

# Instructions on Completing the Modules

*\*The results of the assessments and evaluations are confidential,  
and the data is used to meet requirements of our federally funded grant.*

Please make sure to turn in Pre-Test, Post-Test, and Module Evaluation.

1. **Before** reading the module, and without looking at it, complete the Pre-Test.  
Use questions in Appendix **E** and record your answers on the examination form marked Pre-Test. (*Found at the start of the module*)  
Keep the completed answer form to turn in at the completion of the module.
2. Complete the module as outlined in the syllabus.
3. **After** reading the module, please complete the Post-Test.  
Use the questions in Appendix **E** and record your answers on the examination form marked Post-Test. (*Found at the end of the module*)  
Keep the completed answer form to turn in with the pre-test at the completion of the module.
4. Complete the Module Evaluation. (*Found after the post-test*)
5. **To obtain credit for the module you must:**
  - a. Turn in the Pre-Test, Post-Test, and Module Evaluation
  - b. Obtain a score of 70% or better on the Post-Test

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## Pre-test Continuing Education Questions

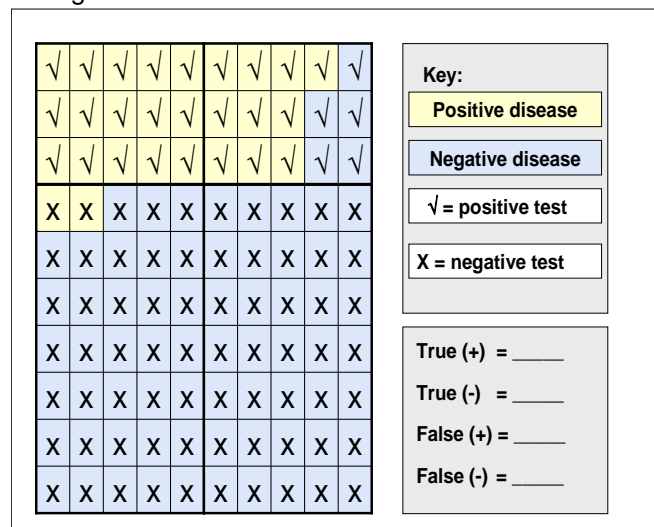
### *Overview of Geriatric Health Screening*

#### **(Record responses on examination form)**

- 1) Beginning in 2011, the first of the baby-boomer generation will be retiring. By 2050, what estimated proportion of the American population will be over the age of 65 years old?
  - a) 1 in 3
  - b) 1 in 4
  - c) 1 in 5
  - d) 1 in 6
  
- 2) Which of the following statements is true about health issues facing the geriatric population?
  - a) Chronic diseases account for approximately 50% of health care costs in America.
  - b) More people die each year in the U.S. from heart disease than any other disease.
  - c) Elderly patients typically have the same number of chronic health conditions as patients who are younger.
  - d) Cancer, diabetes and stroke are the most common chronic diseases afflicting patients over the age of 70.
  
- 3) Which of the following statements regarding obesity or being overweight is **NOT** true?
  - a) Obesity is more common in patients less than 60 years old, but continues to be an issue for elderly patients.
  - b) A patient who weighs 158 pounds and is 5'5" tall has a body mass index indicating they have a normal weight.
  - c) According to the National Health and Nutritional Examination Survey of 2002, approximately two-thirds of the nation is either overweight or obese.
  - d) Initiating lifestyle modifications (i.e., eating a healthier diet, not smoking, increased exercise) in the elderly population has been proven to be beneficial.
  
- 4) Tobacco smoking is the single most preventable risk factor for disease and death in America?
  - a) True
  - b) False
  
- 5) Which of the following facts is **NOT** true regarding issues facing Montana residents?
  - a) Montanans typically make more money per person than the average American.
  - b) It is predicted that by the year 2025, Montana will be 3<sup>rd</sup> highest state in the nation for the percentage of people over the age of 65 years old.
  - c) Montanans typically have to travel farther to reach health care.
  - d) Montanans account for less than 1% of the total American population.
  
- 6) Which of the following national initiatives was designed to coordinate the national resources found within the Department of Health and Human Services?
  - a) HealthierUS
  - b) Steps to a HealthierUS
  - c) Healthy People 2010
  - d) Agency for Healthcare Research and Quality
  
- 7) Where might you find recommendations by the U.S. Preventative Services Task Force on preventative services?
  - a) Healthy People 2010
  - b) *Put Prevention into Practice*

- c) Steps to a HealthierUS
  - d) Administration on Aging
- 8) Counseling a patient to make lifestyle modifications (i.e., not smoking, eating a healthy diet, and increasing exercise) would constitute which level of disease prevention?
- a) Primary prevention
  - b) Secondary prevention
  - c) Tertiary prevention
  - d) All of the above
- 9) Which of the following would does **NOT** represent a secondary level of disease prevention?
- a) An annual influenza injection
  - b) Lipid testing
  - c) Bone density screening
  - d) Prostate specific antigen testing
- 10) Of the age-related visual impairments, which of the following is the most common cause for legal blindness among the elderly?
- a) Cataracts
  - b) Diabetic retinopathy
  - c) Glaucoma
  - d) Macular degeneration
- 11) Which of the following statements would a patient with visual impairments most easily read?
- a) IT IS RECOMMENDED YOU TAKE AT LEAST 1200 MG OF CALCIUM PER DAY.
  - b) It is recommended you take at least 1200 mg of calcium per day.
  - c) It is recommended you take *at least* 1200 mg of calcium per day.
  - d) *It is recommended you take at least 1200 mg of calcium per day.*
- 12) Which of the following tips for communicating with patients who are hard of hearing is **NOT** recommended?
- a) Avoid chewing gum or eating while talking with patients
  - b) Try to find a location with low background noise
  - c) Physically place yourself with a strong light source to your back (i.e., sunlight) to enhance shadows on your face
  - d) Ensure you have the patient's attention prior to speaking, speak clearly, and maintain eye contact
- 13) It is a safe assumption that the educational level a person achieves in school is equivalent to his or her current reading level. (Example: High school graduate reads at a 12<sup>th</sup> grade level.)
- a) True
  - b) False
- 14) Which of the following tips for writing materials aimed at the geriatric population is **NOT** recommended?
- a) Put the most important information at the beginning and repeat the information at the end.
  - b) Placing text into paragraphs (i.e, book style) is easier to read than columns of information (i.e., newspaper style).
  - c) Visual aids include captions and are placed close to the related text.
  - d) Write the text as if you were having a conversation with the patient.
- 15) Which of the following statements regarding health literacy is true?
- a) A patient's health literacy is equivalent to their normal reading level.
  - b) Functional health illiteracy is more common in highly educated people.
  - c) People with marginal or inadequate health literacy are often ashamed of their inadequacy.
  - d) None of the above are true

- 16) Speaking to patients about their health can be challenging for health care professionals. Which of the following tips is recommended in speaking with patients?
- Use simple language and avoid medical jargon.
  - Use open-ended questions to open up lines of communication.
  - Ask the patient to rephrase what was discussed with them to assess their level of understanding.
  - All of the above are true
- 17) The accuracy of a screening device represents the ability of the test to repeatedly reproduce similar results.
- True
  - False
- 18) A new technology for a screening device is developed and was compared to the gold standard method. One hundred patients were screened and gave the following results (See Figure 1). Calculate the sensitivity and specificity of the screening device.
- Sensitivity = 95%; Specificity = 90%
  - Sensitivity = 92.5%; Specificity = 93%
  - Sensitivity = 90%; Specificity = 93%
  - Sensitivity = 90%; Specificity = 95%



**Figure 1: Hypothetical Screening Scenario**

- 19) Which of the following screening tests would not be a candidate for CLIA waived status?
- Home pregnancy test
  - Portable bone density test
  - Rapid Streptococcus Group A antigen test
  - MR (magnetic resonance) scan
- 20) Which of the following agencies would be the most useful resource for family members of aging adults in terms of providing care?
- Administration on Aging
  - National Center for Chronic Disease Prevention
  - National Institutes on Aging
  - Agency for Healthcare Research and Quality

Continuing Education Examination Form  
 Module: Overview of Geriatric Health Screening

PRE-TEST

**Participant Information**

1. Name: \_\_\_\_\_
2. Mailing address: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
3. Date exam completed \_\_\_\_\_

**Questions: (Please circle one response per question)**

1	A	B	C	D
2	A	B	C	D
3	A	B	C	D
4	A	B	C	D
5	A	B	C	D
6	A	B	C	D
7	A	B	C	D
8	A	B	C	D
9	A	B	C	D
10	A	B	C	D
11	A	B	C	D
12	A	B	C	D
13	A	B	C	D
14	A	B	C	D
15	A	B	C	D
16	A	B	C	D
17	A	B	C	D
18	A	B	C	D
19	A	B	C	D
20	A	B	C	D

For continuing education credit,  
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 page to:

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# ***Overview of Geriatric Health Screening***

Developed by Kim Madsen, Pharm.D.

## **Montana Geriatric Education Center (MTGEC) & ImProving Health Among Rural Montanans (IPHARM)**

### **Syllabus**

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<b>Address:</b>	University of Montana School of Pharmacy and Allied Health Sciences
<b>Technical support:</b>	To complete this module, internet access is required.
<b>Description of module:</b>	A 2-hour module will discuss the basic issues which surround health screening in the geriatric population.
<b>Learning objectives:</b>	<ol style="list-style-type: none"><li>1. Describe the scope of the problems facing the growing geriatric population.</li><li>2. Describe governmental initiatives related to the geriatric population.</li><li>3. Distinguish between the different levels of disease prevention and state where screening of disease fits into the preventative plan.</li><li>4. Describe how patient-related barriers may impact geriatric screening and recommend how to overcome these barriers.</li><li>5. Describe the differences between:<ol style="list-style-type: none"><li>a. Accuracy vs. precision</li><li>b. Specificity vs. sensitivity</li></ol></li><li>6. Describe how Clinical Laboratory Improvement Amendments (CLIA) is important to geriatric health screening.</li><li>7. Suggest how to handle potential emergencies which may arise during geriatric health screening.</li><li>8. Name key websites pertaining to geriatric health screening.</li><li>9. Describe tests available for geriatric health screening, and state when they are appropriate for geriatric patients.</li></ol>
<b>Teaching strategy:</b>	Read text and visit selected websites.
<b>Evaluation methods:</b>	Complete review questions with 70% accuracy.
<b>Timeline:</b>	This module will be available for participation during the following months: January 2005 through December 2007.

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### I. Overview

Growing older is a time in life where the stresses should be diminishing; unfortunately, concerns with declining health status and performance tend to put a damper on the “glory years”. Fortunately, there are many opportunities to detect, prevent, and treat diseases to lessen their detrimental affect on the aging individual.

