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.

- **Before** reading the module, and without looking at it, complete the Pre-Test. Record your answers on the examination form marked Pre-Test. *(Found at the start of the module.)*
  Keep the completed answer form to return at the completion of the module.

- Complete the module as outlined in the syllabus.

- **After** reading the module, please complete the Post-Test. Record your answers on the examination form marked Post-Test. *(Found at the end of the module.)*
  Keep the completed answer form to return with the pre-test at the completion of the module.

  Complete the Module Evaluation. *(Found after the post-test.) Keep the completed module evaluation form to return with the pre-test and post-test at the completion of the module.

- **To obtain credit for the module you must:**

  1. Complete online or return the MTGEC Participant Profile
  2. Return the Pre-Test, Post-Test, and Module Evaluation
  3. Obtain a score of 70% or better on the Post-Test

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Pre-test: Overview of Geriatric Health Screening

(Record responses on examination form)

1. Beginning in 2011, the first of the baby-boomer generation began retiring. By 2030, what estimated proportion of the American population will be 65 years of age or older?
   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. Older adult 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 older adult 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 2011-2012, approximately 70% of the nation is either overweight or obese.
   d. Initiating lifestyle modifications (i.e., eating a healthier diet, not smoking, increased exercise) in the older adult population has been proven to be beneficial.

4. Tobacco smoking is the single most preventable risk factor for disease and death in America. What percentage of deaths can be attributed to smoking?
   a. 10%
   b. 15%
   c. 20%
   d. 25%

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. Compared to national percentages, more Montanans die of stroke and COPD.
   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 prevent and reduce the costs of disease, improve people’s lives and promote community health and wellness?
   a. HealthierUS
   b. CDC’s Making Healthy Living Easier
   c. Healthy People 2020
   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. Prevention and Chronic Care Program
   c. Steps to a HealthierUS
   d. Administration on Aging
8. Which of the following agencies would be the most useful resource for family members of aging adults in terms of providing care?
   a. Administration on Aging
   b. National Center for Chronic Disease Prevention
   c. National Institutes on Aging
   d. Agency for Healthcare Research and Quality

9. 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

10. 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

11. Of the severe age-related visual impairments, which of the following is the most common cause of vision impairment among older adults?
   a. Cataracts
   b. Diabetic retinopathy
   c. Glaucoma
   d. Macular degeneration

12. Which of the following formats would a patient with visual impairments most easily read?
   a. All text in capital letters.
   b. All text in size 14 or 16 font.
   c. All text in size 9 or 10 font.
   d. All text in italics.

13. 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

14. Patients with low health literacy are less likely to:
   a) Require hospitalization
   b) Fail to adhere to medication instructions
   c) Obtain recommended immunizations
   d) Utilize emergency room services

15. 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 bulleted lists.
   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.
16. 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

17. Speaking to patients about their health can be challenging for health care professionals. Which of the following tips is recommended in speaking with patients?
   a. Use simple language and avoid medical jargon.
   b. Use open-ended questions to open up lines of communication.
   c. Ask the patient to rephrase what was discussed to assess the level of understanding.
   d. All of the above are true

18. The ability of a test to repeatedly reproduce similar results is its:
   a) Accuracy
   b) Precision
   c) Sensitivity
   d) Specificity

19. 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.
   a. Sensitivity = 95%; Specificity = 90%
   b. Sensitivity = 92.5%; Specificity = 93%
   c. Sensitivity = 90%; Specificity = 93%
   d. Sensitivity = 90%; Specificity = 95%

   Figure 1: Hypothetical Screening Scenario

20. Which of the following screening tests would not be a candidate for CLIA waived status?
   e. Home pregnancy test
   f. Portable bone density test
   g. Rapid Streptococcus Group A antigen test
   h. MR (magnetic resonance) scan
Module: Overview of Geriatric Health Screening  

**PRE-TEST**

**Participant Information**

1. Name: _______________________________

2. Mailing address: __________________________
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3. Date exam completed __________________________

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

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Overview of Geriatric Health Screening

Developed by Kim Madson, Pharm.D.

Updated by Rachael Zins, Pharm. D.
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A 2-hour Geriatric Health Screening Module from the
Montana Geriatric Workforce Enhancement Program

A Consortium of:
The University of Montana, Missoula
Mountain Pacific Health, Helena
RiverStone Health, Billings
St. Vincent Healthcare, Billings

Montana Geriatric Education Center Website

May 2016

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Montana Geriatric Education Center
Montana Geriatric Workforce Enhancement Program Goals/Purpose
Improve health outcomes for older adults in rural Montana via increased knowledge of older adult care and treatment of health problems by health professionals.

Successful Completion of this Continuing Education Activity:
1. Completion of Pre-Test
2. Reading of text and associated website resources
3. Completion of Post-Test with at least 70% accuracy
4. Completion of module evaluation

Contact Hours: 2

Montana Nurses Association (MNA)
The Montana Geriatric Education Center is an approved provider of continuing nursing education by the Montana Nurses Association, an accredited approver by the American Nurses Credentialing Center's Commission on Accreditation. 
MNA Continuing Nursing Education Expiration Date: May 6, 2019

Conflicts of Interest
The planners and presenters of the CE activity have disclosed no relevant financial relationship with any commercial companies pertaining to this activity.

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Description of Module

Content:
This module will discuss the basic issues which surround health screening in the geriatric population.

Module Purpose:
Distinguish between the different levels of disease prevention and state where screening of disease fits into the preventative plan.

Learning Objectives:

1. Discuss governmental initiatives that focus on maintaining the health of older adults.
2. Discuss the three levels of disease prevention.
3. Identify where to find current recommendations for health screening for older adults and the tests available for those screenings.
4. Describe how patient-related barriers may influence geriatric screening and recommend strategies to overcome these barriers.
5. Describe the differences between:
   a. Accuracy and precision
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6. Suggest strategies for managing potential emergencies that may arise during geriatric health screening.
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Overview of Geriatric Health Screening

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 effect on the aging individual.

