.nih.gov/health/.

BARRIER	STRATEGIES
Blindness	<p>Ask the person if he or she needs help and what would be useful</p> <p>Do not talk down to or patronize the person</p> <p>Do not direct communication to companion</p> <p>Give clear verbal instructions</p> <p>Tape record instructions</p> <p>Provide instructions in Braille (if patient reads Braille)</p> <p>Review pill shape/size with person</p> <p>Use different size pill containers for different medications</p> <p>Attach tactile “clue” to pill containers to differentiate among medications</p> <p>Use pill organizer</p> <p>Audible reminder (alarm) system</p> <p>Pre-measure liquid dosages</p> <p>Pre-cut tablets</p> <p>Pre-fill syringes</p>
Visual impairment	<p>Ask the person if he or she needs help and what would be useful</p> <p>Use large print on labels and written materials (minimum 16 point)</p> <p>Use black ink on light background (high contrast) for written materials</p> <p>Avoid materials that reflect light or cause glare</p> <p>Provide large print duplicate prescription label</p> <p>Give clear verbal instructions</p> <p>Use color coding on medication containers (if patient can detect color) or different color pillboxes to distinguish between medications and indicate when to take medications</p> <p>Electronic dispensing devices with an alarm when dose is due</p> <p>Magnifying device</p> <p>Encourage improved lighting where medications are stored and taken</p>

Hearing Impairment

The number of people with hearing loss increases with age. One-third of older adults between the ages of 65 and 74 have hearing problems; about half the people who are 85 and older have hearing loss (National Institute on Aging). The natural aging process affects not only the ability to detect sounds at soft levels (hearing thresholds) but also the ability to understand speech at typical conversational volume. This condition is progressive and does get worse with age (Cienkowski, 2003).



Many people who suffer from age-related hearing impairment report that they hear speech but have difficulty understanding, particularly in the presence of background noise. In environments with lots of noise or echo (reverberation), older adults identify fewer words correctly than younger adults with equivalent hearing (Cienkowski, 2003).

Most deaf people communicate with hearing people through a combination of methods such as signing, writing, speech, and lip reading. Always determine the person's preferred method of communicating. Some deaf people consider English their second language, after American Sign Language. It is important to note that American Sign Language does not follow the order and syntax of written and spoken English, therefore always ask if the person is comfortable with written language when you are using this mode of communication (University of Washington, 2005).

Do not assume that when deaf or hearing-impaired people nod their heads in acknowledgment that they have understood you; they may be relying on family or a companion present to explain later.

A growing number of government agencies and businesses are installing TTY or using the Telecommunications Relay Service to communicate with deaf, hard of hearing, or speech-impaired clients. A TTY is a special device that lets people who are deaf, hard of hearing, or speech-impaired use the telephone to communicate by allowing them to type messages back and forth to other TTY users. TTY consists of a keyboard, display screen, and a modem. Calls placed to or from a non-TTY user can be placed through the Telecommunications Relay Service. A directory of toll-free telecommunications relay service numbers can be found at www.adcohearing.com/tty_what_tty.html.

BARRIER	STRATEGIES
Deafness	<p>Do not shout or exaggerate speech, garble words, or obscure mouth with hands</p> <hr/> <p>Do not talk down to or patronize the person</p> <hr/> <p>If American Sign Language is the person’s preferred communication method:</p> <ul style="list-style-type: none"> – Use an interpreter – Consider becoming familiar with the manual sign language alphabet for when an interpreter is not available to communicate (See www.masterstech-home.com/ASLDict.html) – Use pantomime and facial expressions. <hr/> <p>If lip reading is the person’s preferred communication method:</p> <ul style="list-style-type: none"> – Use your regular voice volume and lip movement – Maintain eye contact when you speak; do not turn your head or obscure the view of your face – When speaking to the person, don’t place things such as pencils, gum, or food in your mouth – Avoid standing in front of a light or a window; overhead lighting limits shadows <hr/> <p>If writing is the person’s preferred communication:</p> <ul style="list-style-type: none"> – Use short precise clauses, pictures, and diagrams – Be sure the person is provided with writing tools <hr/> <p>Face the person</p> <hr/> <p>Use gestures</p> <hr/> <p>Confirm understanding of information</p> <hr/> <p>Supplement with written information</p> <hr/> <p>Use pictures and diagrams when possible</p>

DIMENSION 5: PATIENT-RELATED FACTORS

BARRIER	STRATEGIES
Hearing impairment	<p>Do not shout or exaggerate speech, garble words, or obscure mouth with hands</p> <p>Do not talk down to or patronize the person</p> <p>Use quiet area for counseling</p> <p>Have assistive listening device available to be used if necessary</p> <p>Stand in good lighting and reduce background noises</p> <p>Face the person and talk slowly and clearly; use lower voice pitch and simple language</p> <p>Include the hearing-impaired person when talking; talk with the person, not about the person, when with others</p> <p>Be patient</p> <p>Use facial expressions or gestures to give useful clues</p> <p>Speak to better ear</p> <p>Have person turn up hearing aid</p> <p>Repeat yourself if necessary, using different words; confirm understanding of information</p> <p>Supplement with written information</p> <p>Use pictures and diagrams when possible</p>

Cognitive Impairment

Impaired cognition is associated with poor medication adherence (Krueger et al., 2005). Older adults with cognitive decline or memory problems may have difficulty understanding how to take their medications, forget to take a dose, or take too much.

BARRIER	STRATEGIES
Cognition/memory	<p>Speak slowly and clearly; use simple language</p> <p>Repeat and rephrase information</p> <p>Confirm understanding; have person repeat information</p> <p>Provide written document using simple language to support verbal instructions</p> <p>Introduce reminder strategies tailored to the individual, such as pill organizers, calendars, phone reminder systems, electronic medication dispensing devices</p> <p>Involve caregiver</p>

Impaired Mobility

Older adults with limited mobility may have difficulty obtaining medications from the pharmacy or self-administering medications (Tobias, 2003).

BARRIER	STRATEGIES
Impaired mobility	Mail order pharmacy Pharmacy delivery service Store medications in easy-to-access location (unless children in household)

Dexterity

Impaired dexterity, coupled with reduced muscle strength and flexibility, affects fine motor control and hand-eye coordination. These functional limitations can affect the ability to open product packages or medication containers, administer nonoral dosage forms (e.g., injections, patches, inhalers, eye drops), use medical supplies or devices, or manipulate home testing equipment (e.g., glucose monitoring).

BARRIER	STRATEGIES
Impaired dexterity	Use easy-to-open, non-childproof medication containers Use pill organizer Use easy-to-open unit-of-use packaging Pre-measure liquid dosages Pre-cut tablets Pre-fill syringes Use dosage forms that are easy to administer



Swallowing Problems

Older adults with swallowing problems may be unable or unwilling to take large pills or capsules.

BARRIER	STRATEGIES
Swallowing problems	Identify alternative dosage forms that might be easier to swallow, e.g., liquids, smaller tablets, transdermal products Switch to medications that can be crushed or capsules that can be opened and mixed with soft foods

PSYCHOLOGICAL/BEHAVIORAL FACTORS THAT INFLUENCE ADHERENCE

Lack of knowledge about the disease and the reasons medication is needed, lack of motivation, low self-efficacy, and substance abuse are associated with poor medication adherence (Krueger et al., 2005; World Health Organization, 2003).

