CLINICAL UPDATE

Clinical Pathways for Family Wellness Promotion for Older Persons in Family and Community Practice

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Background: The Philippine Health Agenda 2016-2022 seeks to uphold every Filipino's right to health consistent with the International Alma ATA Declaration that health is a fundamental human right as well as the PAFP mission CARES. One of the objectives in the Expanded Senior Citizens Act of 2010 is to give full support for the improvement of the total well-being of the elderly. In accordance with this objective, the Act shall establish a program beneficial to the senior citizens, their families and the community they serve. This underscores the need to promote and provide wellness program among patients and their families. Several guidelines have been developed for Clinical Preventive Services by various organizations.
Objective: The overall objective of this pathway is to improve the quality of health care of the Filipino family through health maintenance, promotive and preventive care.
Methods: The PAFP Clinical Pathways Group reviewed published clinical practice guidelines and medical literature to identify, summarize, and operationalize the content of the following: history, physical examination, tools for comprehensive geriatric assessment, screening for risk factors, pharmacologic and non-pharmacologic interventions. Indicators or outcomes to develop an evidence-based clinical pathway in family medicine practice were identified.
Recommendations: Recommendations were made based on the number of visits. During the first visit, all elderly patients consulting at the clinic for wellness should have a thorough history, physical examination and comprehensive geriatric assessment. In screening for risk factors, request for FBS, lipid profile, pap smear and fecal occult blood test. For immunization, the following maybe given: influenza, pneumococcal, Tdap and herpes zoster vaccines. Multivitamins, calcium and Vitamin D should be prescribed. Patients should be educated on appropriate diet and physical activities. Interventions to promote smoking cessation and moderate alcohol drinking should be done.
Implementation: Education, training and audit are recommended strategies to implement the clinical pathway.

Introduction

Definition of Wellness

Health or wellness is a state of complete physical, mental, and social well-being, and not merely the absence of disease or infirmity.[1] In order to attain this, health promotion, disease prevention, specific protection and retarding existing disease and its effects through early detection and appropriate treatment. The public may lack knowledge about needed services, have limited motivation to receive services, or face logistical challenges.

Clinicians may fail to address needed services because of oversight, lack of time, and competing demands. It makes sense to focus on a core set of preventive service categories. The services with the greatest health benefit and economic value. These services span all four categories of wellness – immunizations, screenings, counselling, and preventive medications. Approximately, 7.5% of the Philippine population in 2015 are 60 years old and above. This is expected to increase by 15.5% in 2045.[2] Delivering comprehensive wellness services is important in this age group.

Prevalence of Preventable Diseases

Preventable diseases include the lifestyle diseases like hypertension, diabetes, coronary heart disease, chronic obstructive pulmonary disease and malnutrition; communicable diseases like pneumonia, influenza and hepatitis B; and the various types of cancer. The leading causes of death among older person is seen in the table below.

Non-communicable Diseases

Based on WHO Global estimates 2015, mortality due to non-communicable diseases is 28.6%. Diabetes has a 5.8% prevalence worldwide.[3] In the Philippines, diabetes accounts for 4,260 deaths for males and 7,320 for females 70 years old and above.[3] In 2010, the Centers for Disease Control and Prevention[4] reported that 27% of adults 65 and older have diabetes. The prevalence of hypertension among Filipino elderly is 6.2%.[5]

Thirty percent of Filipino adults aged 60 years and over had a BMI <18.5 kg/m^2 indicating chronic energy deficiency, 11% were obese with BMI ≥ 25 kg/m^2, 41% were hypertensive and 45% anemic.[6] Prevalence of high waist circumference among 60-69 years old is 4.5 for males and 29.9 for females. For 70 years old and above, the prevalence for males is 3.6 and 26.4 for females. Prevalence of high waist hip ratio among 60-69 years old is 13.7 for males and 69.8 for females. For 70 years old and above, the prevalence for males is 13 and 67.1 for females.[7]

The incidence of most of these cancers rises steadily with increasing age, but several types, including prostate,

Table 1. Cause of death in older persons.

Rank	Causes of deaths	Number of deaths	Rate per 100,000 older persons	% of older persons among the total population
1	Cardiovascular diseases, all forms	79,065	1,704.21	18.56
2	Pneumonia	26,443	569.97	6.21
3	Malignant neoplasms, all forms	21,785	469.57	5.11
4	COPD	14,592	314.52	3.42
5	Tuberculosis, all forms	12,934	278.89	3.04
6	Diabetes mellitus	11,686	251.89	2.74
7	Gastric, duodenal, peptic and gastrojejunal ulcers and other diseases of the digestive system	6,040	130.19	1.42
8	Nephritis, nephrotic syndrome and nephrosis	5,062	109.11	1.19
9	Accidents and injuries, all forms	4,179	90.08	0.98
10	Chronic liver diseases and cirrhosis	2,483	53.52	0.58

Source: Philippine Health Statistics

breast, and lung cancers, begin to drop in incidence at the oldest ages. In the US, in 2015, an estimated 232,000 women were diagnosed with the disease and 40,000 women died of it. It is most frequently diagnosed among women aged 55 to 64 years, and the median age of death from breast cancer is 68 years. Colorectal cancer is most frequently diagnosed among adults aged 65 to 74 years; the median age at death from colorectal cancer is 68 years. Seventy percent of deaths due to prostate cancer occur after age 75 years.