The scope of this module 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 older adults.
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 U.S. Census Bureau, the United States total population has increased from 150 million in 1950 to 311.5 million in 2011. During this same time period, the older population (65 years and older) grew from 12 to 42.3 million persons and is expected to more than double to 89 million by 2050.\(^1\,^2\) The number of Americans 85 years and older is expected to rise rapidly for the next 40 years so that by 2050, they will number 19 million.\(^3\) These facts could have serious implications for our current healthcare system.

The baby-boomer generation (those born between 1946 and 1964) represent a bolus of growth during the 20\(^{th}\) century, and by 2050 fully one fifth of the US population will be 65 or older.\(^3\) Most of this increase will take place by 2030 as the last baby boomers reach
65. It is estimated that by 2030, one in five U.S. residents will be 65 or older. This signifies a potential drain on the healthcare system.\(^{(3)}\)

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. **Older 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 1) Chronic diseases, of which older adults often have more than one, negatively impact a patient’s quality of life. Common chronic diseases in older adults include congestive heart failure, lipid disorders, hypertension, diabetes, arthritis and dementia. The prevalence of multiple chronic conditions increases with age; thus, older adults are more likely to have multiple chronic conditions. Additionally, chronic diseases are the leading causes of death in the United States and Montana. (See Figure 2)

![Chronic Diseases in the U.S.](image_url)

*Figure 1: Chronic Diseases in the U.S.*\(^{(4)}\)
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 hundred plus years, the combined life expectancy for men and women has increased from 47 years in 1900 to almost 78.8 years in 2012 and is expected to be 79.5 by 2020. (6) (See Figure 3 Life expectancy for females has been consistently higher than that for males. As the population continues to live longer, the prevalence of chronic diseases increases. (1)

In 2012, 117 million people, approximately 50% of all Americans, had one or more chronic health conditions. One in four American adults had two or more chronic health conditions. (7) Between 2000 and 2030 the number of Americans with chronic conditions will increase by 37%, an increase of 46 million people. (4) Life expectancy for females born in 2010 is 79 years,
compared to 76 years for males.\textsuperscript{(8)} In 2012, at age 65, female life expectancy is 2.6 years longer than male life expectancy.\textsuperscript{(6)}

![Changes in Life Expectancy of Americans](image)

**Figure 3: Changes in Life Expectancy of Americans\textsuperscript{8)**

**3. Rising health care costs.**

In 2011, health care costs were estimated at 2.7 trillion, over ten times the $256 billion spent in 1980 and up from 2 trillion in 2005. Health care costs accounted for 17.9\% of the nation’s Gross Domestic Product (GDP) in 2010.\textsuperscript{(9,10)}

Personal health expenditures which include such services as physician visits, hospital care, dental care, prescription drugs, and nursing home care accounted for 84\% of national health care expenditures in 2007. Private health insurance paid for 36\% of these personal health expenditures.\textsuperscript{(11)}

The U.S. spends 85\% of its healthcare dollars on people with chronic conditions.\textsuperscript{(3)} The challenge is to provide access to high-quality care and
services that promote health as the conditions progress. Care also needs to be coordinated across multiple providers and payers.

Chronic diseases account for 70% of US deaths and more than 75% of the annual health costs.\(^{(12)}\) (See Table 1.) People with chronic conditions, especially those with more than one chronic condition, are the most frequent users of health care services. These people use hospitals, office visits, home health care and prescription drugs at a higher rate than people without chronic conditions.\(^{(3)}\)

The financial cost of chronic diseases significantly impacts the older adult population, as many in this group have limited funds available to pay for healthcare. In 2011, the U.S. Census Bureau reported 14.5% or 6 million people over 65 are below or near (income between the poverty level and 125% of this level) the national poverty level.\(^{(13,14)}\)

<table>
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<th>Total cost</th>
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<td>$127.8 billion</td>
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<tr>
<td>Obesity (2008)</td>
<td>$147 billion</td>
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*Table 1: Cost of Chronic Diseases in America*\(^{(13,16-18)}\)

4. **Prescription drug costs**

Spending in the U.S. for prescription drugs was $259.1 billion in 2010 and is projected to double over the next decade. The current rate of growth has slowed from the early 2000s, but with the implementation of the Affordable Care Act (ACA) in 2014, drug costs are expected to increase sharply.\(^{(15)}\) The increase in expenditures is due in part to the increasing number of people receiving health care as a result of the ACA and the continued increase in the population over the age of 65.
**Who is paying for these prescriptions?**

- **Private insurance:** There is considerable variance in the drugs covered and the share of costs.

- **Medicare:** The Medicare Part D outpatient prescription drug benefit went into effect on January 1, 2006. Spending on the Part D program was estimated to have reached $60 billion in 2011. Subsidies are available for low-income seniors, but some still incur large out-of-pocket costs. The Affordable Care Act will help reduce out-of-pocket costs.

- **Medicaid:** Medicaid is the major source of outpatient prescription drugs for the low-income population and people with HIV/AIDS. State Medicaid programs vary widely in regards to participation, drugs allowed and number of drugs.

- **Individual out-of-pocket**

In years 2015 through 2021, drug spending growth is expected to average 6.6% per year, reflecting the diminishing impact on spending from more patent expirations and the greater use of generic drugs.\(^{(15)}\)

**5. Current status of health in nation**

Managing health care costs has sparked a renewed interest in the role of disease prevention. 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 premature deaths in the United States.\(^{(19-20)}\) In recent years, there has been tremendous focus on the rise in rates of overweight and obesity and their contribution to chronic illnesses and health care spending.