*The scope of this article is to:*

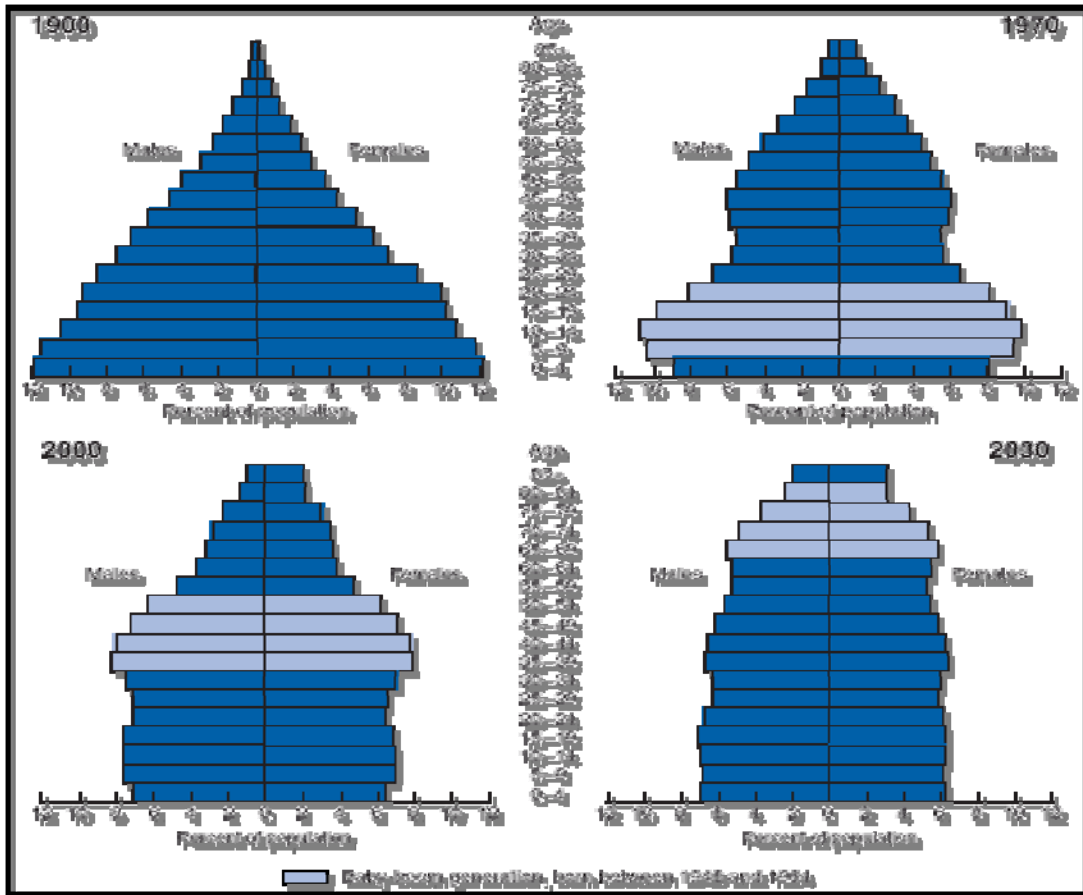
- A. Describe the current status of healthcare pertaining to the aging population.
- B. Describe governmental (national and state) initiatives to address the health concerns of the elderly.
- C. Define levels of disease prevention.
- D. Discuss patient-related barriers to performing geriatric health screening.
- E. Define frequently encountered terms in health screening.

### II. Status of the Aging Population

#### **A. Scope of the Situation**

It is well known that the American population is growing as well as getting older. According to the 2000 census, the United States total population was 281 million, which is up from 150 million in 1950. During this same 50-year time period, the elderly population (65 years and older) grew twice as fast compared to younger generations, and this fact has serious implications for our current healthcare system.<sup>(1)</sup>

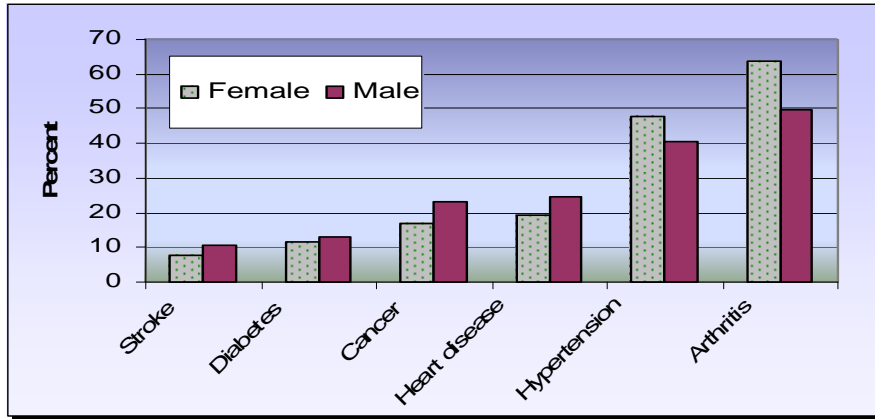
Furthermore, the baby-boomer generation (those born between 1946 and 1964) represent a bolus of growth during the 20<sup>th</sup> century, and beginning in 2011, the first of this generation will be turning 65 years old, signifying a potential drain on the healthcare system. (See Figure 1.) The infusion of baby-boomers into the elderly population is predicted to have sustained growth until 2030, and by 2050, it is anticipated that 20% of Americans will be age 65 or older.<sup>(1,2)</sup>



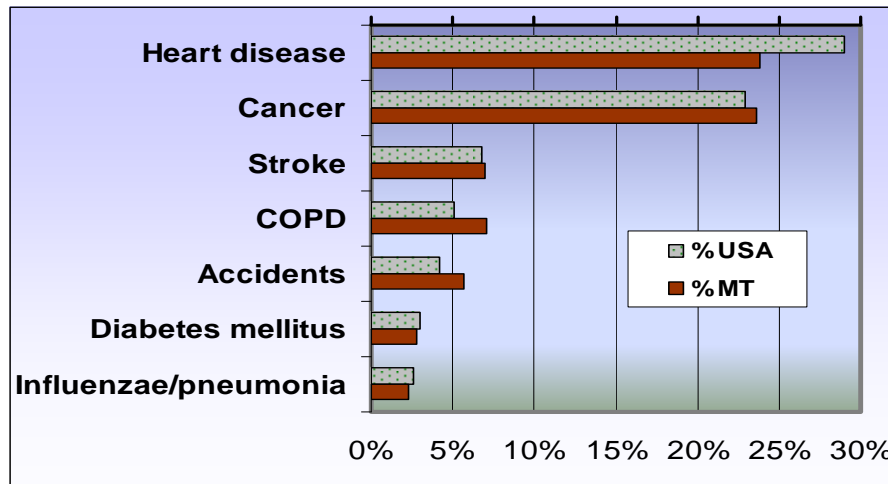
**Figure 1: Aging of America<sup>(2)</sup>**

Given the questionable state of affairs within the current healthcare system, the influx of more individuals into the system brings with it many concerns caused by a number of contributing factors.

- (1) *Elderly patients have a greater number of chronic health concerns.*  
 With increasing age, the life-style decisions one makes coupled with inherent risk factors for disease culminate in increased incidences of chronic diseases. (See Figure 2.) Chronic diseases, of which elderly people often have more than one, negatively impact a patient's quality of life, which may lead to decreases in functioning and subsequent loss of independence.<sup>(3)</sup> Additionally, more people are dying from chronic diseases compared to acute illnesses.<sup>(4)</sup> (See Figure 3.)



**Figure 2: Leading Chronic Diseases of U.S. Adults Ages 70 and Older<sup>(2)</sup>**



**Figure 3: Leading Causes of Death in America & Montana<sup>(4)</sup>**

(2) The general population is living longer.

Improvements in healthcare and the ability to prevent and control infectious diseases have had a profound impact on life expectancy during the past 100 years, as have improvements in nutrition, hygiene, housing, and work conditions. Over the last 100 years, the combined life expectancy for men and women has increased from 49 years in 1900 to 77 years in 2000.<sup>(5)</sup> (See Figure 4.) While women continue to outlive men, during the 1990's men gained more than 2 years in life expectancy compared to only 1 year for women. This difference is thought to be related to decreases in heart disease- and cancer-related deaths for men compared to women.<sup>(1)</sup>

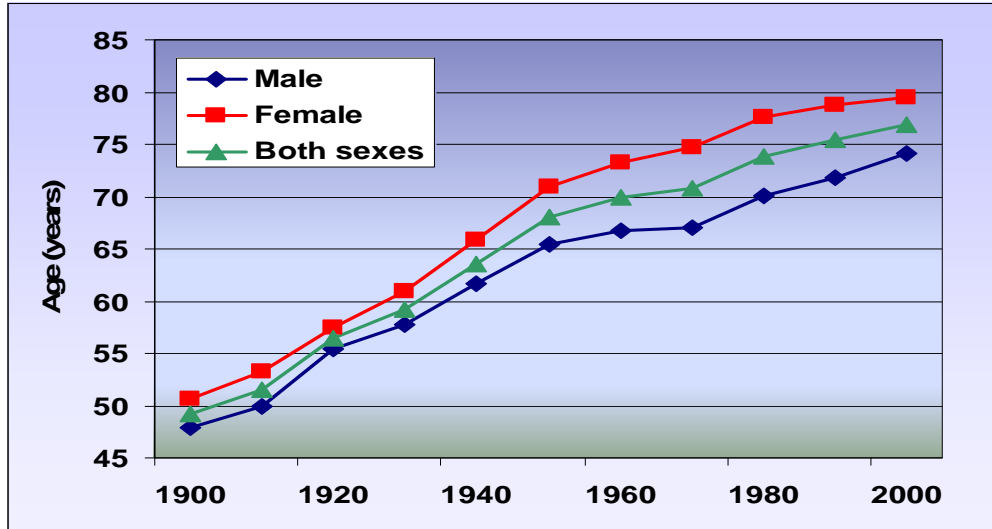


Figure 4: Changes in Life Expectancy of Americans During 20<sup>th</sup> Century<sup>(5)</sup>

(3) Rising health care costs.