Communicable Diseases

A recent large, population-based cohort study of elderly adults further divided this population into two groups, those aged 65–69 years and those aged 85 years and older. This study, which examined both inpatient and outpatient episodes of community-acquired pneumonia and found incidence rates of 18.2 cases per 1000 persons in the 65–69-year-olds group and 52.3 cases per 1000 persons in those aged at least 85 years.[8] These data suggest that even within the elderly population, those with more advanced age are more susceptible to CAP.

It has been recognized for many years that people 65 years and older are at greater risk of serious complications from the flu compared with young, healthy adults because human immune defenses become weaker with age. While flu seasons can vary in severity, during most seasons, people 65 years and older bear the greatest burden of severe flu disease. In recent years, for example, it's estimated that between 71 percent and 85 percent of seasonal flu-related deaths have occurred in people 65 years and older and between 54 percent and 70 percent of seasonal flu-related hospitalizations have occurred among people in that age group.[9]

Herpes zoster is very common in the Asia Pacific region. Incidence peaks between 70-80 years old.[10] Communicable diseases can be prevented through vaccinations. Vaccine (DTP3) coverage among 1 year olds worldwide is only 60%.[11] Missed opportunities for vaccination contribute to pneumonia mortality. Based on the number of PhilHealth claims for 2012 and the estimated health care cost, the economic burden of pneumonia in 2012 was PHP8.48 billion for CAP-MR and PHP643.76 million for CAP-HR.

Current Recommendations

The recommendations in this clinical pathway were a product of reviews of the US Preventive Service Task Force for Older Persons, the Comprehensive Geriatric Assessment, Institute of Aging, NIH-UP Manila, PCGM, PCGH-DOH, 2015 and the PAFP Consensus Statements on Wellness for Older Persons, 2016.

Objectives

The general objective of this pathway is to improve the quality of health care of the Filipino family through health maintenance, promotive and preventive care.

Specific Objectives:

- To assist Filipino family physicians in the care of families and the promotion of wellness for older persons.
- To define the standards of care in health promotion, preventive care and health maintenance

Methods of Development and Implementation

The PAFP Clinical Pathways Group reviewed the previous Clinical Practice Guidelines of USPSTF on Clinical Preventive Services for Primary Care as well as the Consensus statements on Wellness for Older persons of the PAFP. The group also reviewed published medical literature to identify, summarize, and operationalize the clinical content of primary, secondary and tertiary prevention strategies or outcomes to develop an evidence-based clinical pathway in family medicine practice. The reviewers then developed a time-related representation of recommendations on patient care processes, in terms of history and physical examination, laboratory tests, pharmacologic and non-pharmacologic interventions as well as social and community strategies to treat hypertension and prevent complications.

The group adopted several strategies in developing the recommendations. The first strategy is emphasizing on evidence-based recommendations as recommended assessments and interventions. The second strategy is recognition of potential variations between-patient and between specific practice settings. The third strategy is the recognition of "stakeholder groups" outside of family and community practice with careful attention to getting their opinion and support but without sacrificing the objectives of the project. The fourth strategy is emphasis on the commitment to establishment of the ultimate goal of improving the effectiveness, efficiency and quality of patient care in family and community practice.

The evidences for the patient care processes were reviewed and summarized as notes on the recommendations. The clinical pathway was then disseminated to the selected PAFP chapters and members and other stakeholders for consensus development. Dissemination was publication in the Filipino Family Physician journal, conference presentations and focused group discussions.

The implementation of clinical pathways to be adopted by the PAFP will be quality improvement activities in a form of patient record reviews, audit and feedback. Audit standards will be the assessment and intervention recommendations in the clinical pathway. Implementation of clinical pathways will be at the practice and organizational levels. Practice level can be a simple count of family and community medicine practitioners using and applying the clinical pathways. Organizational outcomes can be activities of the PAFP devoted to the promotion, development, dissemination and implementation of clinical pathways.

Grading of the Recommendations

The PAFP QA Committee met as a panel and graded the recommendations as shown in Table 1. The grading system was a mix of the strength of the reviewed published evidence and the consensus of a panel of experts. In some cases the published evidence may not be applicable in Philippine family practice setting, so a panel grade based on the consensus of clinical experts was also used. Thus if the recommendation was based on a published evidence that is a well done randomized controlled trial and the panel of expert voted unanimously for the recommendation, it was given a grade of A-I. If the level of evidence is based on an observational study but the panel still unanimously considered the recommendation, the grade given was A-II and if the level of evidence is just an opinion but the panel still unanimously recommended it, the grade was A-III.

Table 1. Grading of the recommendations

	Evidence Grade Level		
Panel Grade Level	1	2	3
A	A-I	A-II	A-III
B	B-I	B-II	B-III
C	C-I	C-II	C-III

Panel Grade Levels

A - All the panel members agree that the recommendation should be adopted because it is relevant, applicable and will benefit many patients.

B - Majority of the panel members agree that the recommendation should be adopted because it is relevant, applicable in many areas and will benefit many patients.

C - Panel members were divided that the recommendation should be adopted and not sure if it will be applicable in many areas or will benefit many patients.

Evidence Grade Levels

I - The best evidence cited to support the recommendation is a well-conducted randomized controlled trial. The CONSORT standard may be used to evaluate a well-conducted randomized controlled trial.

II - The best evidence cited to support the recommendation is a well-conducted observational study i.e. match control or before and after clinical trial, cohort studies, case control studies and cross-sectional studies. The

STROBE statement may be used to evaluate a well-conducted observational study.

III- The best evidence cited to support the recommendation is based on expert opinion or observational study that did not meet the criteria for level 2.