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 older adults.
a) Overweight and Obesity

In the past 20 years, there has been a dramatic increase in obesity in the United States. Results from the 2011–2012 National Health and Nutrition Examination Survey (NHANES) show that 69% of the U.S. population weighs more than recommended. The survey estimated 33.9% of U.S. adults aged 20 and over are overweight (BMI 25.0–29.9), 35.1% are obese (BMI ≥30), and 6.4% are extremely obese (BMI ≥ 40 kg/m²).\(^{(21)}\)

Definitions of overweight and obesity can be found at the CDC website: [Defining Overweight and Obesity](https://www.cdc.gov/). The CDC recommends all patients should have Body Mass Index or BMI calculated to determine if they are at a healthy weight. An online [BMI calculator](https://www.cdc.gov/) may be used to determine BMI, or see Appendix D for a copy of a Body Mass Index chart.

Key findings from the NHANES survey 2007-2010 estimated that more than one-third of older adults aged 65 and older were obese. Obesity rates are higher in older adults aged 65-74 compared with those aged 75 and older. (See Figure 4)\(^{(22)}\) The obesity rate among older men increased between 1999-2000 and 2007-2010.
The financial cost of obesity is also significant. By one estimate, the U.S. spent $190 billion on obesity-related health care expenses in 2005—double previous estimates\(^\text{23-24}\) Understanding the cost of obesity has encouraged more programs focusing on prevention and treatment. Two newer national efforts include “Let’s Move” and “Communities Putting Prevention to Work”. More work is needed in this effort to make healthy weights the norm.

Fortunately, older adults can still make modifications to their health which will have benefits. A 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: (a) the adoption of the Mediterranean diet (high in beans, nuts, seeds, grains, fruits, vegetables, and monounsaturated fats; low in saturated fats), (b) moderate exercise, (c) moderate alcohol use, and (d) 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 factors were followed.
modifications were adopted, which resulted in a 60% decrease in mortality rate compared to individuals who did not adopt any of the lifestyle changes.\textsuperscript{(25)} A systematic review of twenty-two trials studying the effect of physical exercise on cognitive impairment or dementia found some positive effects in older subjects with MCI, however, most studies performed on older subjects with dementia showed no effect of exercise on cognition.\textsuperscript{(26)} A functional tasks exercise program has been shown to improve the cognitive functions and functional status of older adults with mild cognitive impairment.\textsuperscript{(27)}

b) 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).\textsuperscript{(28)}

Despite the significant warnings against tobacco use, almost 21% of Americans currently use tobacco products, and while tobacco use is primarily found in younger generations, 8.5% of people over the age of 65 continue to smoke cigarettes.\textsuperscript{(28)} (See Figure 5)
Figure 5: Prevalence of Cigarette Smoking in the USA: 2010\(^{(28)}\)

The financial burden of tobacco use is quite notable. In 2004, it was associated with $96 billion in direct medical costs and $97 billion in indirect costs (i.e., lost productivity) totaling $193 billion.\(^{(27)}\)

The Montana Tobacco Use Prevention Program in the Chronic Disease Prevention and Health Promotion Bureau of the Department of Health and Human Services collects data on tobacco use, sponsors prevention, cessation programs, and enforces tobacco legislation. The program offers the following facts on tobacco use in Montana:\(^{(29)}\)

- 22.1% of adults 18 and over smoked cigarettes in 2011. The national range is 11.8-29.0%, MT ranks 32\(^{nd}\) in the U.S. for cigarette usage.\(^{(28)}\)
- 7.1% of adults 18 and older use smokeless tobacco. The national range is 1.4-9.8, MT ranked 46\(^{th}\) in the U.S.\(^{(29)}\)
- Every year, Montanans pay more than $277 million in medical expenditures attributable to smoking, and
businesses pay more than $305 million in lost productivity due to illness and time off.

- Every pack of cigarettes purchased in Montana costs society about $4.44—half in medical costs and half in lost productivity.
- According to the MT Tobacco Use Prevention Program, an estimated 38% of American Indian adults in MT are current smokers. This is a decrease from 46% in 2009.\(^{(30)}\)
- According to the MT Tobacco Use Prevention Program, almost twice as many Montana American Indians use smokeless tobacco compared to the national AI population (13% vs. 7 %).\(^{(31)}\)
- 15% of Montana adult males use smokeless tobacco at a rate that is almost double the national average (15% compared to 8%).\(^{(31)}\)
- In 2008, the Montana Prevention Needs Assessment found that, among adolescents in grades 8, 10, and 12, 16% smoked and 15% of males used smokeless tobacco.

**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 the 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.
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

The HealthierUS initiative is a national effort to prevent disease and reduce its costs, improve people’s lives, and promote community health and wellness. The program began in 2002 and has developed over time.

Originally, a website HealthFinder.gov was developed to assist Americans to obtain credible and accurate health information. In 2016, this website is coordinated by the Office of Disease Prevention and Health Promotion (OPHP) and its health information referral service, the National Health Information Center.
2. CDC Division of Community Health (DCH): Making Healthy Living Easier

The Division of Community Health manages three initiatives that support programs to prevent and control chronic diseases and improve community health. These programs focus on urban and rural areas, and partner with tribal organizations, and community and national organizations.

   a) The [Partners to Improve Community Health (PICH)] program implements population-based strategies, tailored to individual community needs, across various settings (community institutions/organizations, health care facilities, schools, and worksites). The goal is to reduce chronic disease prevalence and related risk factors by providing greater access to healthier environments.

   b) [National Implementation and Dissemination for Chronic Disease Prevention] is a national initiative that supports national and local organizations in building and strengthening community infrastructure that will improve community health.

   c) The [Racial and Ethnic Approaches to Community Health (REACH)] program uses community-based approaches to identify, develop, and disseminate effective strategies for addressing health disparities in racial and ethnic communities. Strategies include less tobacco use and exposure, physical activity; focus on proper nutrition, and chronic disease prevention.

3. Healthy People 2020

In 1979, the U.S. Surgeon General provided a report on health promotion and disease prevention that outlined national goals. For the past 40 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 provides a mechanism to improve health, prevent disease and use the knowledge learned over the past 10 years, as well as measure the progress. Five plans
have been issued over the years, for 1980, 1990, 2000, 2010 and now 2020.