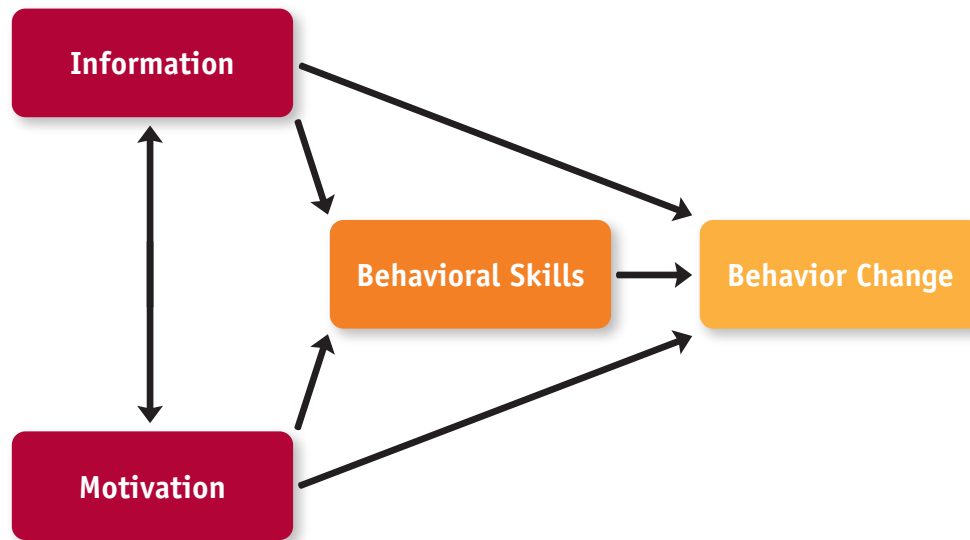
A person’s perception of the danger posed by their disease may affect adherence to treatment. Older adults with chronic diseases that pose no immediate limitations or have few or no symptoms—such as high blood pressure, high cholesterol, or osteoporosis—may dismiss the importance of medication adherence. When medications are slow to produce effect, as with antidepressants, a person may believe the medication is not working and thus become nonadherent. On the other hand, a person’s belief that a medication will work or is working is directly related to treatment adherence, as is the ability to manage side effects and a positive attitude (Krueger et al., 2005).

KNOWLEDGE, MOTIVATION, AND SELF-EFFICACY

It is well known that a person’s knowledge, motivation, and attitudes toward medication therapy can significantly influence medication adherence. The World Health Organization has proposed a foundational model for medication adherence that is based on three factors: information, motivation, and behavioral skills (self-efficacy). Interventions based on this model have been effective in influencing behavioral change (World Health Organization, 2003).

Adherence and nonadherence are behaviors. Information is a prerequisite for changing behavior, but in itself is insufficient to achieve this change; motivation and behavioral skills are critical determinants (Figure 3). Information and motivation work largely through behavioral skills to affect behavior; however, when the behavioral skills are familiar or uncomplicated, information and motivation can have direct effects on behavior (World Health Organization, 2003).

FIGURE 3. FOUNDATIONAL MODEL FOR ASSESSING AND IMPROVING ADHERENCE



Source: World Health Organization, 2003

Knowledge

Information is the basic knowledge about a medical condition, which may include how the disease develops, its expected course, and effective strategies for its management; as well as specific information about the medication prescribed (World Health Organization, 2003).

People should have knowledge and understanding of the following:

- Information about the disease and consequences of not treating it
- Information about the treatment options
- Name of each prescribed medication, what it is supposed to do, and why it is needed
- Side effects of each medication and what to do if they occur
- How and when to take each medication, how much to take, and for how long
- What to do if a dose is missed
- What food, drinks, other medicines, or activities should be avoided while taking the medication
- How the medicine should be stored
- Whether the medication can be refilled, and if so, how often.

DIMENSION 5: PATIENT-RELATED FACTORS

In addition, any special techniques or devices for administering the medication (e.g., the use of syringes, inhalers, suppositories, eye drops, or patches) should be explained and demonstrated. Older adults should be asked about any concerns they have about using their medicine.

A person's knowledge of their health condition and treatment can be assessed by measuring their health literacy and medication knowledge. The specific assessment tools are described below, and instructions for use are found in the [Assessment Tools](#) section.

Health Literacy Assessment—Health literacy is the ability to read, understand, and act on health information in order to make appropriate health decisions. Poor health literacy results in medication errors, impaired ability to remember and follow treatment recommendations, and reduced ability to navigate within the health care system. The [Rapid Estimate of Adult Literacy in Medicine, Revised \(REALM-R\)](#) is a brief screening instrument used to assess a person's ability to read common medical words (Bass et al., 2003). It is designed to identify people at risk for poor literacy skills.

Medication Knowledge Assessment—The [Medication Knowledge Assessment](#) is used to determine a person's knowledge about their medications and ability to read and comprehend information necessary for appropriate medication use. Information from the Medication Knowledge Assessment can serve as the basis for a focused knowledge improvement plan.

Motivation

Motivation encompasses personal attitudes towards the adherence behavior, perceived social support for such behavior, and the person's perception of how others might behave. Motivation has been found to be a key factor in promoting adherence to chronic therapies (World Health Organization, 2003). A person's motivation to adhere to a prescribed treatment is influenced by their beliefs regarding their medical condition, the value they place on following the treatment regimen, and their degree of confidence in being able to follow it. A person who believes that their condition is serious, that they will develop serious consequences if the condition is left untreated, and that the medication will be effective in treating their condition and preventing complications may be more likely to adhere to the treatment regimen (Vermiere et al., 2001).



Motivation and readiness to change are fundamental to long-term alteration of behavior (Nichols-English and Poirier, 2000). Changes in behavior are frequently based on weighing the positive and negative aspects of the change. Change will likely take place when the person sees the positive aspects of making the change and there are no or few barriers to making the change. However, if the real or perceived barriers or negatives of making a change outweigh the positives, change is unlikely to occur.

A primary reason people are not motivated to engage in a behavior—such as taking medication—is that they are ambivalent. When ambivalent, people generally do nothing. In regard to medications, people may be ambivalent about (Berger et al., 2004):

- **Necessity**—the person is not sure they really need the medication or that they have the diagnosed condition.
- **Effectiveness**—the person is not yet convinced the medication will work.
- **Goals of therapy**—are not clear or are not important to the person.
- **Cost**—of the medication is more than expected or more than the person can afford.

To overcome ambivalence, older adults must have the information necessary to determine that the benefits of taking the medication outweigh the cost or barriers (Berger et al., 2004).

The assessment of motivation can help gauge the likelihood that the person will adhere to a given treatment regimen. Motivation is determined by measuring the person's willingness or readiness to change, and the level of their social support.

Readiness to Change Assessment—The [Readiness-to-Change Ruler](#) is used to assess a person's willingness or readiness to change, determine where they are on the continuum between “not prepared to change” and “already changing”, and promote identification and discussion of perceived barriers to change. The Readiness-to-Change Ruler can be used as a quick assessment of a person's present motivational state relative to changing a specific behavior, and can serve as the basis for motivation-based interventions to elicit behavior change, such as motivational interviewing.

Motivational interviewing is an approach, first reported in the addiction literature, to improve adherence (Miller and Rollnick, 2002). The process is used to determine a person's readiness to engage in a target behavior—such as medication taking—and then applying specific skills and strategies based on the person's level of readiness to create a favorable climate for change. See the [Facilitating Behavior Change](#) section for additional information on readiness to change and an introduction to motivational interviewing techniques.

Social Support Assessment—A person's perception of and need for a social support network can be assessed with the [Duke-UNC Functional Social Support Questionnaire](#), an eight-item instrument to measure the strength of the person's social support network (Broadhead et al., 1988).

Self Efficacy

Self efficacy is a person’s belief or confidence in their ability to carry out a target behavior and the extent to which the behavior is actually carried out correctly. Self efficacy includes ensuring that the person has the specific behavioral tools or strategies necessary to perform the adherence behavior (World Health Organization, 2003). Self efficacy is a significant predictor of medication adherence (National Quality Forum, 2005).

BARRIER	STRATEGIES
Knowledge	Identify “knowledge gaps” Provide information where gaps exist Confirm understanding; have person repeat the information Demonstrate any special techniques for use of devices for administering medication Ask about any concerns the person has about using the medicine Provide appropriate written information Follow up for reinforcement of the information provided
Motivation	Use motivational interviewing techniques for people in the precontemplation and contemplation stages of change “Roll” with resistance Involve person in problem solving Provide information and alternatives Express empathy Avoid argumentation Develop discrepancy between the person’s behavior and important personal goals Involve family members Refer to support group
Self-Efficacy	Use motivational interviewing techniques to enhance the person’s confidence in their ability to overcome barriers and succeed in change Recognize small positive steps the person is taking Use supportive statements Help person set reasonable and reachable goals Express belief that person can achieve goals

ALCOHOL AND SUBSTANCE ABUSE

Substance abuse, particularly of alcohol and prescription drugs, among adults aged 60 and older is one of the fastest-growing health problems facing the country. Problems stemming from alcohol consumption, including interactions of alcohol with prescribed and over-the-counter medications, far outnumber any other substance abuse problem among older adults. Rates for alcohol-related hospitalizations among older adults are similar to those for heart attacks (US Department of Health and Human Services, 1998).