In the implementation of the clinical pathways, the PAFP QA Committee strongly recommends compliance to guideline recommendations that are graded as either A-I, A-II or B-I. However, the Committee also recommends using sound clinical judgment and patient involvement in the decision making before applying the recommendations.

Pathway Recommendations

	Pathway Tasks				
Visit	**History and Physical Examination**	**Screening**	**Immunization and Medications**	**Lifestyle Modification & Behavioral Interventions**	**Patient Outcomes**
First Visit	___ Obtain the following information: personal data; highest educational attainment; occupational history; financial resources; health Insurance; living arrangement; primary caregiver if any; housing (A-II) ___ Do history and physical examination using the Geriatric Assessment Checklist (A-II) ___ For women, ask for the following (A-III): 1. Age at menopause 2. Use of hormone replacement therapy 3. Previous use of oral contraceptive pills 4. Utilization of preventive services such as pap smear, mammography and dexa screening	___ Request FBS for overweight and obese and lipid profile if at risk (A-I); **___Ancillary procedures** Pap smear or VIA every 3 years (A-I) (No need If with 3 consecutive negative within 10 years) Colorectal screening with FOBT every year (A-I)	___Multivitamins, calcium + vitamin D (A-III) ___Immunizations Influenza vaccine yearly (A-I) Pneumococcal vaccine For elderly immunocompetent PCV 13 first then PPSV 23 in 6-12 months (A-I) For elderly immunocompromised PCV13 then PPSV23 at least 8 weeks after (A-I) TdaP is recommended once for all adults 65 and above and 2 doses of Td (tetanus diphtheria) or T (tetanus toxoid) at 1 month and 6-12 months (B-I) Herpes zoster vaccine single dose is recommended for all 60 years old and above (B-I)	___Diet advice on high protein intake (A-II) ___Physical activity advice (Exercise 2 ½ hours/week of moderate intensity exercise, fall prevention) (A-I) ___Social and behavioral interventions to promote smoking cessation, moderate alcohol drinking (A-I) ___Advise to have other family members screened (A-I)	___Elderly outcome Optimization of clinical and functional outcomes (A-I) Psychosocial well-being (A-I) Early detection of modifiable factors (A-I)
Variation		Mammography, colonoscopy, sigmoidoscopy, low dose CT scan and dual x-ray absorptiometry may be done for older persons at high risk (A-II)	For those with history of herpes zoster, vaccine may be given after 1 year of acute episode (B-I)		

	Pathway Tasks				
Visit	**History and Physical Examination**	**Laboratory**	**Pharmacologic Intervention**	**Non-pharmacologic Interventions**	**Patient Outcomes**
Second Visit	___Review and update history and physical examination and note any change (A-II) ___Identify wellness need of other family members based on age group and risks (A-III)	___ Interpret results of laboratories and ancillary procedures to the patient (A-I) ____ Assess patient's compliance to laboratories requested. If there are laboratories not done, remind patient (A-I)	___Prescribe medications based on the identified diseases (A-I) ___Update medications and vaccines if not previously given (A-I)	___Advice continuance and adherence to wellness interventions such as proper nutrition, exercise, immunization and screening tests (A-I) ___ If non adherent, do motivational counselling (A-I)	___Elderly outcome Optimization of clinical and functional outcomes (A-I) Psychosocial well-being (A-I) Early detection of modifiable factors (A-I) ___Family outcome Willing to participate in wellness interventions (A-I)
Variations		Mammography every 2-3 years (A-II) Sigmoidoscopy every 5 years (A-II) Colonoscopy every 10 years (A-II)			

	Pathway Tasks				
Visit	**History and Physical Examination**	**Laboratory**	**Pharmacologic Intervention**	**Non-pharmacologic Interventions**	**Patient Outcomes**
Continuing Visit	___Review and update history and physical examination and note any change (A-II)	___ If FBS is normal, repeat every 3 years. (A-I) ___If lipid profile is normal, repeat every 3-5 years (A-I); **___Ancillary procedures** Pap smear or VIA every 3 years (A-I) Colorectal screening with FOBT every year (A-I)	___Continue multivitamins, calcium + vitamin D if diet is insufficient (A-III) ___Influenza vaccine yearly (A-I) ___PPSV23 after 5 years (A-I) ___Td or T every 10 years (B-I)	___Advice continuance and adherence to wellness interventions such as proper nutrition, exercise, immunization and screening tests (A-I) ___ If non adherent, do motivational counselling (A-I)	___Patient outcome Lower rates of physical and cognitive decline Psychosocial well-being (A-I) Early detection of modifiable factors (A-I) ____Family outcome Entire family utilizing health promotion, disease prevention and specific protection strategies (A-I)
Variations					

Notes on the Recommendations

First Visit

Comprehensive Geriatric Assessment

Comprehensive geriatric assessment (CGA) is a multidisciplinary diagnostic and treatment process that identifies medical, psychosocial, and functional capabilities of older adults to develop a coordinated plan to maximize overall health with aging. Specific criteria used by CGA programs to evaluate patients include age, medical comorbidities, psychosocial problems, previous or predicted high healthcare utilization, change in living situation, and specific geriatric conditions. CGA is capable of effectively exploring multiple domains in older age, being the multidimensional and multidisciplinary tool of choice to determine the clinical profile, the pathologic risk and the residual skills as well as the short- and long-term prognosis to facilitate the clinical decision making on the personalized care plan of older persons.