In 2001, \$1.4 trillion was spent on health care expenditures which was an 8.7% increase from 2000 and accounts for 14.1% of our nation's Gross Domestic Product (GDP). The cost of prescription medications also increased 16% from 2000 to 2001.<sup>(1)</sup>

*Who is paying for these prescriptions?<sup>(1)</sup>*

- Private insurance (47%)
- Out-of-pocket (31%)
- Medicaid (17%)
- Medicare (2%)

Chronic diseases account for 70% of US deaths and 75% of the annual health costs.<sup>(6)</sup> (See Table 1.) The financial cost of chronic diseases significantly impacts the elderly population, as many in this group have limited funds available to pay for healthcare. In 2002, the National Bureau of Labor Statistics reported 16.8% or 5.8 million of the elderly population was near or below the national poverty level.<sup>(7)</sup>

Disease	Total cost	Direct cost	Indirect cost
Heart disease & stroke (2003)	\$351.8 billion	\$209.3 billion	\$142.5 billion
Cancer (2002)	\$171.6 billion	\$60.9 billion	\$110.7 billion
Diabetes (2002)	\$132 billion	\$91.8 billion	\$39.8 billion
Arthritis (1995)	\$82 billion	\$22 billion	\$60 billion

**Table 1: Cost of Chronic Diseases in America<sup>(8)</sup>**

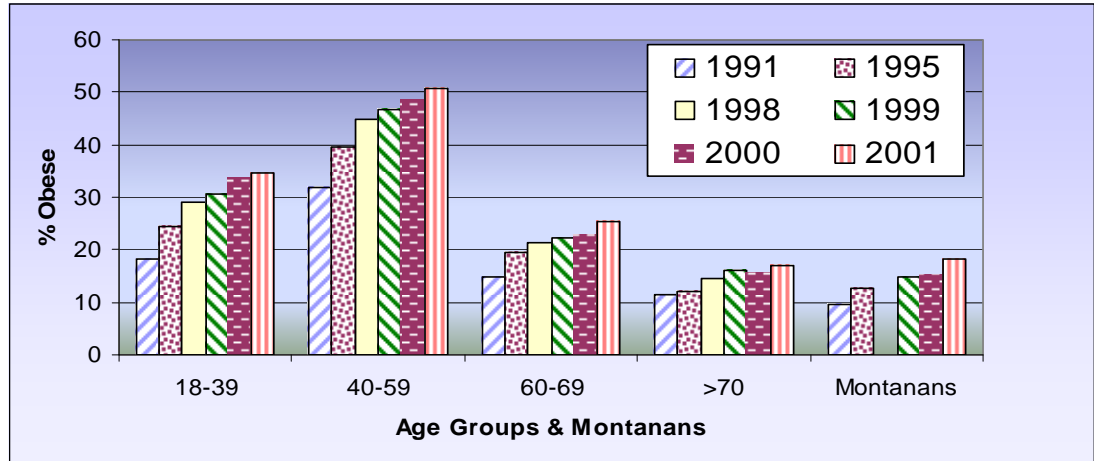
(4) Current status of health in nation

Life-style choices made by individuals greatly impact their future health. It is well documented that smoking, lack of physical exercise and obesity contribute to a patient's increased risk of heart disease, stroke, diabetes, and some cancers, as well as play a significant role in approximately one-third of all deaths in the United States<sup>(8,9)</sup>

The following information may represent the national population across multiple age groups, but the findings presented help define the scope of the problems facing all Americans, including the elderly.

Overweight and Obesity

Recently reported results from the National Health and Nutritional Examination Survey (NHANES 1999-2002) estimate 65% of American adults (ages 20 and older) are overweight (body mass index [BMI] between 25-29.9) or obese (BMI >30). Compared to NHANES II (1988-1994), a 51.6% increase occurred in the number of obese individuals compared to a 27.7% increase in the number of overweight people.<sup>(10,11,12)</sup> (See Figure 5.) The US Preventative Service Task Force recommends adults have their BMI calculated on a regular basis as part of their health assessment.<sup>(13)</sup> An online BMI calculator may be found on the Centers for Disease Control (CDC) website: <http://www.cdc.gov/nccdphp/dnpa/bmi/calc-bmi.htm> or see Appendix D for a copy of a BMI chart.



**Figure 5: Prevalence of Obesity Across Age Groups & Montanans<sup>(11,12)</sup>**

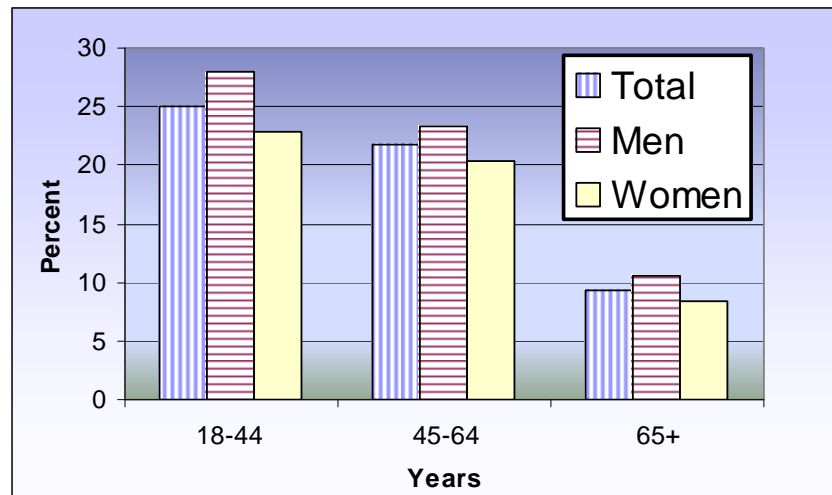
The financial cost of obesity is also significant. The total estimated cost of obesity in 2000 in the U.S. population was reported to be \$117 billion (direct costs = \$61 billion and indirect costs = \$56 billion).<sup>(8)</sup>

Fortunately, elderly individuals can still make modifications to their health which will have health benefits. A recently published 10-year study in over 2,300 European men and women, ages 70-90 years old, assessed the effect of lifestyle modifications on their risk of all-cause mortality. Specifically, lifestyle changes included the adoption of the Mediterranean diet (high in monounsaturated fats and low in saturated fats; high in beans, nuts, and seeds; grains; and fruits and vegetables), moderate exercise, moderate alcohol use and not smoking. Decreases in mortality were seen when any of the components was adhered to, but the greatest benefit was seen when all four lifestyle modifications were adopted, which resulted in a 60% decrease in mortality rate compared to individuals who did not adopt any of the lifestyle changes.<sup>(14)</sup> Two other recent studies in elderly populations demonstrated the benefits of exercise on improving cognitive function in women<sup>(15)</sup> and decreasing the risk of developing dementia in men.<sup>(16)</sup>

### Use of Tobacco Products

The use of tobacco is the single most preventable risk factor for death and disease in the United States. It is estimated that nearly 20% of all deaths can be attributed to tobacco use, and its use is associated with increased risk of heart disease, stroke, chronic lung disease, as well as many types of cancer (i.e., lung, larynx, mouth and bladder).<sup>(8,17)</sup>

Despite the significant warnings against tobacco use, almost 29% of Americans currently use tobacco products, and while tobacco use is primarily found in younger generations, approximately 10% of people over the age of 65 continue to smoke cigarettes.<sup>(9,17)</sup> (See Figure 6.)



**Figure 6: Prevalence of Cigarette Smoking in the USA: January-June 2003<sup>(17)</sup>**

The financial burden of tobacco use is quite notable, as it is associated with \$75 billion in direct medical costs and \$82 billion in indirect costs (i.e., lost productivity).<sup>(17)</sup>

### **B. Impact on Montanans**

Living in the state of Montana has its benefits and its negative aspects. Concerns which face the aging population are amplified by inherent challenges due to the size of state, limited access to healthcare in rural parts of Montana, and by the economic status of its residents. Table 2 summarizes facts which impact the residents of this state.

Parameter	Montana Ranking	Montana	USA
State population	44 <sup>th</sup>	902,195	281,421,906
Square miles <ul style="list-style-type: none"> <li>MT has ~70,000 miles of public roads which is greater than all Interstate miles in the nation.</li> </ul>	4 <sup>th</sup>	147,046 miles <sup>2</sup>	3,537,441 miles <sup>2</sup>
Persons per square mile	48 <sup>th</sup>	6.2 persons	79.6 persons
Percent of people 65 years or older <ul style="list-style-type: none"> <li>Estimated by 2030, MT should be the 5<sup>rd</sup> highest state in the percentage of people 65 years or older. <sup>(19)</sup></li> </ul>	14 <sup>th</sup>	13.4%	12.4%
Per capita personal income	46 <sup>th</sup>	\$22,569	\$29,676

**Table 2: Key Comparisons Between Montana and the USA<sup>(18)</sup>**

### III. Governmental Initiatives

The state of our nation’s health has been the focus of governmental agencies for years, but understanding the methods by which this information is disseminated can be quite daunting. Therefore, the intent of this next section is to highlight some of the health initiatives currently in use and how they are inter-related.

#### A. Federal Government

##### 1. HealthierUS

In June 2002, President George W. Bush outlined his *HealthierUS* program designed to allow Americans to live longer and healthier lives. President Bush signed an executive order requiring federal agencies to review and revise all federal regulations regarding his four key points.<sup>(21)</sup>

- Key Point 1: Physical Fitness: Be physically active each day.
- Key Point 2: Nutrition: Eat a nutritious diet.
- Key Point 3: Prevention: Get preventative screening.
- Key Point 4: Make healthy choices: Avoid risky behaviors.

In addition, a website (<http://www.healthierUS.gov>) was developed to assist Americans to obtain credible and accurate health information.

## 2. Steps to a HealthierUS

In response to President Bush’s *HealthierUS* initiative, the U.S. Department of Health and Human Services developed a program called, *Steps to a HealthierUS*, which calls for a collaborative effort within its various agencies (See Table 3.) as well as with state and local governments to promote healthy behaviors and choices.