The abuse of narcotics is rare among older adults, except for those who abused opiates in their younger years. Prescribed opioids are an infrequent problem as well; only two to three percent of noninstitutionalized older adults receive prescriptions for opioid analgesics, and the vast majority of these older adults do not develop dependence (US Department of Health and Human Services, 1998).

Although little published information exists, experts report that a far greater concern for drug misuse or abuse is the large number of older adults using prescription drugs—particularly benzodiazepines, sedatives, and hypnotics—without proper physician supervision (US Department of Health and Human Services, 1998). A large share of prescriptions for older adults is for psychoactive, mood-changing drugs that carry the potential for misuse, abuse, or dependency.

Older persons are prescribed benzodiazepines (e.g., Valium, Xanax, Ativan) more than any other age group, and North American studies demonstrate that 17% to 23% of drugs prescribed to older adults are benzodiazepines (US Department of Health and Human Services, 1998). The dangers associated with these prescription drugs include problematic effects due to age-related changes in drug metabolism, interactions among prescriptions, and interactions with alcohol. Benzodiazepines, especially those with longer half-lives, often cause unwanted side effects that affect functional capacity and cognition, which place the older person at greater risk for falling and for institutionalization. Older adult users of these drugs experience more adverse effects than do younger adults, including excessive daytime sedation, lack of muscle coordination, delirium, and cognitive impairment.

Identification of substance abuse among older adults should not be the purview of health care workers alone. Leisure clubs, health fairs, congregate meal sites, Meals-On-Wheels, and senior day care programs provide venues in which older adults can be encouraged to self-identify for problems with alcohol or prescription medications. Friends and family of older adults and staff of senior centers, including drivers and volunteers who see older adults on a regular basis, are usually familiar with their habits and daily routines, and can interject screening questions into their normal conversations with older adults.

Comfort with this line of questioning will depend on the person's relationship with the older person and the responses given; however, anyone who is concerned about an older adult's drinking practices or possible medication misuse can try asking direct questions, such as those listed in Table 4. Nonmedical caretakers, volunteers, and aides may opt to ask only the four CAGE questions for alcohol problems, reproduced in Figure 4 (Ewing, 1984).

If the questioner suspects that prescription drug abuse may be occurring and the older adult is defensive about his or her use, confused about various prescription drugs, seeing more than one doctor, or using more than one pharmacy, a clinician should probably be notified to probe further. Other warning signs of problematic alcohol or prescription drug use that may emerge in conversation and should prompt a referral to a clinician for a more in-depth screen or assessment are listed in Table 5.

TABLE 4. DIRECT QUESTIONS TO ASK ABOUT AN OLDER ADULT'S DRINKING PRACTICES AND MEDICATION USE

DRINKING PRACTICES
"Do you ever drink alcohol?"
"How much do you drink when you do drink?"
"Do you ever drink more than four drinks on one occasion?"
"Do you ever drink and drive?"
"Do you ever drink when you're lonely or upset?"
"Does drinking help you feel better [or get to sleep more easily, etc.]? How do you feel the day after you have stopped drinking?"
"Have you ever wondered whether your drinking interferes with your health or any other aspects of your life in any way?"
"Where and with whom do you typically drink?" (Drinking at home alone signals at-risk or potentially abusive drinking.)
"How do you typically feel just before your first drink on a drinking day?"
"Typically, what is it that you expect when you think about having a drink?" (Note: Positive expectations or consequences of alcohol use in the presence of negative affect and inadequate coping skills have been associated with problem drinking.)
MEDICATION USE
"What prescription drugs are you taking? Are you having any problems with them? May I see them?" (This question will need to be followed by an examination of the actual containers to ascertain the drug name, prescribed dose, expiration date, prescribing physician, and pharmacy that filled each prescription. Note whether there are any psychoactive medications. Ask the patient to bring the drugs in their original containers.)
"Where do you get prescriptions filled? Do you go to more than one pharmacy? Do you receive and follow instructions from your doctor or pharmacist for taking the prescriptions? May I see them? Do you know whether any of these medicines can interact with alcohol or your other prescriptions to cause problems?"
"Do you use any over-the-counter drugs (nonprescription medications)? If so, what, why, how much, how often, and how long have you been taking them?"

Source: US Department of Health and Human Services, 1998

FIGURE 4. THE CAGE QUESTIONNAIRE

1. Have you ever felt you should C ut down on your drinking?	YES	NO
2. Have people A nnoyed you by criticizing your drinking?	YES	NO
3. Have you ever felt bad or G uilty about your drinking?	YES	NO
4. Have you ever had a drink first thing in the morning to steady your nerves or to get rid of a hangover (E ye opener)?	YES	NO

Scoring: Item responses on the CAGE are scored 0 for “no” and 1 for “yes” answers, with a higher score an indication of alcohol problems. A total score of 2 or greater is considered clinically significant.

Source: Ewing, 1984

TABLE 5. WARNING SIGNS OF PROBLEMATIC ALCOHOL OR PRESCRIPTION DRUG USE

- Excessively worrying about whether prescription psychoactive drugs are “really working” to alleviate numerous physical complaints; or complaints that the drug prescribed has lost its effectiveness over time (evidence of tolerance)
- Displaying detailed knowledge about a specific psychoactive drug and attaching great significance to its efficacy and personal impact
- Worrying about having enough pills or whether it is time to take them, to the extent that other activities revolve around the dosage schedule
- Continuing to use and to request refills when the physical or psychological condition for which the drug was originally prescribed has or should have improved (e.g., prescription of sleeping pills after the death of a loved one); resisting cessation or decreasing doses of a prescribed psychoactive drug
- Complaining about doctors who refuse to write prescriptions for preferred drugs, who taper dosages, or who don’t take symptoms seriously
- Self-medicating by increasing doses of prescribed psychoactive drugs that aren’t “helping anymore,” or supplementing prescribed drugs with over-the-counter medications of a similar type
- Rating social events by the amount of alcohol dispensed
- Eating only at restaurants that serve alcoholic beverages (and wanting to know whether they do in advance)
- Withdrawing from family, friends, and neighbors
- Withdrawing from normal and life-long social practices
- Cigarette smoking
- Involvement in minor traffic accidents (police do not typically suspect older adults of alcohol abuse and may not subject them to Breathalyzer and other tests for sobriety)
- Sleeping during the day
- Bruises, burns, fractures, or other trauma, particularly if the individual does not remember how and when they were acquired
- Drinking before going to a social event to “get started”; gulping drinks, guarding the supply of alcoholic beverages, or insisting on mixing own drinks
- Changes in personal grooming and hygiene
- Expulsion from housing
- Empty liquor, wine, or beer bottles or cans in the garbage or concealed under the bed, in the closet, or in other locations

Source: US Department of Health and Human Services, 1998

DIMENSION 5: PATIENT-RELATED FACTORS

Brief intervention techniques have been used to reduce alcohol use in older adults. Research has shown that 10% to 30% of nondependent problem drinkers reduce their drinking to moderate levels following a brief intervention by a physician or other clinician (US Department of Health and Human Services, 1998). A brief intervention is one or more counseling sessions, which may include motivation-for-change strategies; education, assessment, and direct feedback; contracting and goal setting; behavioral modification techniques; and the use of written materials such as self-help manuals. All of these activities can be conducted by trained clinicians, home health care workers, psychologists, social workers, and professional counselors.

If the older problem drinker does not respond to the brief intervention, two other approaches—intervention and motivational counseling—should be considered. In an intervention, which occurs under the guidance of a skilled counselor, several significant people in a substance abuser’s life confront the individual with their firsthand experiences of his or her drinking or drug use (US Department of Health and Human Services, 1998). Motivational counseling acknowledges differences in readiness to change and offers an approach for “meeting people where they are” that has proven effective with older adults (see [Motivational Interviewing](#) in the Facilitating Behavior Change section).