"Geriatric syndrome" is a term that is often used to refer to common health conditions in older adults that do not fit into distinct organ-based disease categories and often have multifactorial causes. The list includes conditions such as cognitive impairment, delirium, incontinence, malnutrition, falls, gait disorders, pressure ulcers, sleep disorders, sensory deficits, fatigue, and dizziness. These conditions are common in older adults, and they may have a major impact on quality of life and disability. Geriatric syndromes can best be identified by a geriatric assessment.

Table 2. Geriatric assessment checklist

Components	Tools
Demographics • Personal data • Highest educational attainment • Occupational history • Financial resources • Health Insurance • Living arrangement • Primary caregiver if any • Housing	CGA questionnaire
Medical risk factor assessment • Past medical history: Diagnosed heart disease, stroke, transient ischemic attack (TIA), diabetes mellitus, kidney disease, allergies, etc • History of chest pain/angina, breathlessness on exertion and lying flat, numbness or weakness of limbs, loss of weight, increased thirst, polyuria, puffiness of face, swelling of feet, passing blood in urine, asthma • Family history of tuberculosis, asthma, Alzheimer;s disease, cerebrovascular disease or stroke, coronary artery diseases, hypertension in first degree relatives; hepatitis, cancer etc • Past surgical procedures	CGA questionnaire
• Medication, supplements and herbals taken	Identify if there is polypharmacy
Nutrition	Mini Nutritional assessment
Physical activity	Types of exercise- endurance, balance, flexibility, strength training
Immunization history	Influenza, Pneumococcal, Tdap and herpes zoster vaccine
Sleep pattern	Sleep diary General
Review of Systems	Vision Hearing Speech and language Balance Cardiac Pulmonary Gastrointestinal Genitourinary Musculoskeletal Sexual Neurologic Psychiatric
Fall assessment	Circumstances surrounding the fall and interventions Timed up and go test
Social activities Lifestyle and self care- alcohol use, tobacco use, illicit drug use, coffee and tea Leisure and hobbies	CGA questionnaire

Physical Status Vital signs, Weight, height, BMI, WH ratio , waist circumference Pain, HEENT, chest, lungs, abdomen, spine, extremities, neuro Katz index activities of daily living Lawton's instrumental activities of daily living	Physical examination
Functional Capacity	Katz Index Activities of Daily Living Lawtons Instrumental Activities of Daily living
Cognition	Mini Mental status examination
Mood	Geriatric depression scale

Polypharmacy

Older persons are often prescribed multiple medications by different health care providers, putting them at increased risk for drug-drug interactions and adverse drug events. The clinician should review the patient's medications at each visit. The best method of detecting potential problems with polypharmacy is to have patients bring in all of his/her medications (prescription and non-prescription) in their bottles.

Nutrition

A nutritional assessment is important because inadequate micronutrient intake is common among older persons. Several age-related medical conditions may predispose patients to vitamin and mineral deficiencies. Studies have shown that vitamins A, C, D, and B_{12}; calcium; iron; zinc; and other trace minerals are often deficient in the older population, even in the absence of conditions such as pernicious anemia or malabsorption.[12]

MNA-SF® can be widely used in general practice and that nutrition screening of older adults, accompanied with nutrition intervention and provision of relevant resources is associated with improved nutritional status in this age group. Annual nutrition screening is strongly recommended for older adults to ensure optimum nutritional status. Guigoz reviewed different studies conducted among 30,000 elderlies in different settings around the world and he concluded that the sensitivity and specificity of the MNA tool may range from 41–100 % and 13–98 %, respectively.[13]

Vision impairment

Eight cross-sectional studies evaluated the diagnostic accuracy of screening for impaired visual acuity in the older adult. Four studies found that screening questions are not accurate for identifying persons with vision impairment compared to the Snellen chart. Four studies found that visual acuity testing is not accurate for identifying the presence of vision conditions compared to a detailed ophthalmologic examination. One study found that the Amsler grid is not accurate for identifying the presence of vision conditions compared to a detailed ophthalmologic examination. One very small (n=50) study found non-ophthalmologists are as accurate as ophthalmologists for identifying presence of cataracts.[14]

Hearing impairment

Twenty studies evaluated the diagnostic accuracy of clinical tests, a single question, a questionnaire, or a handheld audiometric device for identification of hearing loss in older adults. For detection of >25 or >30 dB hearing loss, four studies (one good-quality) found that the whispered voice test at 2 feet was associated with a median positive likelihood ratio (PLR) of 5.1 (range,

2.3 to 7.4) and median negative likelihood ratio (NLR) of 0.03 (range, 0.007 to 0.73). For detection of >25 dB hearing loss, six studies (four good-quality) found that a single question was associated with a median PLR of 3.0 (range, 2.4 to 3.8) and median NLR of 0.40 (range, 0.33 to 0.82), and four good-quality studies found that the HHIE-S (based on a cutoff score of 8) was associated with a median PLR of 3.5 (range, 2.4 to 11) and median NLR of 0.52 (range, 0.43 to 0.70). Likelihood ratio estimates were similar for detection of >40 dB hearing loss. For detection of >40 dB hearing loss, three studies (two good-quality) found that the AudioScope (based on ability to hear tones between 500 and 4000 Hz at 40 dB) was associated with a median PLR of 3.4 (range, 1.7 to 4.9) and median NLR of 0.05 (range, 0.03 to 0.08). In direct comparisons, one good-quality study found that the watch tick and finger rub tests were associated with similar NLRs but substantially stronger PLRs compared with the whispered voice test or a single screening question. Three studies showed a consistent trade-off between lower sensitivity and higher specificity for the HHIE-S compared with a single screening question, resulting in somewhat stronger PLRs and weaker NLRs. Two studies found that the AudioScope was associated with stronger NLRs compared with the HHIE-S, with relatively small differences in PLR estimates.[15]

Urinary Incontinence

To elicit if there is urinary incontinence, just ask if they cannot control their urination. If this is a positive screen, for males do the digital rectal exam and if enlarged, do International Prostate Symptom Score (IPSS). For females, investigate the cause.