The goals of Healthy People 2020 were constructed from a consensus within a federal interagency workgroup consisting of eight US government departments with input from over 75 lead federal agencies. Public comment was obtained in regional meetings held across the country, on a public comment website, and through a request for comment in the Federal Register.

The overarching goals of Healthy People 2020 are:

- Attain high quality, longer lives free of preventable disease, disability, injury, and premature death
- Achieve health equity, eliminate disparities, and improve the health of all groups
- Create social and physical environments that promote good health for all
- Promote quality of life, healthy development, and healthy behaviors across all life stages

Healthy People 2020 identifies 42 topic areas with 26 Leading Health Indicators under twelve of the topics. (See Table 3) Thirteen new topic areas have been added to Healthy People 2020. (See Table 4)

<table>
<thead>
<tr>
<th>Leading Health Indicators Focus Areas 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Access to Health Services</td>
</tr>
<tr>
<td>2. Clinical Preventive Services</td>
</tr>
<tr>
<td>3. Environmental Quality</td>
</tr>
<tr>
<td>4. Injury and Violence</td>
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<tr>
<td>5. Maternal, Infant and Child Health</td>
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<tr>
<td>6. Mental Health</td>
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<tr>
<td>7. Nutrition, Physical Activity, and</td>
</tr>
<tr>
<td>Obesity</td>
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<tr>
<td>8. Oral Health</td>
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<tr>
<td>9. Reproductive and Sexual Health</td>
</tr>
<tr>
<td>10. Social Determinants</td>
</tr>
<tr>
<td>11. Substance Abuse</td>
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<tr>
<td>12. Tobacco</td>
</tr>
</tbody>
</table>

Table 3: Leading Health Indicator Topics of Healthy People 2020
### New Topic Areas 2020

<table>
<thead>
<tr>
<th>Topic Area</th>
<th>Topic Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adolescent Health</td>
<td>Health Related Quality of Life and Well-being</td>
</tr>
<tr>
<td>Blood Disorders and Blood Safety</td>
<td>Lesbian, Gay, Bisexual, and Transgender Health</td>
</tr>
<tr>
<td>Dementias, Including Alzheimer’s Disease</td>
<td>Older Adults</td>
</tr>
<tr>
<td>Early and Middle Childhood</td>
<td>Preparedness</td>
</tr>
<tr>
<td>Genomics</td>
<td>Sleep Health</td>
</tr>
<tr>
<td>Global Health</td>
<td>Social Determinants of Health</td>
</tr>
<tr>
<td>Health-care Associated Infections</td>
<td></td>
</tr>
</tbody>
</table>

**Table 4: New Topic Areas of Healthy People 2020**

4. **Agency for Healthcare Research and Quality (AHRQ)**

AHRQ's mission is to improve the delivery of preventive and chronic care by developing tools, resources, and materials to support health care organizations and engage the entire health care delivery system. 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 the Prevention and Chronic Care Program and the National Guideline Clearinghouse™.

a) The [Prevention and Chronic Care](#) program provides information on evidence-based decision making and improving primary care practice.

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 organizations. Website links are commonly provided to allow direct access to the desired guideline.

5. **Administration on Aging (AoA)**

The [Administration on Aging](#) (AoA) is now a branch of the Administration for Community Living (ACL) which is part of the U.S Department of Health and
Human Services. AoA serves as the focal point for issues pertaining to older adults, as well as serving as an advocate for patient rights in the older population. AoA’s mission is to “develop a comprehensive, coordinated and cost-effective system of home and community-based services that helps older individuals maintain their health and independence in their homes and communities.”

6. National Institute on Aging (NIA)\(^{41}\)

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 older person. NIA is the primary Federal agency conducting and supporting Alzheimer’s disease research. The main goals of the NIA are:

a) Improve our understanding of healthy aging and disease and disability among older adults;
b) Continue to develop and disseminate information about interventions to reduce disease and disability and improve the health and quality of life of older adults;
c) Improve our understanding of Alzheimer’s disease, other dementias of aging, and the aging brain;
d) Improve our understanding of the consequences of an aging society and provide that information to inform intervention development and policy decisions;
e) Improve our ability to reduce health disparities and eliminate health inequities among older adults;
f) Support the infrastructure and resources needed to promote high-quality research and communicate its results.
B. State of Montana

Montana has two main organizations which administer programs for older 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.

1. Public Health and Safety
The mission of the Public Health and Safety Division is to improve the health of Montanans to the highest possible level. The division has programs in chronic disease prevention and health promotion, cancer control, communicable disease control and prevention, food and consumer safety, WIC/Nutrition Program, women’s and men’s reproductive health, laboratory services and a primary care program. The division also provides an informatics program, a public health training unit and a preparedness program.

2. Senior and Long Term Care Division
The Senior and Long Term Care Division’s mission is to advocate and promote dignity and independence for older Montanans and Montanans with disabilities by:

- Providing information, education, and assistance
- Planning, developing and providing for quality long-term care services
- Operating with a cost-effective service delivery system

The division administers aging services, adult protective services, and the state’s two veteran’s homes. The division assists with funding for older adults and disabled adults who are eligible for Medicaid and Supplemental Security Income (SSI). Programs under this division include the Area Agencies on Aging, the Long-Term Care Ombudsman, the Legal Services Developer Program, the State Health Insurance Program (SHIP), the Information, Assistance and Referral Program, Adult Protective Services, Medicaid Community Services, Home and Community Based Services and the Medicaid Nursing Facility Services Program.
IV. Levels of Disease Prevention

Levels of prevention help define the type of intervention required to: \(^{(42)}\)