Because so many problems with prescription drug abuse stem from unintentional misuse, approaches for responding differ in some important respects from treatment for alcohol abuse and dependence. Issues that need to be addressed as part of treatment include educating and assisting older adults who misuse prescribed medications to comply consistently with dosing instructions, providing informal or brief counseling for persons who are abusing a prescribed substance with deleterious consequences, and engaging drug-dependent older adults in the formal treatment system at the appropriate level of care. In addition, it is important to understand how practitioners’ prescribing behavior contributes to the problem so it can be addressed both with clients and uninformed health care practitioners in the community.

For some older adults, especially those who are late-onset drinkers or prescription drug abusers with strong social supports and no mental health comorbidities, the above approaches may prove quite effective, and brief follow-up interventions and empathic support for positive change may be sufficient for continued recovery. There is, however, a subpopulation of older adults who will need more intensive treatment. Despite the resistance that some older problem drinkers or drug abusers exert, treatment is worth pursuing. Studies show that older adults are more compliant with treatment and have treatment outcomes as good as or better than those of younger persons (US Department of Health and Human Services, 1998).

Facilitating Behavior Change

This section contains the following subjects:

- **Readiness to Change**
- **Motivational Interviewing**

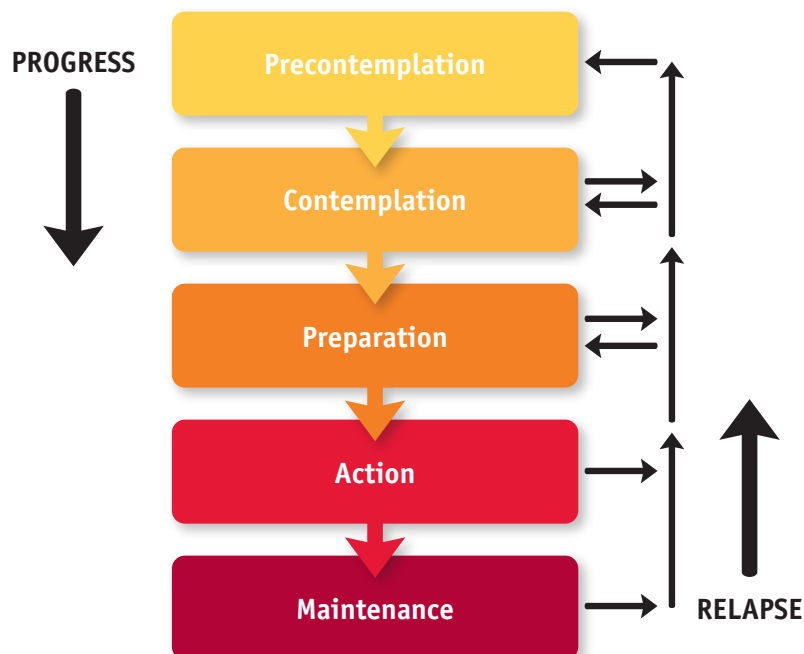
ASSESSING AND INCREASING MOTIVATION

Adherence and nonadherence are behaviors, and adherence to medication regimens requires behavior change. Motivation is a key factor in successful behavior change and has been shown to promote adherence to chronic therapies (World Health Organization, 2003). This appendix presents techniques that will be useful in assessing motivation and helping older adults increase their intrinsic motivation to adhere to medication regimens and other chronic therapies. Two models are introduced: **Readiness to Change** and **Motivational Interviewing**. These techniques and the concepts behind them are discussed primarily in the context of medication adherence, but they can also be applied to such lifestyle modifications as diet and exercise.

READINESS TO CHANGE

Behavior change is rarely a discrete, single event. During the past decade, behavior change has come to be understood as a process of identifiable stages through which people pass (Zimmerman et al., 2000). The Stages of Change model describes five stages of readiness (Figure 5)—precontemplation, contemplation, preparation, action, and maintenance—and provides a framework for understanding behavior change (DiClemente and Prochaska, 1998).

FIGURE 5. THE STAGES OF CHANGE CONTINUUM



Source: Adapted from DiClemente and Prochaska, 1998

For most people behavior change occurs gradually over time, with the person progressing from being uninterested, unaware, or unwilling to make a change (*precontemplation*), to considering a change (*contemplation*), to deciding and preparing to make a change (*preparation*). This is followed by definitive action, and attempts to maintain the new behavior over time (*maintenance*). People can progress in both directions in the stages of change. Most people will “recycle” through the stages of change several times before the change becomes fully established (Zimmerman et al., 2000).

The Stages of Change model is useful for identifying appropriate interventions to foster positive behavior change (Table 6); by identifying where a person is in the change process, interventions can be tailored to the person’s “readiness” to change (Zimmerman et al., 2000). Anything that moves a person along the continuum towards making a positive change should be viewed as a success. Once the person reaches the contemplation stage, additional strategies can be employed to help the person move along the stages of change.

It is important to evaluate a person’s readiness to change for any proposed intervention (Zimmerman et al., 2000). Interventions that are not staged to the readiness of the individual will be less likely to succeed. Also, interventions that try to move a person too quickly through the stages of change are more likely to create resistance that will impede behavior change.

For example, if trying to get a person to quit smoking, it is essential to know where the person is in his or her readiness to stop. A person who is not even thinking about quitting smoking (precontemplation) is generally not ready to receive information about specific smoking cessation aids. In this case, focusing the intervention on smoking cessation aids sends the message that the health care provider is not really listening. This may not only damage rapport but can also make the person even more resistant to quitting smoking. A more stage-specific intervention with this person would be to try to get the person to think about quitting (contemplation). Once the person reaches the contemplation stages, additional strategies can be employed to continue to move the person through the stages of behavioral change.

Anything that moves a person along the continuum toward making a positive change should be viewed as a success. Employing stage-specific interventions will decrease provider frustration by lessening the unrealistic expectation that change will occur with a single intervention.

TABLE 6. STAGES-OF-CHANGE CHARACTERISTICS AND STRATEGIES

STAGE	CHARACTERISTICS	STRATEGIES
Precontemplation	The person is not even considering changing. They may be “in denial” about their health problem, or not consider it serious. They may have tried unsuccessfully to change so many times that they have given up.	Educate on risks versus benefits and positive outcomes related to change
Contemplation	The person is ambivalent about changing. During this stage, the person weighs benefits versus costs or barriers (e.g., time, expense, bother, fear).	Identify barriers and misconceptions Address concerns Identify support systems
Preparation	The person is prepared to experiment with small changes.	Develop realistic goals and timeline for change Provide positive reinforcement
Action	The person takes definitive action to change behavior.	Provide positive reinforcement
Maintenance and Relapse Prevention	The person strives to maintain the new behavior over the long term.	Provide encouragement and support

Source: Zimmerman et al., 2000; Tabor and Lopez, 2004

A question that can be put to individuals to help evaluate their readiness to change can be as simple as: “Are you willing to take a medication to treat your condition?” Readiness to change can also be evaluated using a more quantitative scale: “How ready are you on a scale from 1 to 10 to initiate this therapy (medication, diet, exercises) to treat your condition?”

Two major factors that have been found to affect a person’s readiness to change are “importance” and “self efficacy”. Importance is determined by what value a person places on making the change. Self efficacy is a person’s belief or confidence in their ability to succeed at making the change. Depending on the health scenario, people may exhibit different levels of importance and self efficacy (Rollnick et al., 1999). A person who is overweight may be convinced of the importance of losing weight but have a low level of confidence based on previous failure to lose weight or keep weight off. A person who is newly diagnosed with hypertension may be confident that they can take a pill to lower blood pressure but are not convinced of the importance of this action. A deficiency in either importance or self efficacy can lead to a person’s unwillingness to commit to change.