Fall Risk

We recommend consideration of 7 assessment tools to be used in conjunction with overall clinical evaluation to assess falls risk: the Timed Up and Go Test with a cutoff of >12.34 seconds.[16]

Functional Capacity

Functional status refers to the ability to perform activities necessary or desirable in daily life. Two instruments for assessing ADL and IADL include the Katz ADL scale and the Lawton IADL scale Deficits in ADL and IADL can signal the need for more in-depth evaluation of the patient's socio-environmental circumstances and the need for additional assistance.[17]

Cognition

The incidence of dementia increases with age, particularly among those over 85 years, yet many patients with cognitive impairment remain undiagnosed. The value of making an early diagnosis includes the possibility of uncovering treatable conditions.

There were 41 studies that addressed the diagnostic accuracy of very brief screening instruments that could be administered in primary care and seven studies that addressed instruments that could be self-administered. The included studies considered a broad range of participants relevant to older adult primary care populations and a wide variety of different screening instruments. Overall, study participants were community dwelling older adults selected from the community or primary care practices. Two studies explicitly included people in assisted living or residential care facilities. Almost all studies had a majority of women participants, but studies varied in the mean age (range of means, 69 to 95 years) and prevalence of dementia (range of prevalence, 1.2% to 47.1%). Education was not always reported. The best-studied instrument remains the MMSE, which has a relatively long administration time compared with other screening instruments included in this review. For the MMSE, the most commonly reported cut-points were 23/24 and 24/25, although higher and lower cut-points were evaluated in various studies. Pooled estimates across 14 studies (n=10,185) resulted in 88.3 percent sensitivity (95% CI, 81.3% to 92.9%) and 86.2 percent specificity (95% CI, 81.8% to 89.7%) for a cut-point of 23/24 or 24/25. Studies in populations with low levels of education

(majority with primary school education or less) used lower cut-points. Test performance to detect MCI was based on a much smaller body of literature (k=15; n=5,758). Studies using higher cut-points to detect MCI did not have better sensitivity or specificity.[18]

The best-studied instrument was the MMSE. Pooled estimates across 14 studies (n = 10,185) resulted in sensitivity of 88.3% (95% CI, 81.3% to 92.9%) and specificity of 86.2% (CI, 81.8% to 89.7%) for the most commonly reported cut points of 23/24 or 24/25.[19] MMSE-P has been validated in Filipino.[20]

Mood

Depressive illness in the elder population is a serious health concern leading to unnecessary suffering, impaired functional status, increased mortality, and excessive use of health care resources. Late-life depression remains underdiagnosed and inadequately treated. Depression in elder adults may present atypically and may be masked in patients with cognitive impairment. A two-question screener is easily administered and likely to identify patients at risk if both questions are answered affirmatively. The questions are:

- "During the past month, have you been bothered by feeling down, depressed, or hopeless?"
- "During the past month, have you been bothered by little interest or pleasure in doing things?"

This two-question screen is sensitive but not specific. If it is a positive screen proceed with the geriatric depression scale. One review of the GDS-15 and GDS-30, published in 2010, included a meta-analysis of 17 studies conducted in primary care settings. The principle inclusion criteria were studies that compared the diagnostic validity of the GDS to that of the semi-structured psychiatric interview for diagnosing late-life (aged 55 years or older) depression. Studies evaluating the GDS-15 (k=7) used cut-offs ranging from 3 to 7, resulting in an adjusted sensitivity of 81.3 percent (95% CI, 77.2 to 85.2) and a specificity of 78.4 percent (95% CI, 71.2 to 84.8). Studies evaluating the GDS-30 (k=10) used cutoffs ranging from 7 to 11, resulting in an adjusted sensitivity of 77.4% (95% CI, 66.3 to 86.8) and a specificity of 65.4 percent (95% CI, 44.2 to 83.8). In order to more fully examine the clinical utility of the GDS, the authors also evaluated general practitioners' ability to detect depression without a screening tool. Using data from six studies, the authors' reported a pooled sensitivity of 56.3 percent (95% CI, 40.0 to 72.0) and specificity of 73.6 percent (95% CI, 71.7 to 75.5). The authors concluded that the GDS-30 had modest diagnostic success, modest clinical utility, and limited benefit beyond the general practitioners unassisted clinical skills. The GDS-15, however, was believed to have adequate diagnostic value with significantly greater accuracy than the GDS-30 and, thus, good clinical utility. Furthermore, use of the GDS-15 by general practitioners has the potential to increase unassisted case detection by 8 percent.

The overall sensitivity and specificity were 0.97 and 0.95, respectively (area under curve, AUC was 0.98). The overall Cronbach's alpha was 0.80, and intraclass coefficient of test--retest reliability over 2 weeks was 0.83 and inter-rater reliability was 0.94 (intra-class) and 0.99 (Cohen's kappa).[21]

Screening Tests

Lifestyle Disease

All elderly should have a blood pressure measurement during every encounter. For those 60-70 years old who are overweight and obese, FBS is recommended for screening. The USPSTF found good evidence that lipid measurement can identify asymptomatic men and women who are eligible for preventive therapy.[22] There is good evidence that the harms from screening and treatment are small, and include possible labeling and the adverse effects associated with lipid-lowering therapy (e.g., rhabdomyolysis). The USPSTF concludes that the benefits of screening for and treating lipid disorders in all men 35 years and older, and women 45 years and older at increased risk of CHD

substantially outweigh the potential harms. The preferred screening tests for dyslipidemia are total cholesterol and HDL cholesterol levels on non-fasting or fasting samples. There is currently insufficient evidence of the benefit of including triglycerides as a part of the initial tests used to screen routinely for dyslipidemia. Measuring total cholesterol alone is acceptable for screening if available laboratory services cannot provide reliable measurements of HDL cholesterol; measuring total cholesterol and HDL cholesterol is more sensitive and specific for assessing CHD risk than measuring total cholesterol alone.