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

#### A. Primary

Examples of primary prevention applicable to older adults would be vaccinations for influenza, shingles, and pneumonia. The 2015 recommendation from the Center for Disease Control is for adults over 50 years old to receive an annual influenza (flu) injection, adults 60 and older to receive a one-time shingles vaccination, and adults 65 years or older to receive the PCV13 pneumococcal vaccine followed by the PPSV23 pneumococcal vaccine 1 year later. \(^{(43)}\) The importance of vaccinating older adults was reported in a study of 200 adults hospitalized with respiratory symptoms. Of 104 adults with verified influence vaccination, 6 (5.8%) had confirmed influenza. Of 65 adults who were not vaccinated, 11 (16.9%) had confirmed influenza for an adjusted vaccine effectiveness of 76.8% for adults age 50 or older. \(^{(44)}\) Given the large older adult 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. \(^{(42)}\)

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.\(^{42}\) See Appendix C for a description of recommendations for screening in older patients from the U.S. Preventative Services Task Force and other sources. In addition, the American Academy of Family Physicians has published a *Summary of Recommendations for Clinical Preventive Services: Geriatric Care.*

**C. Tertiary**

The role of tertiary prevention is to prevent further deterioration or functional loss due to a chronic disease.\(^{42}\) For example, the initiation of a pharmacologic agent to treat osteoporosis [i.e., a bisphosphonate medication like alendronate (Fosamax\(^{®}\))] 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 primary care providers in monitoring and treating their patients.

**V. Issues Pertaining to Health Screening**

**A. Patient Related barriers**

Providing health screening services to patients, especially with older adults, can prove to be quite challenging. Barriers may complicate or prevent effective screening. Therefore, this section examines patient related barriers which may challenge personnel performing the tests, and when applicable, offers suggestions on how to overcome these challenges.
1. **Vision**\(^{45,46}\)

Almost 3.2 million Americans over the age of 40 are either visually impaired or blind. The national prevalence rate of severe vision impairment or blindness is 2.7%.

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 severe vision impairment in Americans 60 years of age and older.

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 American population will have a cataract or have had cataract surgery.

c) **Diabetic retinopathy**

(1) A complication of diabetes resulting in swollen, leaky or abnormal new blood vessels of the eye leading to loss of vision in the affected areas.

(2) Diabetic retinopathy is the leading cause of preventable blindness and causes 12,000 to 24,000 new cases of blindness each year.\(^{17,47}\)

d) **Glaucoma**

(1) Glaucoma is caused by degeneration of the optic nerve cells. For reasons not yet understood, this nerve damage is associated with increased intraocular pressure. Regardless of the pathogenesis, as the optic nerve cells die, loss of vision occurs, initially in the periphery.
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; it is now in its third edition and provides a guide for creating easy to understand materials. 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.
2. Hearing
Loss of hearing, whether related to heredity, exposure to loud noises, or due to neurological deficits, is common among older adults. Approximately 20% of adults, 48 million, report some hearing loss. One in three people has a hearing loss at age 65.\(^{(49)}\) Adults who would benefit from hearing aids seldom use them. Less than 30% of adults 70 or older who would benefit from using hearing aids report using them. Only about 16% of adults aged 20-69 who would benefit from using hearing aids has ever used them.\(^{(50)}\)

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:\(^{(51)}\)

(a) If he or she uses a hearing aid, make sure it is 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 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. Prospective participants may be deterred if they must climb stairs to get to the test area. Linoleum is the ideal flooring surface, as it generally not as slick as tile, and older adults can usually handle this surface if they are wearing non-slip shoes. Also, non-carpeted flooring maintains a sanitary environment for participants by allowing thorough cleanup of inadvertent 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. Initiated in 1985, the National Assessment of Adult Literacy (NAAL) has been repeated in 1992 and 2003.\textsuperscript{52-54} Classifying literacy levels as below basic, basic, intermediate and proficient, the 2003 assessment found little change from that of 1992 in two of the three areas of literacy: prose, document and quantitative. Overall, in U.S. adults, the 2003 results were essentially identical with those of 1992 in prose and document literacy, while there was a small, but significant, increase in quantitative literacy. For example, in the area of prose literacy (ability
to search, comprehend and use information from texts), 43% of adults scored in the below basic or basic levels; risk factors included less than a high school education, English as a second language, Hispanic or black ethnicity, age over 65 and multiple disabilities.\(^{(54)}\)

Recent statistics from the U.S. Department of Education confirm these findings, reporting 14% of U.S. adults can't read and 21% read below a 5\textsuperscript{th} grade level. They also found that 19% of high school graduates could not read.\(^{(55)}\) Therefore, making assumptions about someone’s literacy level based on their educational background could be very misleading. While adults over age 65 showed gains between 1992 and 2003 in all three types of literacy, older adults still exhibited lower levels in all areas compared to other age groups.\(^{(54)}\)

Methods to increase understanding of written material include:

a) It is recommended to write text at a 6-7\textsuperscript{th} grade level to improve understanding. Use simple sentences with low syllable counts. See Simply Put for examples of tools which can be used to determine grade level of written text.

http://www.cdc.gov/communication/resources/simppput.pdf

b) Include no more than 3 or 4 main ideas per document.

c) Create short lists with bullets when appropriate, rather than text with full sentences.

d) Limit use of jargon, technical or scientific language.

e) Limit use of statistics, symbols, abbreviations and acronyms.

f) Use pictures to help illustrate concepts or instructions.

5. Health literacy

The 2003 National Assessment of Adult Literacy included a health literacy component for the first time, designed to measure adults’ ability
to use literacy skills to read and understand health-related information. Twenty-eight health-related prose document and quantitative tasks were imbedded in the main NAAL assessment, distributed across three domains of health and health care information and services: clinical, prevention, and navigation of the health system. Results showed that the majority of adults (53%) had intermediate health literacy, 12% were proficient, 22% had basic health literacy, and 14% had below basic health literacy.\(^{56}\)

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. Patients with low health literacy are more likely to be hospitalized, utilize more emergency care, and underutilize primary and secondary preventative measures. They are less likely to take medications appropriately and less able to interpret medication labels and health messages correctly. Older adults with low health literacy exhibit poorer overall health states and higher mortality rates.\(^{57}\) Low health literacy is greatest among patients who are older, have lower educational backgrounds, who live in poverty and who have limited English language skills.\(^{56}\)

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.\(^{53}\) 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). 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.