The Readiness-to-Change Ruler is used to assess a person’s willingness or readiness to change, determine where they are on the continuum between “not prepared to change” and “already changing”, and promote identification and discussion of perceived barriers to change (See [Readiness-to-Change](#) in

the Assessment Tools section). The Readiness-to-Change Ruler can be used as a quick assessment of a person's present motivational state relative to changing a specific behavior, and can serve as the basis for motivation-based interventions to elicit behavior change, such as motivational interviewing.

MOTIVATIONAL INTERVIEWING

Motivational interviewing is an approach, first reported in the addiction literature, to improve adherence (Miller & Rollnick, 2002); it is both an assessment strategy and an intervention. Motivational interviewing is used to determine a person's readiness to engage in a target behavior—such as taking a medication as prescribed—and then applying specific skills and strategies based on the person's level of readiness to create a favorable climate for change.

Motivational interviewing is a person-centered, directive method of communicating with the goal of enhancing a person's intrinsic motivation to change by exploring and resolving ambivalence and resistance (Miller & Rollnick, 2002). Motivational interviewing techniques try to avoid simply telling a person what they need to do. People can easily dismiss such suggestions or come up with a number of reasons why the suggested change is not possible.

The essence of motivational interviewing is in its collaborative nature, communicating in a partner-like relationship, where the interviewer seeks to create a positive interpersonal atmosphere. In motivational interviewing, responsibility for change is left to the person; the overall goal is to increase the person's intrinsic motivation, so that change arises from within rather than being imposed.

It must be recognized that it is the person, not the health care provider, who will ultimately need to make changes that will affect their health. Thus, change must be negotiated, not dictated. Consistent with the collaborative model, the health care provider functions not to motivate the person, but to draw out intrinsic motivation based on the person's own personal goals and values.

MOTIVATIONAL INTERVIEWING PRINCIPLES

Motivational interviewing uses a number of person-centered techniques to create a favorable climate for change. There are five general principles that underlie motivational interviewing (Miller & Rollnick, 2002). The key principles are arranged to form the acronym READS, to help providers remember these key concepts (Table 7). These principles are not necessarily applied in this particular order, and all of these techniques should be used throughout the interaction.

TABLE 7. READS Principles of Motivational Interviewing

1. **Roll with resistance**
2. **Express empathy**
3. **Avoid argumentation**
4. **Develop discrepancy**
5. **Support self-efficacy**

Source: Miller & Rollnick, 2002

Roll with Resistance

Resistance can take several forms, such as negating, blaming, excusing, minimizing, arguing, challenging, interrupting, and ignoring. In motivational interviewing one does not directly oppose resistance but, rather, rolls or flows with it. Direct confrontation will create additional barriers that will make change more difficult. A person's resistance during motivational interviewing is expected and should not be viewed as a negative outcome. In fact, a person who resists is providing information about factors that foster or reduce motivation to adhere to behavioral change. Rolling with resistance, then, includes involving the person actively in the process of problem solving.

Resistant behavior may be a signal that the person does not believe or accept information that has been presented. The health care provider should provide information and alternatives, and explore possible solutions. Exploring the reasons behind the resistant behavior can lead the person to seriously consider possibilities for change.

Express Empathy

Because motivational interviewing relies to a great extent on establishing and maintaining rapport with the person, the ability to express empathy is critical to this process. This requires skillful, reflective listening to understand a person's feelings and perspectives without judging, criticizing, or blaming. An attitude of acceptance and respect contributes to the development of an effective, helping relationship and enhances the person's self-esteem. Empathic responses demonstrate that the health care provider understands the person's point of view and provides an important basis for engaging the person in a process of change.

Avoid Argumentation

Resistance to change is strongly affected by the health care provider's response; therefore, arguments should be avoided. Direct confrontations usually result in defensive reactions and increased resistance to change. Resistance is an indication that the health care provider should change strategies rather than argue. The emphasis should focus on helping the person with self-recognition of problem areas rather than coerced admission.

Develop Discrepancy

The principle of developing discrepancy is based on the understanding that motivation for change is created when the person perceives a discrepancy between their present behavior and important personal goals (Miller & Rollnick, 2002). This often involves identifying and clarifying the person's own goals. The goals need to be those of the person and not those of the health care provider, otherwise the person will feel as though they are being coerced and may become more resistant to change. An important objective of motivational interviewing is to help a person recognize or amplify the discrepancy between their behavior and their personal goals.

There are a number of techniques that can be used to help develop discrepancy. One technique is to ask the person what is good or positive about a particular behavior and what is bad or not so good about that same behavior. Reflecting back and examining the positive and negative will help discrepancy emerge. When skillfully done, motivational interviewing changes the person's perceptions of discrepancy without creating a sense of being pressured or coerced.

Support Self-Efficacy

Self-efficacy is a person's belief or confidence in their ability to carry out a target behavior successfully. A general goal of motivational interviewing is to enhance the person's confidence in their ability to overcome barriers and succeed in change.

Health care providers can support self-efficacy by recognizing small positive steps that the person is taking to change their behavior. Even when the person is simply contemplating a change, there is an opportunity to provide recognition and support. Supportive statements can be as simple as "It's great to hear that you are interested in getting more information about your diabetes."

Setting reasonable and reachable goals that the person can actually accomplish will also help build confidence. It is important that the person be involved in setting the goal. For an overweight person that is physically inactive, even getting them to exercise five to 10 minutes twice a week is a move in the right direction. Seeing that they can accomplish this will give them additional motivation to continue to exercise.

Lastly, it is important that the health care provider believes that the person can achieve the goal. This belief in the person can have a powerful positive effect on the outcome.

Elicit, Provide, Elicit

The person, not the health care provider, is the primary source of solutions for dealing with their medical problems. In order for the person to take responsibility for their own health, they need to become an active participant in sessions with their health care providers.

Motivational interviewing uses the general concept of *elicit, provide, elicit*, which is a continuous process. Information is *elicited* from the person so the health care provider can better understand

their attitudes, beliefs, values, and readiness to change. The health care provider can check for understanding of what the person is saying by using reflective listening skills and asking for additional clarification when required; this will help establish a collaborative relationship and build empathy. Information elicited can also be used to help develop discrepancy.

After eliciting information, the health care provider can then *provide* information to address any knowledge gaps identified. It may be appropriate at times to ask permission from the person to provide them with additional information. This may increase acceptance of the information, as the person will not feel that information is simply being imposed on them.

Lastly, whenever the person is presented with new information, the health care provider should *elicit* information on the person's understanding of the new information and their feelings about it. This can identify concerns or questions that the person may have regarding the information presented.

FOR MORE INFORMATION

Training is required to develop the skills for successful motivational interviewing. The reader is referred to the following sources for additional information.

- Miller RH, Rollnick S. *Motivational interviewing: preparing people for change*, 2nd ed. New York, NY: Guilford Press, 2002.
This is the classic text that reviews the background and theory of motivational interviewing.
- Rollnick S, Mason P, Butler C. *Health behavior change: a guide for practitioners*. Edinburgh, Scotland: Churchill Livingstone, 1999.
This practical text is aimed at helping health care professionals assess readiness to change, provides suggestions for incorporating motivational interviewing in clinical practice, and presents examples for handling challenging situations that are likely to confront health care providers.
- Bodenheimer T, MacGregor K, Sharifi C. *Helping patients manage their chronic conditions*. California Healthcare Foundation. June 2005. Available at www.chcf.org/topics/chronicdisease/index.cfm?itemID=111768. Accessed 4/25/06.
This publication provides a good introduction to health behavior change techniques. The California Healthcare Foundation developed a brochure, "Helping Patients Manage Chronic Conditions", which can be download from its web site (www.chcf.org) free of charge.

The following two articles discuss the application of motivational interviewing and health behavior change to medication management:

- Possidente CJ, Bucci KK, McClain WJ. Motivational interviewing: a tool to improve medication adherence. *Am J Health-Syst Pharm* 2005;62:1311-4.
- Scales R, Miller J, Burden R. Why wrestle when you can dance? Optimizing outcomes with motivational interviewing. *J Am Pharm Assoc* 2003;43(Supp 1):S46-S47.

