

Enhancing Cognitive Aging: Clinical Highlights of a Report From the Institute of Medicine

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With the aging of our population, cognitive aging has emerged as a leading public health concern. In a 2014 AARP survey (1), 93% of respondents identified maintaining brain health as a top priority. Yet a substantial void exists in the fundamental understanding of the cognitive aging process and its distinction from Alzheimer disease and related dementias. Thus, the Institute of Medicine convened a 16-member expert panel, which was charged with making recommendations on the public health aspects of cognitive aging and defining the actions required to better maintain the cognitive health of older adults. The committee was tasked with defining cognitive aging; reviewing its epidemiology; and making recommendations for prevention and intervention opportunities, the education of health care professionals, and the enhancement of public awareness. This article highlights key aspects of the report and provides resources (Table) for health care professionals (2).

WHAT IS COGNITIVE AGING?

“Cognition” refers to the multidimensional mental functions involved in attention, thinking, understanding, learning, remembering, problem solving, and decision making. “Cognitive aging” is a process of gradual yet highly variable changes in cognitive functions that occur as persons age. Cognitive aging is not a disease or a level of impairment; rather, it is a lifelong process that affects everyone. The process is highly dynamic, with differing levels of cognitive functioning apparent over time in a given person (for example, diurnal variations and changes with medications or acute illness) and between age-matched persons. Some cognitive functions, such as memory and reaction time, decrease, whereas others, such as wisdom and knowledge, increase with age (3).

ROLE OF THE HEALTH CARE PROFESSIONAL

Health care professionals play a key and irreplaceable role in the screening for and identifying, preventing, and managing cognitive aging; they also educate patients and their families about maintaining cognitive health. Primary care visits and the Medicare Annual Wellness visit represent important opportunities to screen for cognitive impairment, assess risk factors, and educate patients and families. A formal cognitive assessment is required to detect cognitive impairment because early deficits are easily missed. Because every measure has its strengths and limitations, the report did not recommend a specific tool (Table). The Alzheimer's Association (4) rated the General Practitioner Assess-

ment of Cognition, Memory Impairment Screen, and Mini-Cog Test—each of which takes less than 5 minutes to complete—as the most suitable options for use in primary care. On the basis of the evidence, health care professionals should consider screening for risk factors, including cardiovascular risk factors, alcohol use, smoking history, diet, exercise, depression, and chronic conditions.

PATIENT AND FAMILY EDUCATION

The report made several strong recommendations for interventions that were supported by adequate evidence. First and foremost, regular physical exercise is recommended to maintain cognitive health. Second, patients should work to reduce their cardiovascular risk factors, including hypertension, diabetes, and smoking. Minimizing psychoactive medications and avoiding delirium are other important steps. Finally, maintaining social engagement and lifelong learning and getting adequate sleep are recommended to optimize cognition.

MEDICATION REVIEW AND MANAGEMENT

On average, persons aged 65 years or older are prescribed 14 different drugs per year (5); many of these may have adverse cognitive effects. Health care professionals play a critical role in minimizing potentially inappropriate medications for older adults (6). Anticholinergic medications, prescribed in 20% to 50% of older persons at any given time, are highly associated with short- and long-term adverse cognitive effects. Many over-the-counter antihistamines, such as diphenhydramine, are potent anticholinergic agents, and it is important to educate older patients about their potential risks.

DELIRIUM PREVENTION

Nearly one third of the older population in the United States is hospitalized each year in relation to acute illness or surgery (7). Delirium is the most common complication of hospitalization in older persons, and it occurs in up to 50% or an estimated 2.6 million of such persons each year (8). Delirium has been identified as a leading contributor to short- and long-term cognitive decline after hospitalization, and at least 40% of these cases are preventable with strategies that include cognitive reorientation, sleep enhancement, early mobility, nutrition and fluid replenishment, correction of metabolic derangements, pain management, reduction of psychoactive medications, provision of ad-