A more practical method of identifying patients with marginal or inadequate health literacy uses three key questions (out of 16 total questions) of the validated S-TOFHLA which were strong predictors of inadequate health literacy. 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?

Of these three questions, the second, “How confident are you filling out medical forms by yourself” had the most power in identifying patients with inadequate health literacy.

Many patients try to hide their illiteracy out of shame and embarrassment. In 2007, the ability to read was assessed in 283 primary care patients in an urban public hospital along with self-reported degree of shame and embarrassment related to literacy skills. Approximately half of the patients had low literacy skills (reading at the 6th grade level or lower); 28% had marginal skills (7th-8th grade level). Slightly less than half (48%) of those reading at the lowest level
admitted feeling ashamed or embarrassed about their reading abilities.\(^{61}\) 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.

Because health illiteracy has multiple health implications, the U.S. government included the improvement of health literacy as an objective in the Healthy People 2020 goals. The Healthy People 2020 goal is to improve the health literacy of the population through enhanced health communication and health information technology.\(^{62}\)

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.\(^{63}\) (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. 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.\(^{63}\)
Suggestions to improve health literacy among older adult patients include:\(^{(48)}\)

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 number 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. **Do not appear rushed and 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. For more information see [http://www.cdc.gov/healthliteracy/culture.html](http://www.cdc.gov/healthliteracy/culture.html) and [http://www.hrsa.gov/culturalcompetence/general.html](http://www.hrsa.gov/culturalcompetence/general.html). HRSA has a section on cultural competence, scroll to section “Geriatric Population” at [http://www.hrsa.gov/culturalcompetence/age.html](http://www.hrsa.gov/culturalcompetence/age.html)

Eleanor Roosevelt once said, “Understanding is a two-way street.” \(^{63}\)

Better understanding by the provider of the patients’ needs will in turn help improve the patients understanding of their health needs, resulting in patients being better able to 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 intent in the following discussion is to 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 tests, 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 5 as a guide, accuracy would be defined as \((A+D)/(A+B+C+D)\).\(^{(64)}\)

<table>
<thead>
<tr>
<th>Positive Disease</th>
<th>Negative Disease</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive test result</td>
<td>A</td>
</tr>
<tr>
<td>Negative test result</td>
<td>C</td>
</tr>
</tbody>
</table>

Table 5: Accuracy Variables

The precision of a test refers to how closely the results of the test can be reproduced.\(^{(64,65)}\) 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 8) for a graphic representation of accuracy and precision.

![Accuracy versus Precision](image)

**Figure 8: 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). Figure 9 demonstrates the association between sensitivity and specificity in relation to true and false, and positive and negative, values.

\[
\text{Sensitivity} = \frac{\text{True (+)}}{\text{[True (+) + False (-)]}} \\
\text{Specificity} = \frac{\text{True (-)}}{\text{[True (-) + False (+)]}}
\]

Figure 9: 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 10 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.\(^{(68)}\)

![Figure 10: Hypothetical Example of Sensitivity and Specificity](image)

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.\(^{(69,70)}\) 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.\(^{(69)}\)

All the screening tests used by IPHARM/MTGE 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.\(^{(71)}\) Approximately 40 tests have been approved with **CLIA waived status**. 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.\(^{(71)}\) 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\(_{1c}\)\). 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/](http://www.cdc.gov/niosh/topics/bbp/)
   - Occupational Safety & Health Administration (OSHA)
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 and/or prior fasting. 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. Some patients will either hyperventilate or hypoventilate when they are nervous. Tell the patient to take slow, even breaths, breathing in for 4 counts and out for 4 counts. Keeping in mind the danger of aspiration when in a supine position, provide him/her with juice or soda to sip on when in a seated position. Juice or soda will help increase their blood sugar, which may be depleted from fasting or due to adrenalin depleting their stored reserves. In such a situation, the student may need to find out how the patient got to the IPHARM event and assess the safety of getting home.

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. After the patient has attained a
seated position and when s/he is able to take sips of fluid, providing juice or soda 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. Again, the student may need to find out how the patient got to the IPHARM event and assess the safety of getting home.

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.

**Governmental (National)**

- Administration on Aging *
- Agency for Healthcare Research and Quality
  - Prevention and Chronic Care Program *
- National Guideline Clearinghouse™
- Centers for Disease Control and Prevention
  - National Center for Chronic Disease Prevention and Health Promotion *
- Vaccines and Immunizations
- Centers for Medicare and Medicaid Services
  - Clinical Laboratory Improvement Amendments *
- National Institutes of Health
- National Institute on Aging *
- National Center for Health Statistics
- WomensHealth (http://www.womenshealth.gov)

**Governmental (Montana)**

- Department of Public Health and Human Services
- Public Health and Safety Division
- Senior and Long Term Care Division

**General**

- American Academy of Family Physicians:
  - Summary of Recommendations for Clinical Preventive Services: Geriatric Care.

**Health Literacy**

- Scientific and Technical Information: Simply Put *
- Health Literacy Studies, Harvard School of Public Health
- Plain Language: Improving Communication from the Federal Government to the Public ★
VII. References


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 request and for the specific purpose of providing you with information 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, obtain the results, and explain the results to you. You will receive the original and only copy of your complete test results. IPHARM personnel will record your results for statistical purposes on a data sheet that does NOT include your name. The results will be used in IPHARM reports compiled with all 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 confidential, separated, and secure. 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. *A copy of this form is available upon request.

Do I need to give these results to my 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. 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 undertake changes in your life that could improve your health.