The optimal interval for screening is uncertain. On the basis of other guidelines and expert opinion, reasonable options include every five years. An age to stop screening has not been established. Screening may be appropriate in older persons who have never been screened; repeated screening is less important in older persons because lipid levels are less likely to increase after 65 years of age. However, because older adults have an increased baseline risk of CHD, they stand to gain greater absolute benefit from the treatment of dyslipidemia, compared with younger adults.

Osteoporosis

Support for population screening would be based on evidence that individual risk for fracture can be estimated and fractures can be significantly reduced for those at risk. Data are lacking to determine how frequently to obtain bone measurements, although one study indicated no advantage to repeated measures that were 8 years apart.[23]

Measurement of bone density using Dual x-ray absorptiometry (DXA) has become the gold standard for the diagnosis of osteoporosis and for guiding decisions about which patients to treat. Although DXA is not a perfect predictor of fractures, DXA of the femoral neck is considered to be the best predictor of hip fracture and is comparable with DXA measurements of the forearm for predicting fractures at other sites. A large prospective cohort study in the Netherlands that included persons older than 55 years reported the incidence of vertebral and non-vertebral fractures approximately 6 years after patients obtained baseline DXA measurements of the femoral neck.[24]

Cancer

Pap smear

Screening women age 60 to 65 years every 3 years with cytology provides a reasonable balance between benefits and harms. HPV testing combined with cytology (co-testing) every 5 years offers a comparable balance of benefits and harms. The USPSTF recommends against cervical cancer screening in women aged 65+ who "have had adequate prior screening and are not at high risk." Adequate prior screening for cervical cancer means having had three negative Pap smears in a row, with the most recent test within five years. They also recommend against cervical cancer screening in women who have had a hysterectomy for non-cancer reasons.[25] Older women who have never been screened for cervical cancer, or did not get a Pap smear between the ages of 55-65, should be screened at least once.

Mammography

The USPSTF recommends for routine breast cancer screening in women aged 60-74. The USPSTF recommends neither for nor against breast cancer screening in women aged 75 or older every 2 years. For women aged 60 to 69 years, 2 trials (Malmö and Swedish Two-County [Östergötland] provided a pooled RR of 0.68 (CrI, 0.54 to 0.87) for breast cancer mortality for women randomly assigned to mammography screening. The number needed to invite was 377 (CrI, 230 to 1050).[26]

Colonoscopy

The USPSTF recommends for routine colon cancer screening for adults aged 60-75, and against colon cancer screening in adults aged 85 or older. For adults aged 76-85, the USPSTF recommends against "routine screening". Screening colonoscopy can be done every 10 years, flexible

sigmoidoscopy every 5 years whereas screening by checking stool for microscopic blood requires annual stool testing. Four pragmatic randomized clinical trials (RCTs) evaluating 1-time or 2-time flexible sigmoidoscopy (n = 458 002) were associated with decreased CRC-specific mortality compared with no screening (incidence rate ratio, 0.73; 95% CI, 0.66-0.82).[27-29] Sensitivity of colonoscopy to detect adenomas 6 mm or larger ranged from 75% (95% CI, 63%-84%) to 93% (95% CI, 88%-96%). Four (n = 4821) of the 9 CTC studies allowed for the estimation of sensitivity of colonoscopy generalizable to community practice. Compared with CTC or colonoscopy plus CTC (eg, segmental unblinding), the sensitivity for colonoscopy to detect adenomas 10 mm and larger ranged from 89% (95% CI, 78%- 96%) to 98% (95% CI, 74%-100%) and for adenomas 6 mm and larger ranged from 75% (95% CI, 63%-84%) to 93% (95% CI, 88%- 96%).

An alternative to colonoscopy is fecal occult blood test. Five RCTs with multiple rounds of biennial screening with guaiac-based fecal occult blood testing (n = 419 966) showed reduced CRC-specific mortality (relative risk [RR], 0.91; 95% CI, 0.84-0.98, at 19.5 years to RR, 0.78; 95% CI, 0.65-0.93, at 30 years).[30-32]

Low-dose Computed Tomography

The USPSTF recommends annual screening for lung cancer with low-dose computed tomography in adults aged 60 to 80 years who have a 30 pack-year smoking history and currently smoke or have quit within the past 15 years. Screening should be discontinued once the individual has not smoked for 15 years or develops a health problem that significantly limits life expectancy or the ability or willingness to have curative lung surgery.

Heavy smoking means a smoking history of 30 "pack years" or more. A "pack year" is smoking an average of 1 pack of cigarettes per day for 1 year. For example, a person could have a 30 pack-year history by smoking 1 pack a day for 30 years or 2 packs a day for 15 years. Stopping screening once it's been 15 years since the person quit smoking.