Branch	Website
Administration for Children and Families (ACF)	<a href="http://www.acf.gov">www.acf.gov</a>
Administration on Aging (AoA)	<a href="http://www.aoa.gov">www.aoa.gov</a>
Agency for Healthcare Research and Quality (AHRQ)	<a href="http://www.ahrq.gov">www.ahrq.gov</a>
Centers for Disease Control and Prevention (CDC) - National Center for Chronic Disease Prevention - National Immunization Program	<a href="http://www.cdc.gov">www.cdc.gov</a> <a href="http://www.cdc.gov/nccdphp/">www.cdc.gov/nccdphp/</a> <a href="http://www.cdc.gov/nip/">www.cdc.gov/nip/</a>
Centers for Medicare and Medicaid Services (CMS) - Clinical Laboratories Improvements Amendment	<a href="http://www.cms.gov">www.cms.gov</a> <a href="http://www.cms.hhs.gov/clia">www.cms.hhs.gov/clia</a>
Food and Drug Administration (FDA)	<a href="http://www.fda.gov">www.fda.gov</a>
Health Resources and Services Administration (HRSA)	<a href="http://www.hrsa.gov">www.hrsa.gov</a>
Indian Health Services (IHS)	<a href="http://www.ihs.gov">www.ihs.gov</a>
National Institutes of Health (NIH) - National Institutes on Aging (NIA)	<a href="http://www.nih.gov">www.nih.gov</a> <a href="http://www.nia.nih.gov">www.nia.nih.gov</a>
Substance Abuse and Mental Health Services Administration (SAMHSA)	<a href="http://www.samhsa.gov">www.samhsa.gov</a>

**Table 3: Branches of the U.S. Department of Health and Human Services<sup>(8)</sup>**

The Secretary of Health and Human Services, Tommy G. Thompson, stated in the launching of this program in April, 2003:

*“Approximately 95% of the \$1.4 trillion that we spend as a nation on health goes to direct medical services, while approximately 5% is allocated to preventing disease and promoting health. This approach is equivalent to waiting for your car to break down before you take it in for maintenance. By changing the way we view our health, the Steps initiative helps move us from a disease care system to a true health care system.”<sup>(21)</sup>*

Secretary Thompson also states, “*The heart of this program is personal responsibility for the choices Americans make and social responsibility to ensure policy makers support prevention programs that foster healthy behaviors.*”<sup>(8)</sup>

*Steps to a HealthierUS* was designed under the premise that small behavioral changes over time can culminate into a movement which may help reduce the burden of disease, including heart disease, cancer, diabetes, obesity and asthma.<sup>(22)</sup>

Emphasizing health promotion and chronic disease prevention and control, *Steps to a HealthierUS* focuses its efforts on the following activities:<sup>(23)</sup>

- a. Community-based education programs highlighting steps that can be taken to prevent or reduce the incidence of chronic diseases;
- b. Health promoting programs and environments in school, worksite, faith-based and community-based settings;
- c. Improved access to preventative, diagnostic and treatment services;
- d. The elimination of racial, ethnic, and socioeconomic-based health disparities;
- e. Improved delivery of evidence-based clinical preventative services and chronic disease management; and
- f. Evaluation of chronic disease prevention and health promotion interventions.

### **3. Healthy People 2010**

In 1979, the U.S. Surgeon General provided a report on health promotion and disease prevention which outlined national goals. For the past 25 years, the Healthy People program, which was initially set forth by the Surgeon General, has outlined national goals and objectives on health promotion and disease prevention. To continue this initiative, Healthy People 2010 is a mechanism to improve health in the first 10 years of the 21<sup>st</sup> Century, as well as a tool to measure the progress.<sup>(24)</sup>

The goals of Healthy People 2010 were constructed from a consensus with over 350 national and 250 state health organizations and were finalized

under the direction of the Department of Health and Human Services and the Surgeon General.<sup>(24)</sup>

The two main goals of Healthy People 2010 are:

1. Increase quality and years of healthy life.
2. Eliminate health disparities.

Healthy People 2010 identified 28 focus areas which contain 467 specific objectives to improve health. (See Table 4.) As a way to measure the health of the nation, leading health indicators, each of which has one or more Healthy People 2010 objectives associated with it, will be used.<sup>(24,25)</sup> (See Table 5.)

<b>Focus Areas</b>	
1. Access to quality health services	14. Immunizations and infectious diseases
2. Arthritis, osteoporosis and chronic back conditions	15. Injury and violence prevention
3. Cancer	16. Maternal, infant and child health
4. Chronic kidney disease	17. Medical product safety
5. Diabetes	18. Mental health and mental disorders
6. Disability and secondary conditions	19. Nutrition and overweight
7. Educational and community-based programs	20. Occupational safety and health
8. Environmental health	21. Oral health
9. Family planning	22. Physical activity and health
10. Food safety	23. Public health infrastructure
11. Health communication	24. Respiratory diseases
12. Heart disease and stroke	25. Sexually transmitted diseases
13. HIV	26. Substance abuse
	27. Tobacco use
	28. Vision and hearing

**Table 4: Focus Areas of Healthy People 2010<sup>(24)</sup>**

<b>Leading Health Indicators Focus Areas</b>	
1. Physical activity	6. Mental health
2. Overweight and obesity	7. Injury and violence
3. Tobacco use	8. Environmental quality
4. Substance abuse	9. Immunization
5. Responsible sexual behavior	10. Access to medical care

**Table 5: Leading Health Indicators for Healthy People 2010<sup>(24)</sup>**

#### 4. Agency for Healthcare Research and Quality (AHRQ)<sup>(26)</sup>

The main function of AHRQ is to sponsor and perform research which assists health care providers with evidence-based data on quality, effectiveness, safety and efficiency of health care for all Americans.

Two of AHRQ's more applicable topics for healthcare screening are *Put Prevention into Practice* and the National Guideline Clearinghouse™.

- a. *Put Prevention into Practice* (PPIP) is a tool to implement the U.S. Preventative Services Task Force (USPSTF) recommendations on preventative services and how they apply to age-specific and risk factor-specific recommendations for people using the preventative services.
- b. The National Guideline Clearinghouse™ was developed in collaboration with the American Medical Association and the American Association of Health Plans to provide a centralized location to store evidence-based practice guidelines produced by various specialty fields. Website links are commonly provided to allow direct access to the desired guideline.

#### 5. Administration on Aging (AoA)<sup>(27)</sup>

As presented in Table 3, the AoA is a branch of the U.S Department of Health and Human Services and serves as the focal point for issues pertaining to elderly persons, as well as serving as an advocate for patient rights in the elderly population. AoA's mission is to promote dignity and independence of older people, and to increase awareness in society about the needs of the aging population and how to prepare for their needs. The major priorities for AoA are:

- a. Make it easier for older people to access an integrated array of health and social supports;
- b. Help older people stay active and healthy;
- c. Support families in their efforts to care for their loved ones at home and in the community;
- d. Ensure the rights of older people and prevent their abuse, neglect and exploitation; and

e. Promote effective and responsive management.

## 6. National Institute on Aging (NIA)<sup>(28,29)</sup>

The National Institute on Aging, established in 1974, is one of 27 institutes contained within the National Institutes of Health. The purpose of the NIA is to improve the health of aging people through the use of research which primarily focuses on the aging process, age-related diseases and special needs of an elderly person. The four main goals of the NIA are:

- a) Improve health and quality of life of older people;
- b) Understand healthy aging processes;
- c) Reduce health disparities among older persons and populations; and
- d) Enhance resources to support high quality research.

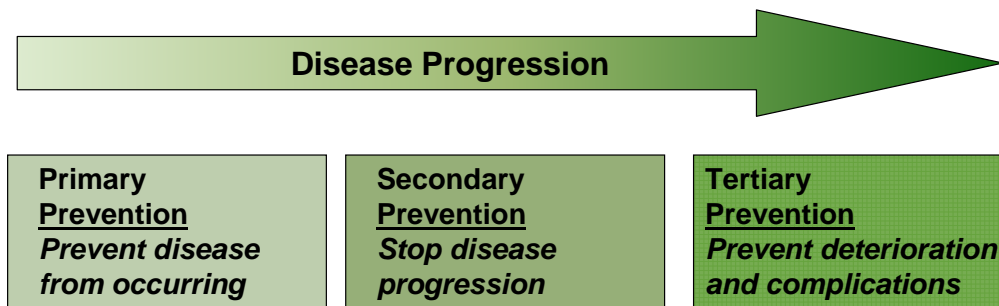
### B. State of Montana

Montana has two main organizations which may be of use for geriatric Montanans, and both are under the supervision of the Department of Public Health and Human Services. They are the Public Health and Safety Division, and the Senior and Long Term Care Division. (See Section VII for their specific web sites.)

## IV. Levels of Disease Prevention

Levels of prevention help define the type of intervention required to:<sup>(30)</sup>

- Prevent the disease from occurring (Primary Prevention);
- Arrest the disease by early detection (Secondary Prevention); or
- Prevent further deterioration or reduce complications, usually from a chronic disease (Tertiary Prevention).



### A. Primary

Primary preventions applicable to elderly people would be vaccinations for influenza and pneumonia. The current recommendation from the National

Immunization Program is for adults over 50 years old to receive an annual influenza (flu) injection, and adults 65 years or older to receive a pneumococcal vaccine at least once, but no more than once every five years.<sup>(30)</sup> The importance of vaccinating the elderly was recently reported in a two-year clinical trial spanning two influenza seasons in over 140,000 patients ages 65 years and older. One of the main efficacy findings in the study was that approximately 100 patients treated prevents one death from influenza, and approximately 65 patients treated prevents either death or hospitalization secondary to influenza.<sup>(32)</sup> Given the large elderly population, vaccinating for influenza has far reaching benefit.

Also included in primary prevention is the identification of risk factors for disease in patients and counseling on appropriate life style modifications.<sup>(30)</sup> For example, a 72 year old Caucasian female who is small in stature, is lactose intolerant, and does not get regular exercise, would have multiple risk factors for osteoporosis (Caucasian, female, small stature, potentially low calcium intake, and inactivity) and would benefit from counseling to increase her calcium intake with supplements and to improve her exercise regimen.

## ***B. Secondary***

Secondary prevention includes detection of diseases, often when they are still asymptomatic, to help initiate strategies to prevent further disease progression. Health screening has the majority of its impact as secondary prevention. Identifying patients early in the disease process enables the healthcare system to promote lifestyle changes and recommend appropriate therapy to slow down or eliminate disease progression.<sup>(30)</sup> See Appendix C for a description of recommendations for screening in elderly patients. In addition, the American Academy of Family Physicians has published on their website (See Section VII) a printable schedule to use as a guide of whom and when patients should be screened.

### **C. Tertiary**

The role of tertiary prevention is to prevent further deterioration or functional loss due to a chronic disease.<sup>(30)</sup> For example, the initiation of a pharmacologic agent to treat osteoporosis [i.e., a bisphosphonate medication like alendronate (Fosamax<sup>®</sup>)] may prevent subsequent bone loss and help prevent further weakening of the bones. Tertiary prevention is really beyond the scope of screening or detection of disease and is primarily utilized by physicians in monitoring and treating their patients.

## **V. Issues pertaining to Health Screening**

### **A. Patient Related Barriers**

Providing health screening services to patients, especially within the elderly population, can prove to be quite challenging. Barriers may complicate or prevent effective screening. Therefore, this section examines some issues or barriers which may challenge personnel performing the tests, and when applicable, offers suggestions on how to overcome these challenges.

#### **1. Vision<sup>(33)</sup>**

More than 3.4 million Americans over the age of 40 are either visually impaired or blind. The national prevalence rate of vision impairment or blindness is 2.85%, and the state of Montana is slightly above that at 2.9%.