________________________________________________     _____________________
Printed name of client                                  Date

________________________________________________     _____________________
Client Signature                                      Daytime phone number

Email address (for program feedback)

_____ Initial here if you will allow IPHARM to take a picture of you during testing to 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 the 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 for Older Adults

<table>
<thead>
<tr>
<th>Screening Test (Disease Being Screened)</th>
<th>Recommendations by…</th>
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</thead>
<tbody>
<tr>
<td><strong>Body mass index</strong> (Obesity)</td>
<td>Centers for Disease Control and Prevention</td>
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<tr>
<td></td>
<td>• All patients should have BMI calculated to determine if their weight is a healthy weight. (See Appendix D: BMI Chart or an online calculator.)</td>
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<td><strong>Bone density</strong> (Osteoporosis)</td>
<td>National Osteoporosis Foundation</td>
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<td></td>
<td>• Any women &gt;65 years old or man &gt;70 years old</td>
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<td></td>
<td>• Postmenopausal women and men above age 50-69 based on risk factor profile.</td>
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<td>• Any postmenopausal women and men age 50 and older who presents with a fracture</td>
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<td><strong>Blood pressure</strong> (Hypertension)</td>
<td>U.S. Preventative Services Task Force</td>
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<td></td>
<td>• Periodically in all adults (&gt;18 years old)</td>
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<tr>
<td><strong>Fecal occult blood test (FOBT), sigmoidoscopy</strong> (Colon Cancer)</td>
<td>American Cancer Society</td>
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<td>Starting at 50 years old, men &amp; women at average risk should use one of the following:</td>
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<td><strong>Tests that find polyps and cancer:</strong></td>
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<td>• Flexible sigmoidoscopy every 5 years.</td>
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<td></td>
<td>• Colonoscopy every 10 years.</td>
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<tr>
<td></td>
<td>• Double contrast enema every 5 years.</td>
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<tr>
<td></td>
<td>• CT colonography (virtual colonoscopy) every 5 years.</td>
</tr>
<tr>
<td></td>
<td><strong>Tests that find mainly cancer:</strong></td>
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<tr>
<td></td>
<td>• Yearly guaiac-based fecal-occult blood test.</td>
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<tr>
<td></td>
<td>• Fecal immunochemical test (FIT) every year.</td>
</tr>
<tr>
<td></td>
<td>• Stool DNA test every 3 years.</td>
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<tr>
<td><strong>Hearing</strong> (Hearing loss)</td>
<td>U.S. Preventative Services Task Force</td>
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<tr>
<td></td>
<td>• Current evidence is insufficient to assess balance of harm versus benefits of screening for hearing loss in asymptomatic adults aged 50 or older.</td>
</tr>
<tr>
<td></td>
<td>• Recommendation does not apply to persons seeking evaluation for perceived hearing problems or for cognitive or affective symptoms that may be related to hearing loss.</td>
</tr>
<tr>
<td><strong>Hemoglobin A1C</strong> (Diabetes Mellitus, Type II)</td>
<td>U.S. Preventative Services Task Force</td>
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<tr>
<td></td>
<td>• Adults ages 40-70 who are overweight or obese should be screened for abnormal blood glucose as part of cardiovascular risk assessment.</td>
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<tr>
<td><strong>Lipid profile</strong> (Lipid disorders)</td>
<td>U.S. Preventative Services Task Force</td>
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<td>• Men 35 and older and women 45 and older at increased risk for CHD should be screened for lipid disorders.</td>
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<tr>
<td><strong>Mammogram</strong> (Breast Cancer)</td>
<td>American Cancer Society</td>
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<td></td>
<td>• Women with an average risk of breast cancer should undergo regular screening mammography starting at age 45.</td>
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<td>• Women should have the opportunity to begin annual screening between the ages of 40 and 44 years.</td>
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<td>• Women aged 45 to 54 years should be screened annually.</td>
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<td>• Women 55 years and older should transition to biennial screening or have the opportunity to continue screening annually.</td>
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<td></td>
<td>• Women should continue screening mammography as long as their overall health is good and they have a life expectancy of 10 years or longer.</td>
</tr>
<tr>
<td><strong>Pap smear</strong> (Cervical Cancer)</td>
<td>American Cancer Society</td>
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<tr>
<td></td>
<td>• All women should begin cervical cancer testing at age 21. Women aged 21 to 29 should have a Pap test every 3 years.</td>
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<td>• Beginning at age 30, the preferred screen is a Pap test combined with an HPV test every 5 years. This should continue until age 65.</td>
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<td></td>
<td>• Women over 65 who have had regular screening for 10 years should stop cervical cancer screening as long as they haven’t had any serious pre-cancers found in the last 20 years.</td>
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<td></td>
<td>• Women who have has a total hysterectomy (removal of the uterus and cervix) should stop screening, unless the hysterectomy was done as treatment for cervical pre-cancer or cancer.</td>
</tr>
<tr>
<td>Screening Test (Disease Being Screened)</td>
<td>Recommendations by... Who Should be Screened?</td>
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<td>----------------------------------------</td>
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</table>
| Prostate specific antigen (PSA) (Prostate Cancer) | American Cancer Society\(^{(8)}\)  
- Recommends that men have a chance to make an informed decision with their health care provider about whether to screen for prostate cancer.  
- The discussion about screening should take place at age 50 for men who are at average risk, age 45 for men at high risk (African Americans and men who have a first-degree relative diagnosed with prostate cancer younger than 65), and age 40 for men at even higher risk (those with more than one first-degree relative who had prostate cancer younger than 65.)  
- Those men who want to be screened should have the (PSA) blood test. The digital rectal exam (DRE) may also be done as a part of screening. |
| Snellen Vision chart (Vision loss) | U.S. Preventative Services Task Force\(^{(9)}\)  
- The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of screening for visual acuity for the improvement of outcomes in older adults. |

- This table was compiled May 2016. Recommendations are updated and should be reviewed periodically.