Assessment Tools

- **Rapid Estimate of Adult Literacy in Medicine, Revised (REALM-R)**
- **Medication Knowledge Assessment**
- **Readiness-to-Change Ruler**
- **Duke-UNC Functional Social Support Questionnaire (FSSQ)**
- **Medication Nonadherence Risk Assessment**

RAPID ESTIMATE OF ADULT LITERACY IN MEDICINE, REVISED (REALM-R)

The REALM-R is a word recognition test consisting of 11 items used to identify people at risk for poor literacy skills (Bass et al, 2003). Words that appear in this test are:

Fat	Osteoporosis	Anemia	Colitis
Flu	Allergic	Fatigue	Constipation
Pill	Jaundice	Directed	

Fat, Flu, and Pill are not scored and are positioned at the beginning of the REALM-R to decrease test anxiety and enhance confidence.

SPECIAL CONSIDERATIONS WHEN USING THE REALM-R

1. Examiner Sensitivity

Many adults with low literacy skills will attempt to hide their deficiency. Ensure that you approach each person with respect and compassion. You may need to provide encouragement and reassurance. Many people with low literacy feel ashamed. Be sensitive.

2. Visual Acuity

If the person wears glasses, ask them to wear the glasses for the test. The word list should be set in 18-point font.

3. Pronunciation

Dictionary pronunciation is the scoring standard.

4. Dialect, Accent, or Articulation Problems

Count a word as correct if it is pronounced correctly and no additions or deletions have been made to the beginning or ending of the word. For example, a person who says “jaundiced” would not receive credit for the word “jaundice”; “directs” would not receive credit for the word “directed”. Words pronounced with a dialect or accent should be counted as correct, provided there are no additions or deletions to the word. Particular attention should be paid to persons who use English as a second language.

5. Limitations of the REALM-R

The REALM-R can only be used for persons who read English; it has not been validated in other languages.

ADMINISTRATION

1. Print the list in 18-point font or greater.
2. Introduce the REALM-R to the person. The words “read” and “test” should be avoided when introducing and administering the REALM-R. The following statement can be used to introduce the REALM-R:

“Sometimes in the health care system, medical words are used that many people are not familiar with. I would like to get an idea of what medical words you are familiar with.”
3. Give the person the list of the REALM-R words. Point to the first word and ask the person read the 11 words out loud. Be sensitive to dialect, accent, and articulation problems.
4. If the person takes more than five seconds on a word, they should be encouraged to move on to the next word (e.g., say “Let’s try the next word.”) If the person begins to miss every word or appears to be struggling or frustrated, tell them, “Just look down the list and say the words you know.”

SCORING

Use the REALM-R Examiner Record to record the outcome of the test. The words Fat Flu and Pill are not scored. Count as an error any word that is not attempted or is mispronounced. Place a check mark (“√”) next to each word the person pronounces correctly, and an “X” next to each work the person does not attempt or mispronounces. Those with a score of 6 or less should be considered to be at risk for poor health literacy.

REALM-R WORD LIST

Fat

Flu

Pill

Allergic

Jaundice

Anemia

Fatigue

Directed

Colitis

Constipation

Osteoporosis

REALM-R EXAMINER RECORD

Fat

Flu

Pill

Allergic

Jaundice

Anemia

Fatigue

Directed

Colitis

Constipation

Osteoporosis

Fat, Flu, and Pill are not scored.

MEDICATION KNOWLEDGE ASSESSMENT

The Medication Knowledge Assessment is used to assess a person's knowledge and ability to read and comprehend information necessary for appropriate medication use. Information from the Medication Knowledge Assessment can serve as the basis for a focused knowledge improvement plan.

On the day the Medication Knowledge Assessment is to be conducted, the person should be asked to have all their medication containers available.

ADMINISTRATION

Using the Medication Knowledge Assessment Form, write the name of each medication name in the left column, then ask the person the following questions about each of their medications.

1. Name of the medication. (Can the person read the label?)
2. Why are you taking the medication? (For what disease or condition?)
3. How much are you taking? (Number of pills)
4. When to take the medication? (E.g., morning, before meals, twice a day)
5. Effects to look for. (Both positive and negative)
6. Where do you keep the medication? (To ascertain special storage conditions)
7. When is the next refill due? (And plan or method for obtaining refills.)

Place a check mark next to each question that the person can correctly answer.

Use the results from the assessment to identify knowledge gaps and develop a knowledge improvement plan.

MEDICINE KNOWLEDGE ASSESSMENT FORM

Name: _____

Date: _____

Medication	What is the name of medication?	Why are you taking the medication?	How much do you take each time?	When do you take the medication?	What effects do you look out for?		Where do you keep the medication?	When is the next refill due?
					P	N		

P = Positive effects from the medication
 N = Negative effects from the medication

READINESS-TO-CHANGE RULER

The Readiness-to-Change Ruler is used to assess a person's willingness or readiness to change, determine where they are on the continuum between "not prepared to change" and "already changing", and promote identification and discussion of perceived barriers to change. The ruler represents a continuum from "not prepared to change" on the left, to "already changing" on the right.

The Readiness-to-Change Ruler can be used as a quick assessment of a person's present motivational state relative to changing a specific behavior, and can serve as the basis for motivation-based interventions to elicit behavior change. Readiness to change should be assessed regarding a very specific activity such as taking medications, following a diet, or exercising, since persons may differ in their stages of readiness to change for different behaviors.

ADMINISTRATION

1. Indicate the specific behavior to be assessed on the Readiness-to-Change Ruler form. Ask the person to mark on a linear scale from 0 to 10 their current position in the change process. A 0 on the left side of the scale indicates "not prepared for change" and a 10 on the right side of the scale indicates "already changing".
2. Question the person about why he or she did not place the mark further to the left, which elicits motivational statements.
3. Question the person about why he or she did not place mark further to the right, which elicits perceived barriers.
4. Ask the person for suggestions about ways to overcome identified barriers and actions that might be taken.

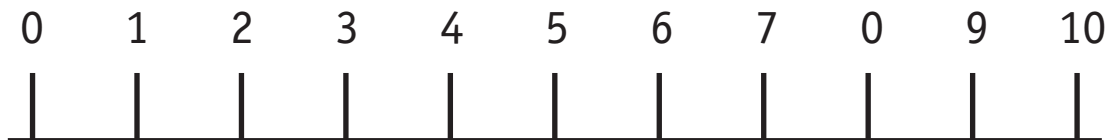
SCORING

A score above 5 shows that the person is willing to consider change and should be supported and encouraged.

READINESS RULER

Below, mark where you are now on this line that measures your change in _____.

Are you not prepared to change, already changing or somewhere in the middle?



Not prepared
to change

Already
changing

FOLLOW-UP QUESTION SUGGESTIONS

If the person's mark is on the left of center:

- How will you know when it is time to think about changing?
- What signals will tell you to think about making a change?
- What qualities in yourself are important to you?
- What connection is there between those qualities and not considering a change?

If the person's mark is near the center:

- Why did you put your mark there and not closer to the left?
- What might make you put your mark a little further to the right?
- What are the good things about the way you are currently trying to change?
- What are the things that are not so good?
- What would be a good result of changing?
- What are the barriers to changing?

If the person's mark is on the right of center:

- What is one barrier to change?
- What are some things that could help you overcome this barrier?
- Pick one of those things that could help and decide to do it by _____ (specific date).

If the person has taken a serious step in making a change:

- What made you decide on that particular step?
- What has worked in taking this step?
- What helped it work?
- What could help it work even better?
- What else would help?
- Can you break that helpful step down into smaller parts?
- Pick one of those parts and decide to do it by _____ (specific date).

If the person is changing and trying to maintain that change:

- Congratulations! What's helping you?
- What else would help?
- What makes it hard to maintain the change?

If the person has "relapsed":

- Don't be hard on yourself. Change is hard and may take time.
- What worked for a while?
- What did you learn that will help when you give it another try?

Source: Zimmerman et al., 2000.

DUKE–UNC FUNCTIONAL SOCIAL SUPPORT QUESTIONNAIRE (FSSQ)

Social support in general, and the availability of help from family or friends, is positively associated with medication adherence. An assessment of a person's perception of, and need for, a social support network can be as important as the person's readiness to change when determining his or her level of motivation. The Duke-UNC Functional Social Support Questionnaire (FSSQ) is an eight-item instrument to measure the strength of the person's social support network (Broadhead et al., 1988).