Age-related eye disorders are the leading cause of vision impairment or blindness in America. The most common conditions included in age-related diseases are:

##### **a) Age-related macular degeneration**

- (1) Affects the macular region of the retina leading to central vision loss.
- (2) Is the most common cause of legal blindness and vision impairment in the elderly.

b) Cataracts

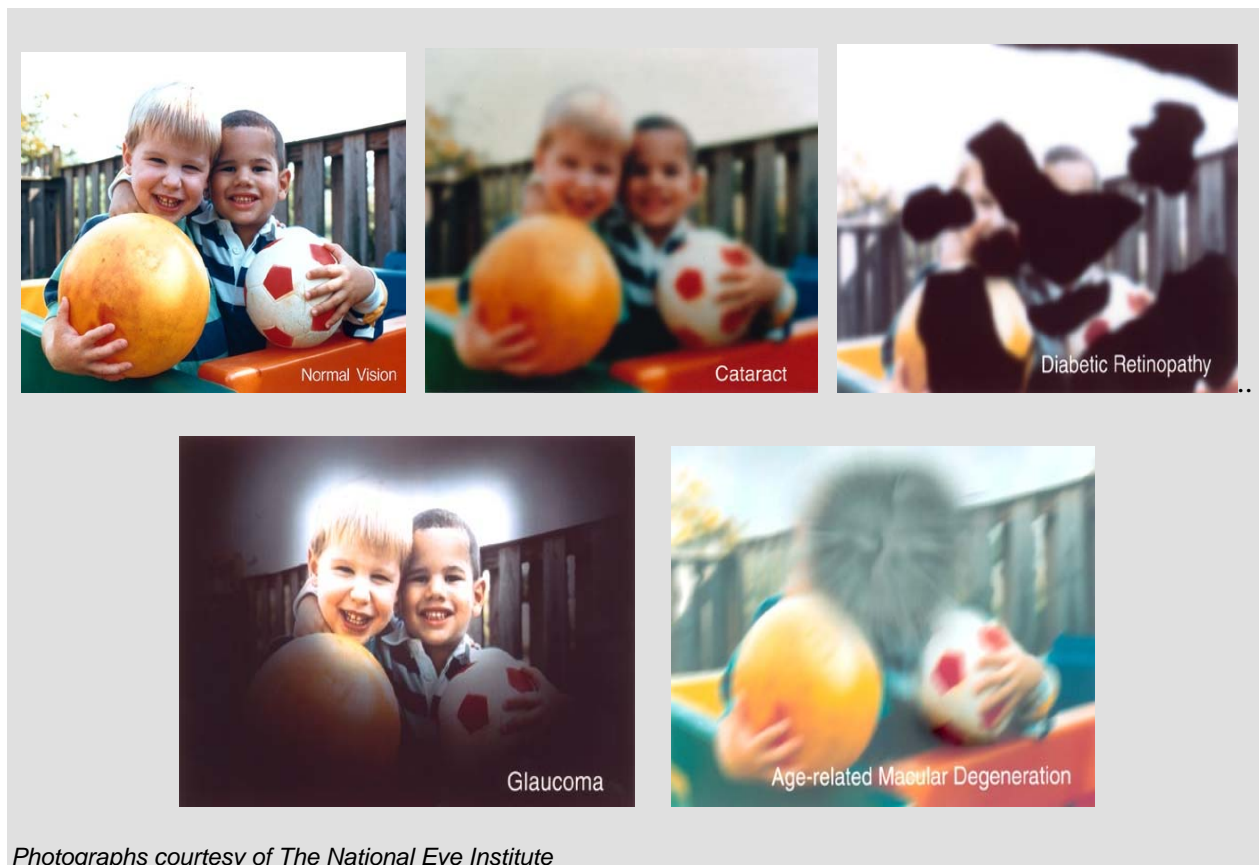
- (1) An opacity or clouding of the lens in the eye results in blurred vision which is only correctable through surgery.
- (2) By 80 years of age, approximately 50% of the population will have some degree of cataract formation.

c) Diabetic retinopathy

- (1) A complication of diabetes resulting in broken, leaky or blocked blood vessels of the eye leading to loss of vision in the affected areas.
- (2) Because diabetes can occur early in life, diabetic retinopathy affects over 5.3 million Americans over the age of 18.

d) Glaucoma

- (1) Glaucoma is caused by degeneration of the optic nerve cells. As the cells die, loss of vision occurs primarily in the periphery.



Photographs courtesy of The National Eye Institute

**Figure 7: What a Patient Might See with Common Age-Related Vision Loss**

Identifying patients with visual impairments may not always be obvious, as many patients learn coping mechanisms. It is important to anticipate that these patients will be among those screened, so any written material should be of adequate font size for legibility. In 1999, The Centers for Disease Control published a guide, *Simply Put*, to assist health care personnel in the preparation of scientific and technical information.<sup>(34)</sup> Some of the provided suggestions include:

- (a) Use at least a 12-point font size.
- (b) Do not use fancy or *script* lettering.
- (c) Do not write all text in CAPITAL LETTERS; rather mix up the letters with upper and lower case words.
- (d) Do not use *italicized* words; instead either use **boldface** or underlining to emphasize words.

## 2. Hearing

Loss of hearing, whether related to heredity, exposure to loud noises, or due to neurological deficits, is common among older adults. Approximately 33% of patients over the age of 60 and 50% of patients over 85 have significant hearing loss.<sup>(35)</sup>

Communicating with patients with hearing loss can be challenging, but fortunately, hard of hearing (HOH) individuals are fairly easy to identify, as they tend to speak louder than most individuals.

Techniques which may be useful in working with HOH patients include:<sup>(36)</sup>

- (a) First, ask if he or she use a hearing aid, and if so, is it turned on.
- (b) Try to find a location to talk with the patient that has low background noise. Also, try to avoid standing in front of a window or light, which could put your face in shadows making it difficult for the patient to see your lips.
- (c) Before you speak, make sure you have his or her attention so they can focus on what you are saying.
- (d) Speak clearly and maintain eye contact. Avoid taking notes or writing in a chart, and avoid chewing gum or eating while talking with the patient.

- (e) Be aware that patients may nod in agreement, even when they do not understand. Therefore, periodically ask the patient to rephrase what you have told them to assess their comprehension.
- (f) Provide written materials regarding the test you are performing to use as backup information which they can read.

### **3. Physical Disabilities**

Older persons may have physical disabilities which may limit their ability to participate in health screening. When setting up a health screening, it is important to think about the layout of the tables, chairs and other test equipment. Anticipate the need for some patients to require additional room to navigate through the screening area, especially those requiring wheelchairs or walking assist devices. If climbing stairs is required to get to the test area, this may deter some patients from participating. Linoleum is the ideal flooring surface, as it generally not as slick as tile and the elderly can usually handle this surface if they are wearing non-slip shoes. Also, non-carpeted flooring aids in the clean up of spills or drops of blood from a finger-stick. It is important to provide adequate seating for those patients waiting to be screened. Ideally, scheduling a specific time to see a patient would prevent unnecessary waiting by patients.

### **4. Literacy**

Reading and writing is a skill most people take for granted. In 1992, the National Adult Literacy Survey (NALS-1992) reported roughly 50% of Americans do not have the reading and writing skills required to function in our society. Interestingly, of these 50%, about 40% had a high school diploma and about 17% had a 4-year college degree. Therefore, making assumptions about someone's literacy level based on their educational background could be very misleading.<sup>(36)</sup> Also according to NALS-1992, approximately 70% of the adults over the age of 60 function at a level making it difficult for them to read a bus schedule or map, complete an order form, or balance their checkbook.<sup>(36)</sup>

Issues which also compound the literacy issue in elderly include:<sup>(37)</sup>

- a) Previous American generations typically had less advanced schooling compared to younger generations.
- b) Older Americans have more vision impairments which complicates literacy issues.
- c) Deterioration in cognitive abilities with aging, whether due to medical causes or pharmacologically-induced, may decrease literacy.

Methods to increase understanding of written material include:

- a) It is recommended to write text at a 6-7<sup>th</sup> grade level to improve understanding. Use simple sentences with low syllable counts. See *Simply Put* at <http://www.cdc.gov/communication/resources/simpput.pdf> for examples of tools which can be used to determine grade level of written text.
- b) Use pictures to help illustrate concepts or instructions.

## **5. Health Literacy**

To compound the literacy issue, nearly 90 million Americans have inadequate functional health literacy, which is the ability to understand and act upon health information.<sup>(39)</sup> Patients are often bombarded with health information and are expected to perform tasks such as reading and understanding medication labels, filling out insurance forms, reading and comprehending informed consent forms, and interpreting and collating the vast amount of health-related educational material available to them. Even patients with adequate literacy skills are overwhelmed with challenges to navigate through the plethora of health-related materials, especially when health decisions are coupled with emotional factors regarding their or their loved one's health.<sup>(39,40)</sup> Patients with low functional health literacy are less likely to adhere to disease management recommendations and medications, which make them prone to medication errors and disease relapse or prolongation of treatment.<sup>(40)</sup> Low functional health literacy is greatest among patients who are older, have lower educational backgrounds, and who have limited English language skills.<sup>(39)</sup> Health literacy appears to decline with age and is thought to be related to changes in the ability to process information, which also declines with increasing age.<sup>(42)</sup>

It is often assumed that the level of education attained by a patient is equivalent to their literacy level, but multiple studies have shown that patients often read many grade levels below the highest grade level achieved in school.<sup>(43,44)</sup> Tools have been developed to identify patients with low health literacy. Probably the most comprehensive assessment tool is the Test of Functional Health Literacy in Adults (TOFHLA) or its shortened form (S-TOFHLA). Both the TOFHLA and the S-TOFHLA survey patients using a battery of questions and classify a patient's functional health literacy as adequate, marginal or inadequate (order is in decreasing level of competency).<sup>(40)</sup> While these tools are valuable in identifying the scope of the health literacy problem in America, they are not the most realistic tool to use in common practice, as they require adequate time to administer the test.