Four trials reported the effectiveness of screening with LDCT for lung cancer in patients with personal smoking exposure: one large good-quality trial reported screening was associated with reduced lung cancer and all-cause mortality reductions of 20 percent (95% CI, 6.8 to 27.6) and 6.7 percent (95% CI, 1.2 to 13.6), respectively. Three small European trials (two fair- and one poor-quality) showed no benefit of screening. When the three good- or fair-quality trials were combined in random effects meta-analysis, the relative risk of lung cancer mortality was 0.81 (95% CI, 0.72 to 0.91). One trial evaluated CXR screening in over 150,000 participants from the general population and reported no benefit of screening in this group or in a subset with personal tobacco smoke exposure. The reported sensitivity of LDCT for detecting lung cancer ranged from 80 to 100 percent and specificity from 28 to 100 percent in six studies; each study varied in its reporting method. The harms associated with LDCT screening included radiation exposure ranging from 0.61 to 1.5 mSv per scan, some degree of overdiagnosis of lung cancer that varied by study, and a high rate of false-positive examinations, which were typically resolved with further imaging. Most patients with positive results who underwent an invasive procedure were diagnosed with lung cancer. Smoking cessation was not significantly impacted by screening, although individuals with positive or indeterminate screens showed a trend toward reduced smoking or sustained abstinence. Patients with positive or indeterminate scans had some evidence of short-term increases in anxiety and distress but not long-term in the five studies evaluating this; patients with negative scans had a reduction in distress.

Pharmacologic Interventions

Immunization

Influenza vaccine

Influenza vaccine should be administered annually. The likelihood of benefit depends on how well matched the vaccine is to the circulating influenza virus in a given year. Death was prevented for every 4,000 people vaccinated against the flu.

Pneumococcal vaccine

All adults 65 years old and above should be given PCV13 and PPSV 23. High risk patients who received PPSV23 before age 65 should be revaccinated after 5 years. The Philippine Foundation for Vaccination recommends that PCV13 be given first. For immunocompetent elderly, it should be followed by PPSV23 in 6-12 months while for immunocompromised elderly, PPSV23 should be given after 8 weeks. A booster of PPSV23 should be given after 5 years.

Herpes zoster vaccine

CDC recommends vaccination against Herpes zoster for all 60 and above. Herpes zoster vaccine is effective and safe for persons 60-69 years old (Yao, et al. 2015). Receipt of the herpes zoster vaccine was associated with a lower incidence of herpes zoster. The risk was reduced among all age strata.[33] Zoster vaccine reduced the herpes zoster-related Burden of Interference with ADL by two thirds and the herpes zoster-related impact on Health related quality of life (HRQL) by about half.[34] Shingles Prevention Study group cited that there is no difference in the single dose versus the 2 doses. If the older person had herpes zoster, the vaccine should be given after 1 year of the acute episode. (Philippine Foundation for Vaccination, 2013).

Tetanus vaccine

Tdap is recommended once for adults aged 65+ who have not previously received Tdap in adulthood (CDC). TD booster should be given every 10 years. Tdap was found to be immunogenic in subjects ≥65 years, with a safety profile comparable to US-licensed Td vaccine.[36] It was also found to be safe among this age group.[37]

Supplementation

Calcium + Vitamin D supplementation

Overall, the included evidence was of fair quality. In 16 RCTs evaluating exercise or physical therapy, interventions reduced falling (risk ratio, 0.87 [95% CI, 0.81 to 0.94]). In 9 RCTs of vitamin D supplementation, interventions reduced falling (risk ratio, 0.83 [CI, 0.77 to 0.89]).[25]

Several high quality studies showed consistent results that Calcium + Vitamin D supplements can reduce fracture risk in both community-dwelling and institutionalized middle-aged to older adults. In a review of 8 randomized controlled trials, it has been shown that Calcium + Vitamin D supplementation produced as significant 15% reduced risk of total fractures (SRRE 0.85, 95%CI 0.73-0.98) and a 30% reduced risk of hip fractures (SSRE, 0.70; 95% CI, 0.56-0.87). The risk of osteoporotic fractures increases with age among individuals aged >50 years. Calcium plus vitamin D supplementation has been widely recommended for the prevention of osteoporosis and subsequent fractures (Houston, et al. 2014). Several meta-analyses showed statistically significant reductions in risk for both total and hip fractures, which supports the use of calcium plus vitamin D supplementation to reduce fracture risk. Identification of strategies to reduce fracture risk is important, given that osteoporosis and low bone mass is at 19.8% prevalence in the Philippines, especially among urban post- menopausal women.[38]

Non-pharmacologic Interventions

Nutrition

Lifestyle intervention can delay progression of diabetes among elderly.[39] New evidence shows that higher dietary protein ingestion is beneficial to support good health, promote recovery from illness, and maintain functionality in older adults (defined as age >65 years). The need for more dietary protein is in part because of a declining anabolic response to protein intake in older people; more protein is also needed to offset inflammatory and catabolic conditions associated with chronic and acute diseases that occur commonly with aging. In addition, older adults often consume less protein than do young adults. A shortfall of protein supplies relative to needs can lead to loss of lean body mass, particularly muscle loss. As a result, older

people are at considerably higher risk for conditions such as sarcopenia and osteoporosis than are young people. In turn, sarcopenia and osteoporosis. can take a high personal toll on older people: falls and fractures, disabilities, loss of independence, and death.[40] One epidemiological study showed a positive association between higher dietary protein intake and fewer health problems in older women. With data from the Health, Aging, and Body Composition (Health ABC) Study, Houston, et al. were able to assess the association between dietary protein intake and changes in lean body mass (LBM) over a 3-year period in healthy, older adults (n = 2066).