ADMINISTRATION

Ask the person to read each statement on the FSSQ and check the box that most closely matches his or her feelings about the question. There are five potential answers to each questions ranging from "As much as I would like" to "Much less than I would like."

All questions must be answered to complete the scoring process.

SCORING

Responses to each question are scored on a 1 to 5 scale. "As much as I would like" receives a score of 5 and "Much less than I would like" receives a score of 1. The scores from all eight questions are summed (maximum 40) and then divided by 8 to get an average score. The higher the average score, the greater the perceived social support.

LIMITATIONS

The older person may score well on this questionnaire but have a single issue that will need to be resolved before he or she is ready to take steps to become adherent to their medication regimen. Also, this questionnaire will only help identify social support issues with the older adult; it will not resolve them. Some social support issues identified by the older adult may be very difficult to resolve.

Duke–UNC Functional Social Support Questionnaire (FSSQ)

Here is a list of some things that other people do for us or give us that may be helpful or supportive. Please read each statement carefully and place an 'X' in the column that is closest to your situation. Give only 1 answer per row.

	5	4	3	2	1
	As much as I would like	Almost as much as I would like	Some, but would like more	Less than I would like	Much less than I would like
1. I have people who care what happens to me.					
2. I get love and affection.					
3. I get chances to talk to someone about problems at work or with my housework.					
4. I get chances to talk to someone I trust about my personal or family problems.					
5. I get chances to talk about money matters.					
6. I get invitations to go out and do things with other people.					
7. I get useful advice about important things in life.					
8. I get help when I am sick in bed.					

MEDICATION NONADHERENCE RISK ASSESSMENT

Instructions: Have patient or caregiver gather all current medications (prescribed, OTC, herbal; remind about eye drops, liquids, inhalers, creams & ointments). This assessment needs to be done with the patient if the patient self administers or partially administers medications. This assessment should be done with the caregiver who administers the medications if the patient does not self-administer.

STEP 1 Determine what the patient (supplement caregiver when appropriate) knows about their medication regimen. *Sit down with the patient with all medications within reach. The clinician opens the first bottle and pours out two or three pills into the lid of the bottle and shows this to the patient and asks “What is the name of this medication?” Do not allow the patient to see the label on the bottle yet. Then ask “What do you take this medicine for?” Follow these questions with “How much and how often do you take this medicine?” Ask the patient to identify the color of the tablet or capsule being shown. Record reported information on Medication Nonadherence Risk Assessment Form.*

STEP 2 Label Reading *After returning the pills to the bottle, hand the bottle of medicine to the patient. If the patient was not able to tell you the name of the medicine just by seeing the pill; ask the patient to read the label and tell you the name of the medicine. Then ask the patient to tell you how many refills they have left. This step will provide some insight into the patient's ability to read labels and identify specific components of the label.*

STEP 3 Perceived Efficacy & Safety *While the patient is still holding the prescription bottle, say the name of the drug again and mention the reason for use that was self-reported. If the reason stated does not make sense, mention to the patient the typical reasons that this type of medicine is prescribed. Example 1: “Now Mrs. Smith you have in your hand your Accupril. You said that your doctor gave this to you for your blood pressure and your heart. In your opinion how well do you believe this medicine is working for you?” Wait for the answer and then ask, “Have you had any side-effects or problems taking this medicine?” Record the patient's answers on the assessment form. Example 2: “Now Mr. Jones you have in your hand your Accupril. You said that your doctor gave this to you for your prostate. Accupril is usually used to lower blood pressure, help the heart, or protect the kidneys particularly in patients with diabetes.” Pause for the patient's reply. Usually this type of information will jog their memory or they may say something like “Well I do have high blood pressure, maybe I got my information mixed up.” You can also help relieve anxiety by stating that you will double-check with the patient's doctor about their medicines and what the doctor is using them for, and you will share this information with the patient later. Finally, for each medication you should ask if the patient thinks that this medication is necessary and record their answer on the assessment form.*

STEP 4 Demonstrations

- Have the patient demonstrate the ability to open various packaging that their medications are currently in. Example: pill bottle, eye drop bottle, unit dose packaging, pillboxes (some have very tight seals and small grasps).
- Have the patient demonstrate the ability to self-medicate appropriately. For example say “I want you to pretend it is morning and it is time to take your medicine. Show me what and how much medicine you would take.” Have the patient do everything they would do to prepare to take their medicine without actually taking it. If there are special instructions, such as take on an empty stomach or take with food, or multiple inhalers, or eye drops, ask the patient to tell you exactly how they would take everything. For pill box patients, have them demonstrate the proper use of the pill-box.

Patient Specific Demonstrations

- If the patient uses an inhaler, nebulizer, eyedrop or other non-oral medication, have the patient demonstrate technique or at a minimum describe technique.

STEP 5 Administer other screening tools

1. Medication Nonadherence Screening Tool—provides insight into factors that may contribute to nonadherence. You may administer this tool prior to full assessment.
2. REALM-R—provides idea of health literacy level.
3. Cognitive screening tool, for example MMSE, to identify problems with memory.

MEDICATION NONADHERENCE ASSESSMENT FORM

Patient Name: _____ Date: _____

Medication Name & Strength*	Directions**	Reason for Use	Duration	Perceived Efficacy 1 very helpful 2 helpful 3 not sure 4 don't think it's helping	Perceived Problems	Do You Think This Medicine Is Necessary?

*If the patient could not recall the name of medicine without seeing the label place "x" in interior box.
 **List how the patient is actually taking the medication, if this differs from the label make notes below in the comment section.

COMMENTS:

MEDICATION NONADHERENCE ASSESSMENT FORM

<p>DEMONSTRATIONS: <u>Ability to Read Label</u> If no, what were the issues.</p> <p><u>Ability to open bottles/packages,etc.</u> If no, what were the issues.</p> <p><u>Ability to Simulate Dosing Interval Safely</u> If no, what were the issues.</p>	<p>YES</p> <p>YES</p> <p>YES</p>	<p>NO</p> <p>NO</p> <p>NO</p>	<p>SCREENING RESULTS: Cognitive Test: _____</p> <p>REALM-R: _____</p> <hr/> <p>Nonadherence Screening (Problem Areas Detected)</p>
<p>PATIENT SPECIFIC DEMONSTRATIONS: WHEN APPLICABLE</p> <p><u>Uses inhalers correctly</u> If no, what were the issues.</p> <p><u>Uses nebulizer correctly.</u> If no, what were the issues.</p> <p><u>Uses eyedrops correctly.</u> If no, what were the issues.</p> <p><u>Uses topical agents correctly.</u> If no, what were the issues.</p>	<p>YES</p> <p>YES</p> <p>YES</p> <p>YES</p>	<p>NO</p> <p>NO</p> <p>NO</p> <p>NO</p>	

Consumer Information

- **Adherence Self Assessment**
- **Questions You Should Ask About Your Medicines**
- **Importance of Medications**
- **Medication Record Form**

ADHERENCE SELF ASSESSMENT

Do you know the names of all of your medicines?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Do you know what each of your medicines is for?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Do you know how to take all your medicines?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Do you think you need all the medicines you are taking?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
<i>If you answered "No" to any of the questions above, you might not be getting the most benefit from your medicines.</i>		

Do you ever forget to take your medicine?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
When you feel better do you sometimes stop taking your medicine?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
If you think your medicine is making you feel worse, do you sometimes stop taking it?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
<i>If you answered "Yes" to any of the questions above, you might not be getting the most benefit from your medicines.</i>		

QUESTIONS YOU SHOULD ASK YOUR DOCTOR ABOUT YOUR MEDICINES

For a new medication:

- What is this new medicine for?
- Are there any non-drug options that I could consider?
- What are we hoping this new medicine will do for me?
- When should I expect the medicine to begin working?
- When can I expect the full effect of this medicine to occur?
- How long will I have to take this medicine?
- How often will I need to come back to check the effects of this medicine?
- Will I need any tests to see if the medicine is working? If so, what tests and how often?
- What happens if I have side effects from the medicine?
- What happens if the medicine does not seem to work or does not work well enough?