Recently, a practical method of identifying patients with marginal or inadequate health literacy found three key questions (out of 16 total questions) were strong predictors of inadequate health literacy as compared to the validated S-TOFHLA.<sup>(45)</sup> The three key questions were:

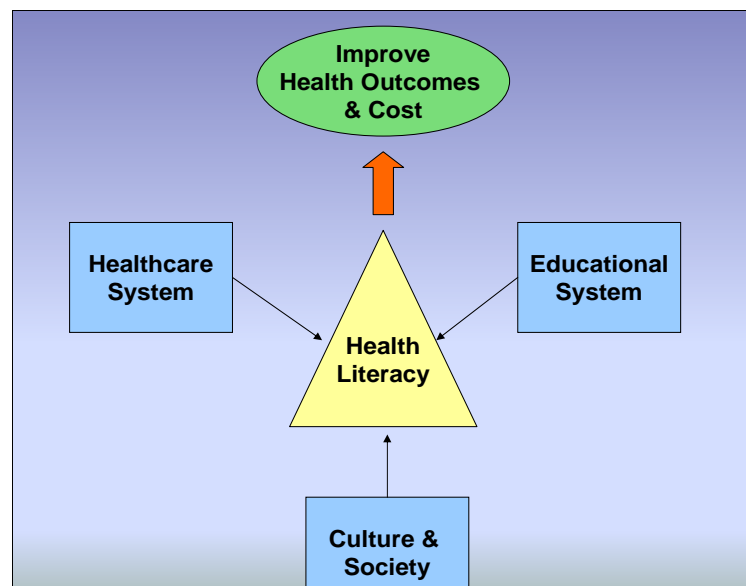
1. How often do you have someone help you read hospital materials?
2. How confident are you filling out medical forms by yourself?
3. How often do you have problems learning about your medical condition because of difficulty understanding written information?

Many patients try to hide their illiteracy out of shame and embarrassment. In 1994, the TOFHLA was used to survey 202 patients who were walk-in emergency room patients at an inner city hospital in Atlanta, Georgia. Approximately 43% of those interviewed had marginal or inadequate functional health literacy, and within this

group of individuals, most admitted they had never told their spouse (67%) or children (53%), and 19% had never told anyone.<sup>(46)</sup> Shame is a very deep and personal emotion often evoking feelings of inadequacy and guilt. Realizing that patients are uncomfortable revealing this personal inadequacy is essential to ensure proper communication skills are utilized when speaking to all patients.

Realizing that health illiteracy has multiple health implications, the U.S. government had included the improvement of health literacy as an objective in the Healthy People 2010 goals. The actual Healthy People 2010 goal is, “to improve the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions.”<sup>(24,39)</sup>

Often a patient feels responsible for their health illiteracy, but actually the “system” also failed them. Multiple components have been identified as intervention sites to help improve health literacy: the healthcare system, the educational system, and culture & society.<sup>(38)</sup> (See Figure 8.) A cooperative effort among all the players is crucial to improve health literacy. As a healthcare professional, it is important to embrace our responsibility to improve health literacy among our patients, because the lack of understanding of health information impacts the patient’s active participation in health decisions, as well as has legal, ethical and moral implications for the providers of their health care.<sup>(38)</sup>



**Figure 8: Relationship of Factors Which Influence Health Literacy**

**Suggestions to improve health literacy among elderly patients are:<sup>(40)</sup>**

1. Use simple and clear language. Try to avoid using medical jargon or abbreviations which may be unfamiliar to patients.
2. Use written and verbal communication at a level of understanding appropriate for a patient. Try to engage the patient in a dialogue by using open-ended questions. For example, try not to ask, “Do you understand what to do when you miss taking your medication?” But rather inquire by asking, “Tell me how you would handle forgetting to take your medicine?”
3. Ask a patient to rephrase verbal or written information given to them. Often a lot of topics are covered during a screening session, and asking the patient to rephrase information they have heard during the session will help them to understand the information better, as well as identify areas the counselor can help clarify for the patient.
4. Try not to appear rushed and try to speak slowly. Patients are more likely to ask questions of the counselor if they don’t feel like the screening session is rushed.
5. Understand and know your patient population. If cultural barriers exist in your patient population, try to work with the patient to establish a relationship which is comfortable for both parties to open up good communication.

Eleanor Roosevelt once said, “Understanding is a two-way street.”<sup>(39)</sup> A better understanding of patients’ needs will help improve their understanding of health needs and how they can better manage their specific disease state(s).

## **B. Terminology Related to Screening**

Results from diagnostic tests are often reported in terms which confuse many, often because no one consistent term is used across studies to report the ability of a test to predict whether the disease being screened is detected. The following discussion will hopefully help clarify the common terms used to describe results from diagnostic studies.

### **1. Accuracy versus Precision**

These two terms are often used interchangeably in common, conversational language, but their definitions, especially when applied to diagnostic medicine, have different meanings and therefore different implications.

The accuracy of a test refers to the truthfulness or correctness of the test to detect or measure what it claims to measure. Accuracy is calculated as the proportion of all the test results (positive or negative) that is correct. Using Table 6 as a guide, accuracy would be defined as  $(A+D)/(A+B+C+D)$ .<sup>(47)</sup>

	Positive Disease	Negative Disease
Positive test result	A	B
Negative test result	C	D

**Table 6: Accuracy Variables**

The precision of a test refers to how closely the results of the test can be reproduced.<sup>(47,48)</sup> Therefore, a test may have great precision or reproducibility, but may still have poor accuracy. In other words, a test



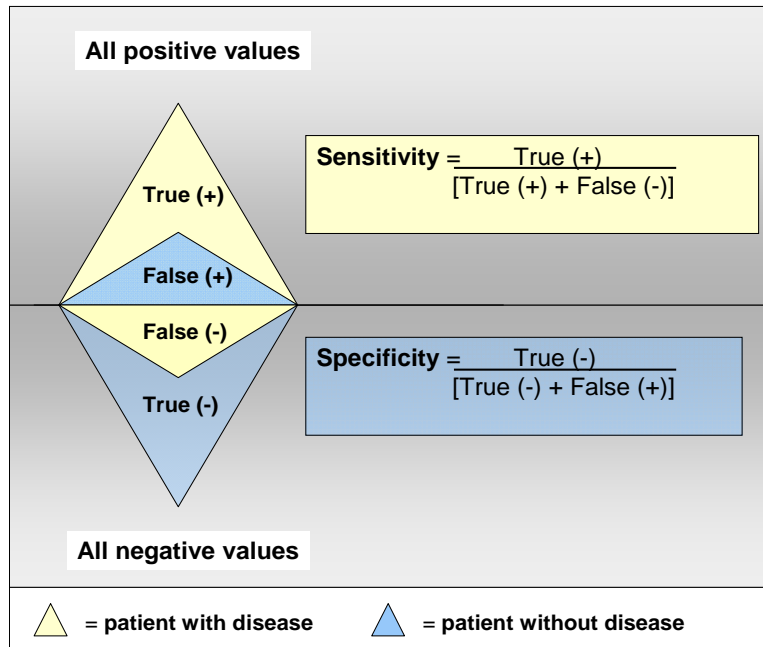
can be precisely wrong. Ideally, a screening or diagnostic test would have both accuracy and precision. See the bull's eye depiction (Figure 9) for a graphic representation of accuracy and precision.

**Figure 9: Accuracy versus Precision**

**2. Sensitivity versus Specificity**

There are many ways that screening and diagnostic accuracy are determined statistically, such as likelihood ratios, diagnostic odds ratios, and positive or negative predictive values, but sensitivity and specificity are the cornerstone terms used to understand these concepts. Therefore, this discussion will pertain only to sensitivity and specificity.

Sensitivity is the probability that a test will correctly identify a patient with a positive test result, and specificity is the probability that the test will correctly assign a negative result in a patient without the disease. A test with both a 100% sensitivity and specificity would ideally identify every patient with or without the disease being studied. Unfortunately, diagnostic medicine is not an exact science resulting in some patients without the disease testing positive (a false positive) and some patients with the disease testing negative (a false negative).<sup>(49,50)</sup> Figure 10 demonstrates the association between sensitivity and specificity in relation to true and false, and positive and negative, values.



**Figure 10: Relationship of Sensitivity and Specificity**

When a screening test is developed, it must prove it is comparable to other known methods of detection for determination of its sensitivity and specificity. Visual cues may help with the understanding of this concept. Figure 11 shows 50 patients who were screened for a specific disease. Of the 50 patients screened, 15 tested positive (✓) and 35 tested negative (X). To determine the sensitivity of the screening test, a comparison is made between all the patients who tested positive and those who actually had the disease diagnosed by a known test standard. In this example, the test is 86% sensitive in its ability to detect the disease. Conversely, to determine the specificity of a screening test, a comparison is made between those who tested negative and those who are known to not have the disease. This example demonstrates the screening test is 92% specific in its ability to rule out the disease.<sup>(51)</sup>

✓	✓	✓	✓	✓	<p><b>Sensitivity</b></p> <p>= <math>\frac{\text{True (+)}}{[\text{True (+)} + \text{False (-)}]}</math> = <math>\frac{12}{12 + 2}</math></p> <p>= 86% sensitive to predict a patient with disease</p>
✓	✓	✓	✓	✓	
✓	✓	✓	✓	✓	
X	X	X	X	X	<p><b>Specificity</b></p> <p>= <math>\frac{\text{True (-)}}{[\text{True (-)} + \text{False (+)}]}</math> = <math>\frac{33}{33 + 3}</math></p> <p>= 92% specific to rule out a disease in a patient</p>
X	X	X	X	X	
X	X	X	X	X	

**Figure 11: Hypothetical Example of Sensitivity and Specificity.**

**3. Clinical Laboratory Improvement Amendments (CLIA)**

To ensure laboratory tests are reliable and accurate, in 1988 Congress passed the Clinical Laboratory Improvement Amendments (CLIA) to establish quality standards for all laboratory tests regardless of where the tests were performed. CLIA was prompted by the inaccuracy of histology laboratories mis-reading Pap smear tests which resulted in misdiagnosis and subsequent deaths. Therefore, Congress deemed it necessary to require that all laboratories comply with uniform quality standards, and all laboratories performing tests for health purposes on human specimens must be CLIA certified.<sup>(52)</sup> Realizing that not all tests require the same level of complexity to perform and analyze, tests were classified based on the level of skill required to perform the test as high, moderate or waived.<sup>(52)</sup>

All the screening tests used by IPHARM/MTGEC are considered to be CLIA waived tests. CLIA waived tests are those that are simple to perform with little risk for error, as long as the manufacturers' instructions are followed.<sup>(53)</sup> Approximately 40 tests have been approved with CLIA waived status (see <http://www.fda.gov/cdrh/clia> for a list of CLIA waived tests). Even if a facility (i.e., pharmacy or

physician's office) only uses tests that are waived, a CLIA certificate is required by any facility running laboratory samples.<sup>(54)</sup> IPHARM is registered with CLIA and when screening is performed by individuals in their specific practice settings, they, too, will need to apply and receive a CLIA certificate.

## ***C. Miscellaneous Topics Pertaining to Wellness Screening***

### **1. Handling and Disposal of Blood Products & Sharps**

Some health screening tests require the collection of blood from finger sticks (i.e., lipid testing and hemoglobin A<sub>1c</sub>). If the blood collection process is handled appropriately, it can safely be done with minimal risk to the patient or the person collecting the blood sample. Appendix B provides the policy and procedure which IPHARM utilizes for the collection and disposal of blood products and lancets.