Sources:
### Appendix D

#### Body Mass Index Chart

[Body Mass Index Table](https://www.nhlbi.nih.gov/health/educational/lose_wt/BMI/bmi_tbl.pdf)

### Body Mass Index Chart

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<td>63 107 113 118 124 130 135 141 146 152 158 163</td>
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<td>64 110 116 122 128 134 140 145 151 157 163 169</td>
<td>174 180 186 192 197 204 209 215 221 227 233</td>
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<td>65 114 120 126 132 138 144 150 156 162 168 174</td>
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<td>70 132 139 146 153 160 167 174 181 188 195 202</td>
<td>209 216 222 229 236 243 250 257 264 271 278</td>
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<td>71 136 143 150 157 165 172 179 186 193 200 207</td>
<td>215 222 229 236 243 250 257 264 271 278 286</td>
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<td>72 140 147 154 162 169 177 184 191 199 206 213</td>
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<td>75 152 160 168 176 184 192 200 208 216 224 232</td>
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<tr>
<td>76 156 164 172 180 189 197 205 213 221 230 238</td>
<td>246 254 263 271 279 287 295 304 312 320 328</td>
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Appendix E: Overview of Geriatric Health Screening (POST-TEST)

(Record responses on examination form)

1. Beginning in 2011, the first of the baby-boomer generation began retiring. By 2030, what estimated proportion of the American population will be 65 years of age or older?
   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. Older adult 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 older adult 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 2011-2012, approximately 70% of the nation is either overweight or obese.
   d. Initiating lifestyle modifications (i.e., eating a healthier diet, not smoking, increased exercise) in the older adult population has been proven to be beneficial.

4. Tobacco smoking is the single most preventable risk factor for disease and death in America. What percentage of deaths can be attributed to smoking?
   a. 10%
   b. 15%
   c. 20%
   d. 25%

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. Compared to national percentages, more Montanans die of stroke and COPD.
   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 prevent and reduce the costs of disease, improve people’s lives and promote community health and wellness.
   a. HealthierUS
   b. CDC’s Making Healthy Living Easier
   c. Healthy People 2020
   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. Prevention and Chronic Care Program
   c. Steps to a HealthierUS
d. Administration on Aging

8. Which of the following agencies would be the most useful resource for family members of aging adults in terms of providing care?
   a. Administration on Aging
   b. National Center for Chronic Disease Prevention
   c. National Institutes on Aging
   d. Agency for Healthcare Research and Quality

9. 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

10. 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

11. Of the severe age-related visual impairments, which of the following is the most common cause of vision impairment among older adults?
    a. Cataracts
    b. Diabetic retinopathy
    c. Glaucoma
    d. Macular degeneration

12. Which of the following formats would a patient with visual impairments most easily read?
    a. All text in capital letters.
    b. All text in size 14 or 16 font.
    c. All text in size 9 or 10 font.
    d. All text in italics.

13. 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

14. Patients with low health literacy are less likely to:
    a) Require hospitalization
    b) Fail to adhere to medication instructions
    c) Obtain recommended immunizations
    d) Utilize emergency room services

15. Which of the following tips for writing materials aimed at the geriatric population is NOT recommended?
    e. Put the most important information at the beginning and repeat the information at the end.
    f. Placing text into paragraphs (i.e, book style) is easier to read than bulleted lists.
    g. Visual aids include captions and are placed close to the related text.
    h. Write the text as if you were having a conversation with the patient.
16. Which of the following statements regarding health literacy is true?
   e. A patient’s health literacy is equivalent to their normal reading level.
   f. Functional health illiteracy is more common in highly educated people.
   g. People with marginal or inadequate health literacy are often ashamed of their inadequacy.
   h. None of the above are true

17. Speaking to patients about their health can be challenging for health care professionals. Which of the following tips is recommended in speaking with patients?
   e. Use simple language and avoid medical jargon.
   f. Use open-ended questions to open up lines of communication.
   g. Ask the patient to rephrase what was discussed to assess the level of understanding.
   h. All of the above are true

18. The ability of a test to repeatedly reproduce similar results is its:
   a) Accuracy
   b) Precision
   c) Sensitivity
   d) Specificity

19. 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.
   i. Sensitivity = 95%; Specificity = 90%
   j. Sensitivity = 92.5%; Specificity = 93%
   k. Sensitivity = 90%; Specificity = 93%
   l. Sensitivity = 90%; Specificity = 95%

   ![Figure 1: Hypothetical Screening Scenario](image)

20. Which of the following screening tests would not be a candidate for CLIA waived status?
   m. Home pregnancy test
   n. Portable bone density test
   o. Rapid Streptococcus Group A antigen test
   p. MR (magnetic resonance) scan
## Participant Information

1. Name: _______________________________
2. Mailing address: ____________________
   ____________________
   ____________________
   ____________________
3. Date exam completed ________________

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

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

MTGEC/IPHARM
Skaggs Building Room 318
University of Montana
32 Campus Drive
Missoula MT, 59812-1522
Phone# (406) 243-2339 & Fax# (406) 243-4353
### APPENDIX F: Evaluation: Overview of Screening

Please indicate your major

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
<th>Don't Know</th>
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</table>

1. Based on the module description and stated objectives, this module met my expectations of the content it would deliver.

2. How effective were the following in helping you understand the material?

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<thead>
<tr>
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<th>Very Effective</th>
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3. I learned something I can use in my practice/employment or personal setting.

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<tr>
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<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
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<td>Provide new information to patients/clients</td>
<td>Adjust practices with geriatric patients/clients</td>
<td>New program development or program enhancement</td>
<td>Provide new information to family/friends/co-workers</td>
<td>Train staff or provider</td>
<td>Other implementation*</td>
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4. Reviewing the previous options, how do you plan to implement the information from this module to strengthen your practice, employment or personal goals? (check any that apply)

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* Describe 'other' implementation plan here:

5. How long did it take you to complete the module? (including pre-test, module review, post-test and evaluation)

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6. The test questions were relevant to the module content.

7. Please provide suggestions to improve the online learning experience to meet your needs.

8. Please offer ideas or suggestions for new modules.

For credit, please return this completed page to:

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