For existing medications:

- Do I still need to take this medicine?
- Specifically, why do I need to take this medicine?
- Are there any tests to check if the medicine is working? If so, what tests?
What are my results?
- Are my results where they should be? Or could the results be better?
If results could be better, what changes if any do you plan to make to my medications?
What can I do to make results better?
- If you have symptoms or side effects, ask if these could be due to your medicine.
- Tell your doctor if you do not think your medicine is helping.

Always

- Carry an up-to-date list of your medicines, including prescription, over-the-counter (non-prescription), and herbal remedies. The list should include the strength and directions.
- Include any allergies you have to medications on this list.
- Show this list to any health care provider that you see, including doctors, nurse practitioners, pharmacists, home health nurses.
- Tell your doctor about other health professionals that you are seeing.
- Tell your doctor if you are not taking a medicine the way it was prescribed, if you have stopped taking the medicine, or if you are taking more or less of the medicine than the doctor originally prescribed.

QUESTIONS YOU SHOULD ASK YOUR PHARMACIST ABOUT YOUR MEDICINES

For a new medication:

- What is the name of the medicine and what is it supposed to do?
- How much of this medicine should I take?
- When is the best time of day to take this medicine?
- Should I take this medicine with or without food? Are there foods or drinks that I should avoid while I am taking this medicine?
- What side effects can I expect from this medicine?
- Will this medicine interfere with any of my other medicines?
- Will this medicine make any of my conditions worse?
- What things should my doctor and I do to make sure this medicine is working properly?
- How should I store this medicine?
- What should I do if I miss a dose?
- Will I need to get this medicine refilled? Are there refills on the prescription?
- Are there any over-the-counter (non-prescription) medicines I should avoid while taking this medicine?
- Ask about any concerns you have regarding taking this medicine.

For existing medications:

- Tell your pharmacist if you are having any problems or side effects with your current medicines.
- Before taking an over-the-counter (non-prescription) medication or herbal therapy, ask your pharmacist about any possible drug interactions or side effects
- Tell your pharmacist if you do not believe the medicine is helping.

TAKE PART IN DECISIONS ABOUT YOUR TREATMENT

Take part in your treatment decisions. Don't be afraid to ask questions and talk about your concerns. You may want to write down questions to ask at your next visit to the doctor. By taking time to ask questions now, you may avoid problems later. Don't be afraid to "bother" your doctor with your concerns and questions. Bring a friend or family member with you when you visit your doctor. Talking over your options with someone you trust can help you make better choices, especially if you are not feeling well. You can also talk to your pharmacist about the medications you are taking.

Here are some points to cover each time a new medication is prescribed.

- **Ask about the risks and benefits of each medicine.**
- **Ask how often you or your doctor will have to check your medicine's effects.** For example, checking your blood pressure if you are taking a medicine to lower it, or having a laboratory test done to make sure the levels of medicine in your blood are not too high or too low.
- **Tell your doctor about all the medicines you are already taking.** This includes prescription medicines and medicines you buy without a prescription, such as aspirin, laxatives, vitamins, and herbal remedies. Then your doctor can avoid giving you a new medicine that may not work well with one you already take. It is helpful and useful to keep a written list of all the medications you are currently taking—prescription and non-prescription—including the dose and instructions for use.
- **Tell your doctor what is important to you about your medicines.** You may want a medicine with fewer side effects, or fewest doses to take each day. If you have trouble swallowing, you may want a liquid form of medicine. To lower cost, there may be a generic drug or another lower-cost medicine you can take.
- **Tell your doctor if you have any allergies to medications or if you have had any troubling side effects from medicines.**
- **Tell your doctor if you have any illnesses or problems for which another doctor or health professional is treating you.**

FOLLOW YOUR TREATMENT PLAN

To follow the treatment plan you and your doctor agree on, ask questions, and tell your doctor your needs and concerns. Here are some points to cover.

- **The name of the medicine and what it is supposed to do.**
- **How and when to take the medicine, how much to take, and for how long.** Ask about any terms or directions you do not understand.
- **What food, drinks, other medicines, or activities you should avoid while taking the medicine.**
- **What side effects the medicine may have, and what to do if they occur.**
- **Whether you can get a refill, and if so, how often.**
- **What to do if you miss a dose.**
- **Ask if there is written information you can take home.** Most pharmacies have information sheets on your prescription medicines.
- **Tell your doctor of any concerns you have about using the medicine.**
- **Tell your doctor if you are not taking your medicine as directed.** For example, some people may stop taking their medicine, take a lower dose, or skip doses if they are having side effects. Your doctor needs to know about any changes in your treatment plan. Do not let guilty feelings or embarrassment keep you from telling your doctor this important information.

Adhering to the medication regimen prescribed by your physician is important for your medications to work properly. Taking your medication in the dose and at the times prescribed can be very important to the action of the medication. If you have any questions or problems with taking the medicine exactly as it was prescribed by your doctor, contact your physician or pharmacist.

WATCH FOR PROBLEMS AND GET HELP SOLVING THEM

Talk to your doctor and pharmacist about problems you may be having with your medicines. Most problems can be avoided or solved if you know what to watch out for and if you talk with your doctor about what is happening.

- **Ask about results of medical tests that show how the medicine is working.**
- **Ask if the medicine is still needed.**
- **Tell about any problems you are having taking your medicine,** including side effects or any new problems that may be related to the medicine. If you experience any effects, such as dizziness, drowsiness, confusion, rashes, or other unexplained symptoms, contact your physician or pharmacist immediately.
- **Tell about any new medicines that another doctor gave you, and any new over-the-counter (non-prescription) medicines that you are taking.**

HOW YOUR PHARMACIST CAN HELP

When you pick up your medicines, always talk to the pharmacist and ask any questions you may have about your medications. Here are some points to cover.

- **The name of the medicine and what it is supposed to do.**
- **How and when to take the medicine, how much to take, and for how long.** Ask about any terms or directions you do not understand.
- **Any special techniques or devices for administering the medication** (e.g., liquids that you need to “shake well” before pouring the dose, or special instructions for the use of inhalers, suppositories, eye drops, or patches).
- **What food, drinks, other medicines, or activities you should avoid while taking the medicine.**
- **What side effects the medicine may cause, and what to do if they occur.**
- **Whether you can get a refill, and if so, how often.**
- **What to do if you miss a dose.**
- **How should the medicine be stored.** Do any of the medicines require refrigeration?
- **Ask if there is written information you can take home.** Most pharmacies have information sheets about your prescription medicines.

Try to use one pharmacy for all your medicine needs. Make sure the pharmacy keeps a complete “profile” of all your medications. Give a complete list of all medications to your pharmacist, including anything that you use that is available without a prescription. Make sure you include things such as vitamin supplements and home remedies, as these may interact with prescriptions you may also be taking. This will help your pharmacist keep track of your medicines, identify any duplicate therapy or potential interactions between the medications you take, and help you solve any problems you may have with your medicines.

STORING YOUR MEDICATIONS

Store all of your medications in a designated location in your residence. Keep all medications stored together in one place unless they require refrigeration or are labeled “store in a cool place.” This will help if an emergency situation occurs and your doctor needs to review all of your medications. Be sure that your medications are stored out of reach of any children that may visit, especially if you have non-child proof containers.

Do not mix different medications together in one container; this will make it difficult if not impossible to identify your medications in an emergency.

Medicines should be stored in a cool, dry area. Do not store your medications in the medicine cabinet in the bathroom or in the kitchen because the heat and moisture may cause deterioration. Instead, store your medications in a designated area in your living room or bedroom.

Medications stored in the refrigerator should be separated from other items in the refrigerator. Consider keeping refrigerated medications in a plastic box or container in one area of the refrigerator.

Oral medications should be kept separate from other items that are for external use only (such as creams and ointment, or reagent tablets).

Expired medications (there are expiration dates on all of your medications) **and any medication that your doctor has discontinued should be discarded.**

Never share or give your medications to another person.

**Remember, medicines can only help you if you take them the right way.
The information provided here is intended to help you do so.**

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