Table. Resources on Cognitive Aging for Health Care Professionals*

Source	Resource
Practice guidelines for health care professionals relevant to cognitive aging	
American Association of Colleges of Nursing	Older Adult Care Competencies
American College of Surgeons	Best Practices Statement for Prevention and Treatment of Postoperative Delirium
American Geriatrics Society	Clinical Practice Guideline for Postoperative Delirium in Older Adults
American Occupational Therapy Association	Cognition, Cognitive Rehabilitation, and Occupational Performance
American Psychological Association	Guidelines for the Evaluation of Dementia and Age-Related Cognitive Change
Royal Australian College of General Practitioners	Preventive Activities in Older Age
Cognitive assessment procedures and tools for use by health care providers	
Alzheimer's Association	Recommendations for Operationalizing the Detection of Cognitive Impairment During the Medicare Annual Wellness Visit in a Primary Care Setting Health Care Professionals' Cognitive Assessment Toolkit
American Occupational Therapy Association	Occupational Therapy's Role in Adult Cognitive Disorders
American Psychiatric Association	<i>Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition</i>
American Psychological Association	Guidelines for the Evaluation of Dementia and Age-Related Cognitive Change Part III. Procedural Guidelines: Conducting Evaluations of Dementia and Age-Related Cognitive Change
Hospital Elder Life Program	www.hospitalelderlifeprogram.org
National Institute on Aging	Assessing Cognitive Impairment in Older Adults: A Quick Guide for Primary Care Physicians
Patient counseling and education about cognitive aging and related concerns	
Alzheimer's Association	10 Early Signs and Symptoms of Alzheimer's Brain Health
American Psychological Association	Older Adults' Health and Age-Related Changes: Reality Versus Myth
National Institute on Aging	Talking With Your Older Patient: A Clinician's Handbook
Resources related to safe medication use in older adults	
American Geriatrics Society	Beers criteria† What to Do and What to Ask Your Healthcare Provider if a Medication You Take Is Listed in the Beers Criteria for Potentially Inappropriate Medications to Use in Older Adults
Centers for Disease Control and Prevention	Adults and Older Adult Adverse Drug Events
Health in Aging	Medications and Older Adults
Institute for Safe Medication Practices	www.ismp.org
Institute of Medicine	Preventing Medication Errors: Quality Chasm Series
National Institute on Aging	Safe Use of Medicines
NIH Senior Health	Taking Medications Safely
U.S. Food and Drug Administration	Medicines and You: A Guide for Older Adults
Resources related to older adult driving	
American Automobile Association Foundation	How to Help an Older Driver
Maryland Motor Vehicle Administration	www.mva.maryland.gov/safety/older/older-driver-safety-safe-mobility.htm
Massachusetts Registry of Motor Vehicles	Mature Drivers
National Highway Traffic Safety Administration	Traffic Safety Plan for Older Drivers and How to Understand and Influence Older Drivers
National Institute on Aging	Older Drivers
NIH Senior Health	How Aging Affects Driving
New York State Office for the Aging	Understanding and Helping an Older Driver
Pennsylvania Department of Transportation	Talking With Older Drivers: A Guide for Family and Friends
Vermont Department of Motor Vehicles	Mature Drivers
Virginia Grand Driver	Driver Safety Tips
Washington Department of Licensing	Safe Driving for Seniors
Resources related to elder financial abuse	
AARP	Scam Jams Fraud Watch Network
Consumer Federation of America	Nation's Top Ten Consumer Complaints
Consumer Financial Protection Bureau	Office of Financial Protection for Older Americans
Federal Bureau of Investigation	Fraud Target: Senior Citizens
Federal Trade Commission	Pass It On financial fraud awareness campaign
Financial Fraud Enforcement Task Force	Protect Yourself: Elder Fraud and Financial Exploitation
National Council on Aging	Top 10 Scams Targeting Seniors
Wells Fargo Investment	Elder Client Initiatives

NIH = National Institutes of Health.

* Presented in alphabetical order by source.

† Including public education resources.

equate oxygenation, and intervention for vision and hearing impairments. Health care professionals can play an important role in identifying persons at high risk for delirium before or at hospital admission and instituting preventive strategies.

DRIVING SAFETY

Problems with driving safety are often brought to the attention of the primary care physician. Driving is critically dependent on many aspects of cognition, such as processing speed, decision making, executive function, multitasking skills, visuospatial abilities, and memory. Although older drivers bring decades of experience, declining cognitive function and increasing reaction time can reduce safety. However, restricting driving can lead to loss of independence and depression. Studies have indicated that driver-training courses can improve the safety of older drivers. Various resources (Table) are available to assist health care professionals with assessing and intervening to assure driver safety.

FINANCIAL DECISION MAKING

The management and planning of one's finances are complex activities that require high levels of cognitive functioning, and problems may signal early impairment requiring evaluation. In addition, age-related cognitive changes put older adults at risk for financial fraud or exploitation. In 2010, elder financial abuse resulted in direct and indirect losses of an estimated \$2.9 billion in the United States (9). Credible consumer financial education programs are available (Table).

NUTRACEUTICALS AND BRAIN GAMES

Many products for "cognitive enhancement" are being advertised directly to consumers, including various nootropics, nutritional supplements, and cognitive training tools ("brain games"). Typically, these products have not been carefully tested to evaluate their benefits or adverse effects. For example, brain games have become widely popular but their evaluation has been very limited. Evidence for the transfer of specific cognitive-training skills to real-world tasks and long-term retention of the skills, supported by well-controlled studies, is not available (10). Health care professionals are advised to caution their patients about the use of these products. In addition, these products may detract time and resources from other activities that have proven benefits, such as physical exercise and cardiovascular risk reduction.

Maintaining cognitive health is a major concern for our patients and their families. Although much remains to be learned about the basic biological mechanisms and more effective interventions to enhance cognitive aging, the Institute of Medicine report highlights that much can and should be done now. Health care professionals will play an increasingly vital role in ensuring their patients' cognitive health.

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