Additional relevant topics may be found at the following websites:

- National Institute for Occupational Safety and Health  
<http://www.cdc.gov/niosh/topics/bbp/>
- Occupational Safety & Health Administration (OSHA)  
<http://www.osha.gov/SLTC/bloodbornepathogens/index.html>

### **2. Handling of Potential Emergencies**

Health screening of patients usually goes smoothly, but it is important to anticipate potential emergencies which may occur.

Fainting may occur if a patient becomes nervous or has not had a meal prior to testing, particularly for the tests which require blood samples. For tests which require blood collection, it is recommended that patients be sitting in a chair to help minimize the distance they may fall.

- a) If a patient becomes pale, sweaty, and in eminent danger of fainting, assist the patient to the ground trying to prevent him or her from falling, and tell the patient to take slow, even breaths, breathing in for 4 counts and out for 4 counts. Some patients will

either hyperventilate or hypoventilate when they are nervous. Provide them with juice or soda to sip on which will help increase their blood sugar, which may be depleted from fasting or due to adrenalin depleting their stored reserves.

- b) If a patient should faint, place him or her on the floor as gently as possible and elevate the feet to assist blood return to the brain. Verify the patient has an open airway and talk to the patient. When patients regain consciousness, be aware they may be disoriented and sometimes nauseated. Have a blood pressure cuff available to monitor the blood pressure. Once they have regained consciousness, keep patients lying down for at least five minutes until they can gradually sit themselves up. Allow five minute intervals between partially sitting up and sitting the patient upright, before allowing the patient to stand. Providing juice or soda to the patient during this process will help increase the blood sugar, which may be low if he or she was fasting for the blood tests. Stay with the patient until he or she is able to stand, and is fully coherent.
- c) If the patient does not recover or does not recover to your satisfaction, call 911 for medical assistance.

## VI. Useful Websites

★ Highly recommended websites for further understanding of key concepts related to geriatric health screening.

### **(1) Governmental (National)**

- (a) Administration on Aging. <http://www.aoa.gov> ★
- (b) Agency for Healthcare Research and Quality. <http://www.ahrq.gov>
  - (i) Put Prevention into Practice. <http://www.ahrq.gov/clinic/ppipix.htm> ★
  - (ii) National Guideline Clearinghouse™. <http://www.guidelines.gov>

- (c) Centers for Disease Control and Prevention. <http://www.cdc.gov>
- (i) National Center for Chronic Disease Prevention. <http://www.cdc.gov/nccdphp/> \*
- (ii) National Immunization Program. <http://www.cdc.gov/nip/>
- (d) Center for Medicare and Medicaid Services. <http://www.cms.gov>
- (i) Clinical Laboratory Improvement Amendments. <http://www.cms.hhs.gov/clia> \*
- (e) National Institutes of Health. <http://www.nih.gov>
- (i) National Institutes on Aging. <http://www.nia.nih.gov> \*
- (f) National Center for Health Statistics. <http://www.cdc.gov/nchs/>
- (g) The National Women's Health Information Center (NWHIC). <http://www.4woman.gov>

## **(2) Governmental (Montana)**

- (a) Department of Public Health and Human Services. <http://www.dphhs.state.mt.us>
- (b) Public Health and Human Services Division. <http://www.dphhs.mt.gov/index.shtml>
- (c) Senior and Long Term Care Division. <http://www.dphhs.state.mt.us/sltc/>

## **(3) General**

- (a) American Academy of Family Physicians: Age Charts for Periodic Health Examinations. <http://www.aafp.org/exam.xme>

## **(4) Health Literacy**

- (b) Simply Put (writing scientific and technical information) \*  
<http://www.cdc.gov/communication/resources/simpput.pdf>
- (c) Health Literacy Studies, Harvard School of Public Health.  
<http://www.hsph.harvard.edu/healthliteracy/index.html>
- (d) Good Medicine for Seniors, Canadian Public Health Association.  
<http://www.nlhp.cpha.ca/Labels/seniors/english/cover.htm>
- (e) Plain Language: writing user friendly documents. \*  
<http://www.plainlanguage.gov/>

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## Appendix A Authorization to Test Form

### IMPROVING HEALTH AMONG RURAL MONTANANS (IPHARM) AUTHORIZATION TO TEST FORM

IPHARM will provide SCREENING test(s) to you today at your specific request and for the specific purpose of providing you with results that may relate to your health. An explanation of the results and how they may relate to your health will be provided by IPHARM personnel.

#### What will happen today?

IPHARM personnel will conduct the test(s) you have requested and obtain the results and explain the results to you. You will receive the original and **only** copy of your test results. IPHARM personnel will record your results for statistical purposes on a sheet that does NOT list your name. The results may be used in IPHARM reports compiled with all the other test results and your results will never be individually identified or connected to you without your written permission. IPHARM will keep your agreement to be tested and the results sheets separated and secure. **You will have the only copies of your complete results.** IPHARM agrees to keep any information gathered confidential and to not share this information with anyone without your written permission. IPHARM further agrees to use personnel trained to provide these tests and to follow general methods approved for these tests. IPHARM agrees to exercise due caution in those areas associated with the tests provided.

#### What do I agree to when I sign below?

By signing below, you indicate you have read and understand this form. You agree that IPHARM has no responsibility to contact your health care provider. You agree to receive testing from IPHARM for the test(s) you have requested. Finally, you agree to hold harmless IPHARM personnel for acts beyond their control or outside their responsibility in providing you these tests.

#### Do you need to give these results to your health care provider?

IPHARM strongly encourages you to take your results to your provider when you next schedule an appointment. In some cases, IPHARM may suggest you schedule an appointment with your provider. However, IPHARM reminds you that a single screening test result, whether abnormal or normal, does not provide you or your provider enough information on which to make therapeutic decisions about your health. However, the tests may indicate that you should have further tests done or that you may wish to undertake changes in your life that could improve your health.

\_\_\_\_\_  
Client Signature

\_\_\_\_\_  
Date

\_\_\_\_ Initial here if you will allow IPHARM to take a picture of you during testing. Any picture taken will only be used for publicity of the IPHARM program.

\_\_\_\_ Client record number (record on results sheet also)

## **Appendix B    Protection of Staff & Public from Blood-Borne Pathogens**

IPHARM will follow procedures outlined below in order to protect individuals administering finger-stick tests and individuals exposed to finger-stick test waste that might cause injury. In all cases, IPHARM's intent is to protect staff and the public from potential injury.

### **Procedure 1**

All IPHARM workers will be instructed before any tests are completed by an IPHARM Clinical Pharmacist Specialist (CPS), Principal Investigator (PI), or Project Coordinator (PC).

### **Procedure 2**

All IPHARM workers administering finger-sticks must wear non-latex gloves on both hands prior to administering any finger-stick.

### **Procedure 3**

All IPHARM workers will administer finger-stick tests only after training on the proper method for doing this procedure and only after observation of an instructor (PI, CPS, or PC) administering this test.

### **Procedure 4**

The following items must be placed in a "Sharps" container after use:

Lancets (closed, open, or retractable), pipettes or other collection tubes, any other devices or potentially sharp objects that are used and come into contact with blood or body fluids. Items that may be discarded in a plastic garbage bag include the following: alcohol swabs, tissues including tissue with blood, used Band-Aids, and gloves that are properly removed and folded inside out into one another (gloves with blood may be handled in this manner also).

### **Procedure 5**

After a person has a finger-stick test, they should be told to compress the site for at least 3-5 minutes with gentle but firm pressure. The IPHARM staff member working the station should inspect the site after this in order to determine if the person's lancet wound has stopped bleeding. If not, a Band-aid shall be applied.

### **Procedure 6**

In the event any worker believes they have come into contact with blood or body fluid and such contact has consisted of contact with an open sore or mucous membrane, the worker should immediately contact the IPHARM Clinical Pharmacist Specialist at the event.

## Appendix C      Screening Recommendations in Elderly People

<b>Screening Test (Disease Being Screened)</b>	<b>Recommendations by...</b> • <b>Who Should be Screened?</b>
<b>Body mass index</b> (Obesity)	<b>U.S. Preventative Services Task Force<sup>(13)</sup></b> • All patients should have BMI calculated at least one time per year. (see Appendix D: BMI Chart <sup>(54)</sup> or website: <a href="http://www.cdc.gov/nccdphp/dnpa/bmi/calc-bmi.htm">http://www.cdc.gov/nccdphp/dnpa/bmi/calc-bmi.htm</a> for an online calculator.
<b>Bone density</b> (Osteoporosis)	<b>National Osteoporosis Foundation<sup>(56)</sup></b> • Any women >65 years old • Any women <65 years old who has one or more risk factors (not including being Caucasian, female and postmenopausal). ○ Risk factors include: current cigarette smoking, parental history of hip fracture, body weight <127 pounds, greater than 3 months of glucocorticoids use, or a history of any long-term disease which may increase a person's risk of osteoporosis. • Any postmenopausal women who presents with a fracture
<b>Blood pressure</b> (Hypertension)	<b>U.S. Preventative Services Task Force<sup>(58)</sup></b> • Periodically in all adults (>18 years old)
<b>Fecal occult blood test (FOBT), sigmoidoscopy</b> (Colon Cancer)	<b>American Cancer Society<sup>(58)</sup></b> Starting at 50 years old, men & women should choose one of the following: • Yearly fecal-occult blood test. • Flexible sigmoidoscopy every 5 years. • Double contrast enema every 5 years. • Colonoscopy every 10 years.
<b>Hearing</b> (Hearing loss)	<b>U.S. Preventative Services Task Force<sup>(57)</sup></b> • Yearly in adults >65 years old.
<b>Hemoglobin A<sub>1c</sub></b> (Diabetes Mellitus, Type II)	<b>U.S. Preventative Services Task Force<sup>(59)</sup></b> • Screening in all adults is currently not recommended unless the patient also has either hypertension or hyperlipidemia. • Patients who may be at risk for diabetes (eg. American Indians, familial history of diabetes, overweight or gestational diabetes) may be candidates for routine screening.
<b>Lipid profile</b> (Lipid disorders)	<b>U.S. Preventative Services Task Force<sup>(60)</sup></b> • Men over 35 and women over 45 years old, should have routine (at least every 5 years) lipid tests which include total cholesterol, LDL-cholesterol and HDL-cholesterol. • Men younger than 35 and women younger than 45 years old who have multiple risk factors for heart disease (e.g., tobacco use, diabetes, hypertension or familial history of heart disease or cholesterol) should also have their lipid profile checked routinely.
<b>Mammogram</b> (Breast Cancer)	<b>American Cancer Society<sup>(58)</sup></b> • Women over 40 years old should have an annual mammogram and should perform monthly breast-self examination.
<b>Pap smear</b> (Cervical Cancer)	<b>American Cancer Society<sup>(58)</sup></b> • Between the ages of 30-69, women should have a Pap smear every 2-3 years if she has had 3 consecutive yearly Pap tests that were normal. • Women 70 years an older may stop having Pap smears if they have had 3 consecutive Pap tests which were normal and no abnormal tests within the past 10 years. • Women with a hysterectomy may stop having a Pap test <i>UNLESS</i> the reason for the hysterectomy was related to precancerous or cancerous changes.
<b>Prostate specific antigen (PSA)</b> (Prostate Cancer)	<b>American Cancer Society<sup>(58)</sup></b> • Starting at 50 years of age, all men should have a yearly PSA level and a digital rectal examination performed, if they are expected to live at least 10 years.
<b>Snellen Vision chart</b> (Vision loss)	<b>U.S. Preventative Services Task Force<sup>(57)</sup></b> • Yearly in all adults >65 years old

## Appendix D Body Mass Index Chart<sup>(54)</sup>



## Appendix E: Continuing Education Questions

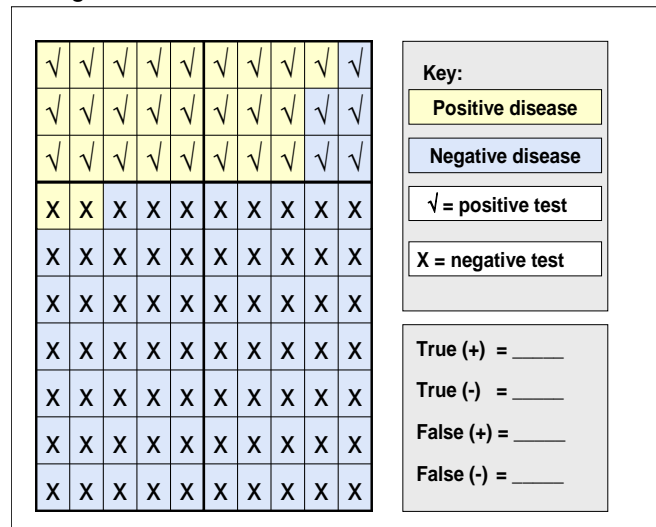
### *Overview of Geriatric Health Screening*

#### (Record responses on examination form)

- 21) Beginning in 2011, the first of the baby-boomer generation will be retiring. By 2050, what estimated proportion of the American population will be over the age of 65 years old?
- 1 in 3
  - 1 in 4
  - 1 in 5
  - 1 in 6
- 22) Which of the following statements is true about health issues facing the geriatric population?
- Chronic diseases account for approximately 50% of health care costs in America.
  - More people die each year in the U.S. from heart disease than any other disease.
  - Elderly patients typically have the same number of chronic health conditions as patients who are younger.
  - Cancer, diabetes and stroke are the most common chronic diseases afflicting patients over the age of 70.
- 23) Which of the following statements regarding obesity or being overweight is **NOT** true?
- Obesity is more common in patients less than 60 years old, but continues to be an issue for elderly patients.
  - A patient who weighs 158 pounds and is 5'5" tall has a body mass index indicating they have a normal weight.
  - According to the National Health and Nutritional Examination Survey of 2002, approximately two-thirds of the nation is either overweight or obese.
  - Initiating lifestyle modifications (i.e., eating a healthier diet, not smoking, increased exercise) in the elderly population has been proven to be beneficial.
- 24) Tobacco smoking is the single most preventable risk factor for disease and death in America?
- True
  - False
- 25) Which of the following facts is **NOT** true regarding issues facing Montana residents?
- Montanans typically make more money per person than the average American.
  - It is predicted that by the year 2025, Montana will be 3<sup>rd</sup> highest state in the nation for the percentage of people over the age of 65 years old.
  - Montanans typically have to travel farther to reach health care.
  - Montanans account for less than 1% of the total American population.
- 26) Which of the following national initiatives was designed to coordinate the national resources found within the Department of Health and Human Services?
- HealthierUS
  - Steps to a HealthierUS
  - Healthy People 2010
  - Agency for Healthcare Research and Quality
- 27) Where might you find recommendations by the U.S. Preventative Services Task Force on preventative services?
- Healthy People 2010
  - Put Prevention into Practice*
  - Steps to a HealthierUS
  - Administration on Aging

- 28) Counseling a patient to make lifestyle modifications (i.e., not smoking, eating a healthy diet, and increasing exercise) would constitute which level of disease prevention?
- Primary prevention
  - Secondary prevention
  - Tertiary prevention
  - All of the above
- 29) Which of the following would does **NOT** represent a secondary level of disease prevention?
- An annual influenza injection
  - Lipid testing
  - Bone density screening
  - Prostate specific antigen testing
- 30) Of the age-related visual impairments, which of the following is the most common cause for legal blindness among the elderly?
- Cataracts
  - Diabetic retinopathy
  - Glaucoma
  - Macular degeneration
- 31) Which of the following statements would a patient with visual impairments most easily read?
- IT IS RECOMMENDED YOU TAKE AT LEAST 1200 MG OF CALCIUM PER DAY.
  - It is recommended you take at least 1200 mg of calcium per day.
  - It is recommended you take *at least* 1200 mg of calcium per day.
  - It is recommended you take at least 1200 mg of calcium per day.*
- 32) Which of the following tips for communicating with patients who are hard of hearing is **NOT** recommended?
- Avoid chewing gum or eating while talking with patients
  - Try to find a location with low background noise
  - Physically place yourself with a strong light source to your back (i.e., sunlight) to enhance shadows on your face
  - Ensure you have the patient's attention prior to speaking, speak clearly, and maintain eye contact
- 33) It is a safe assumption that the educational level a person achieves in school is equivalent to his or her current reading level. (Example: High school graduate reads at a 12<sup>th</sup> grade level.)
- True
  - False
- 34) Which of the following tips for writing materials aimed at the geriatric population is **NOT** recommended?
- Put the most important information at the beginning and repeat the information at the end.
  - Placing text into paragraphs (i.e, book style) is easier to read than columns of information (i.e., newspaper style).
  - Visual aids include captions and are placed close to the related text.
  - Write the text as if you were having a conversation with the patient.
- 35) Which of the following statements regarding health literacy is true?
- A patient's health literacy is equivalent to their normal reading level.
  - Functional health illiteracy is more common in highly educated people.
  - People with marginal or inadequate health literacy are often ashamed of their inadequacy.
  - None of the above are true

- 36) Speaking to patients about their health can be challenging for health care professionals. Which of the following tips is recommended in speaking with patients?
- Use simple language and avoid medical jargon.
  - Use open-ended questions to open up lines of communication.
  - Ask the patient to rephrase what was discussed with them to assess their level of understanding.
  - All of the above are true
- 37) The accuracy of a screening device represents the ability of the test to repeatedly reproduce similar results.
- True
  - False
- 38) A new technology for a screening device is developed and was compared to the gold standard method. One hundred patients were screened and gave the following results (See Figure 1). Calculate the sensitivity and specificity of the screening device.
- Sensitivity = 95%; Specificity = 90%
  - Sensitivity = 92.5%; Specificity = 93%
  - Sensitivity = 90%; Specificity = 93%
  - Sensitivity = 90%; Specificity = 95%



**Figure 1: Hypothetical Screening Scenario**

- 39) Which of the following screening tests would not be a candidate for CLIA waived status?
- Home pregnancy test
  - Portable bone density test
  - Rapid Streptococcus Group A antigen test
  - MR (magnetic resonance) scan
- 40) Which of the following agencies would be the most useful resource for family members of aging adults in terms of providing care?
- Administration on Aging
  - National Center for Chronic Disease Prevention
  - National Institutes on Aging
  - Agency for Healthcare Research and Quality

Continuing Education Examination Form  
 Module: Overview of Geriatric Health Screening

POST-TEST

**Participant Information**

1. Name: \_\_\_\_\_
2. Mailing address: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
3. Date exam completed \_\_\_\_\_

**Questions: (Please circle one response per question)**

1	A	B	C	D
2	A	B	C	D
3	A	B	C	D
4	A	B	C	D
5	A	B	C	D
6	A	B	C	D
7	A	B	C	D
8	A	B	C	D
9	A	B	C	D
10	A	B	C	D
11	A	B	C	D
12	A	B	C	D
13	A	B	C	D
14	A	B	C	D
15	A	B	C	D
16	A	B	C	D
17	A	B	C	D
18	A	B	C	D
19	A	B	C	D
20	A	B	C	D

For continuing education credit,  
 please return this completed  
 page to:

Rachael Curran  
**MTGEC/IPHARM**  
 Skaggs Building Room 317  
 University of Montana  
 32 Campus Drive  
 Missoula MT, 59812-1522  
 Phone# (406) 243-2339 & Fax# (406) 243-4353

**IX. Evaluation for MTGEC Module:  
Overview of Geriatric Health Screenings**

Please Circle your profession: Dietitian ▪ Nursing Home Administrator ▪ APRN ▪ RN ▪ LPN ▪ Pharmacist ▪ Physical Therapist ▪ Physician ▪ Social Worker ▪ Other \_\_\_\_\_

	<b>Please circle or underline the appropriate number.</b>	<b>Yes</b>					<b>Don't Know</b>
1	The overall visual presentation of the material enhanced my learning.	5	4	3	2	1	X
2	The module content was understandable.	5	4	3	2	1	X
3	The content was presented without bias.	5	4	3	2	1	X
4	The content will be useful for health-care professionals working with the elderly.	5	4	3	2	1	X
5.	The objectives were clear.	5	4	3	2	1	X
6	This approach met my learning objectives.	5	4	3	2	1	X
7	To what extent have you achieved each objective?	5	4	3	2	1	X
8	The module objectives related well to the overall purpose/goal of the web-based curriculum.	5	4	3	2	1	X
9	The test questions were unambiguous.	5	4	3	2	1	X
10	The test questions were appropriate to the module content.	5	4	3	2	1	X
11	This teaching method was appropriate and used effectively.	5	4	3	2	1	X
12	I would recommend this course to other health care professionals.	5	4	3	2	1	X
13	How did you learn about the modules?						

14	Describe how you plan to use the information you obtained from these modules:  <input type="checkbox"/> Establish a new program <input type="checkbox"/> Provide patient information <input type="checkbox"/> Change your practice with elderly patients <input type="checkbox"/> Other: (Describe)
15	How many hours did you take to complete this module including the pretest, posttest, and evaluation? Please use decimals, for example, 2.25 hours.  <p style="text-align: right;">_____Hours</p>
16	Any other suggestions?