Fitness

A systematic review of 18 prospective studies of 280,000 individuals showed that a standardized dose of walking and cycling, when adjusted for other physical activities reduced risk for death at 10% (95%CI) and 11% respectively. The Bambui Health and Aging Study[41] looked at other physical activities and grouped them as light: going up the stairs at a normal pace, carrying a load, mopping or scrubbing floors, cleaning windows, rhythmic dancing; moderate: cycling for leisure or to work, painting as a home repair, volleyball, tennis, basketball, football; and vigorous such as walking fast, brisk walking, aerobics/gym workout, running/jogging, gardening, sewing wood and horseback riding. These levels of physical activity were grouped according to the level of energy expenditure of 1 MET equivalent to the oxygen consumption of 3.5 mL/kg/min. This prospective cohort study included 1809 Brazilian residents greater than 60 years old and followed for 11 years with death as the endpoint. A statistically significant interaction ($P<0.03$) was found between sex and energy expenditure. Among older men, increases in levels of physical activity were associated with reduced mortality risk. The hazard ratios were 0.59 (95% CI 0.43–0.81) and 0.47 (95% CI 0.34–0.66) for the second and third tertiles, respectively. Among older women, there was no significant association between physical activity and mortality.

Moving from no activity to higher levels of activity was also found to be more beneficial than having no activity at all. A systematic review and meta-analysis of 22 cohort studies and observational studies from Europe, North America, East Asia and Australia for an almost one million general healthy population ages 35-88 showed the largest benefit was found among the totally inactive or no activity at all moving to low levels of activity (RR 19%, 95% CI) such as walking alone at a leisurely pace at 2.5 hrs/week, classified as moderate activity. Still to those already engaged in vigorous activities, increasing to 7 hrs/week of moderate activity, the risk reduction was still better (RR 22% 95% CI) when additional exercises were added.[42]

Exercise programs designed to prevent falls in older adults also seem to prevent injuries caused by falls, including the most severe ones. Such programs also reduce the rate of falls leading to medical care.[43]

Smoking Cessation

The association between smoking and risk of dementia, including Alzheimer's disease has been studied. Elderly current smokers are at increased risk of dementia and cognitive decline compared with those who have never smoked but that there remains insufficient data to determine how past smoking affects risk of both cognitive decline and dementia.

Smoking cessation at 65 years of age leads to an increase in life expectancy of 1.4 to 2.0 years for men and 2.7 to 3.7 years for women.[44] Additionally, smoking cessation at any age benefits those exposed to secondhand smoke, which causes 80 to 90 percent of the negative cardiovascular health effects related to personal smoking.[45]

Alcohol Misuse

The USPSTF reviewed new evidence on the effectiveness of screening for alcohol misuse for improving health outcomes, the accuracy of various screening approaches, the effectiveness of various behavioral counseling interventions for improving intermediate or long-term

health outcomes, the harms of screening and behavioral counseling interventions for alcohol misuse.[46] No more than two alcoholic drinks per day for men and one per day for women are recommended.

Patient Outcomes

Primary care and health service use were also studied in the USA using an interactional analysis instrument to characterize patient-centered care in the primary care setting and examine its relationship with healthcare utilization.[47] A total of 509 adult patients at a university medical center were randomized into groups receiving care by family physicians or general internists. An adaptation of the Davis Observation Code was used to measure patient-centered practices; the main outcome measures of the study were the patients' use of medical services and accrued charges over one year. The results indicated that higher amounts of patient-centered care were related to a significantly decreased annual number of visits to specialty providers, less frequent hospitalizations, and fewer laboratory and diagnostic tests. Total medical charges for the year were also significantly reduced.

Second Visit

If non adherent to regimen, do Motivational interviewing and counselling. A large and expanding number of controlled research studies of MI have demonstrated that it is significantly (10–20%) more effective than no treatment and at least as effective as other viable treatments for a wide variety of problems ranging from substance use to reducing risky behaviors and increasing client engagement in treatment. There is a dose effect such that more sessions tend to produce more behavioral change, and yet MI typically operates as a brief treatment with higher cost effectiveness than the alternatives. Furthermore, MI outcomes appear durable up to 1 year posttreatment. MI has proven effective in a variety of formats, although it may work best as a prelude to other treatments and is least amenable to a group format. MI also works for clients regardless of problem severity, age, or gender, and may even work better for ethnic minority clients and without a specific treatment manual.[48]

Continuing Visit

History and Physical Examination

Continue follow up of utilization of preventive health services based on the recommendations. Correlate with physical examination findings.

Laboratory Tests

Interpret results of tests/ancillary procedures done. Frequency will depend on the specific recommendations

Pharmacologic Interventions

Recommend appropriate pharmacologic interventions based on results.

Non-pharmacologic Interventions

Recommend appropriate non pharmacologic interventions based on results.

Patient Outcomes

Physical functioning relies primarily on objective determinants and outcomes as it relates to issues that result as a function of a combination of age, illness, and mobility.

Outcomes of high psychological well-being include lower rates of cognitive decline, higher levels of resilience, and greater life satisfaction.[49-50] Notably, high psychological well-being is a key factor in successful aging and reduced mortality rates for both physically healthy and unhealthy older adults.[50-51]

Social support is also a key influence on the social well-being of older adults. Among older adults, high levels of social support are associated with lower stress and better mental and physical well-being.[52]

Recommendations for Implementation

Clinic Level

Include wellness recommendations at every clinic visit based on the recommendations.

Organizational Level

PAFP Interventions such as the Kalusugan ng Pamilya mo aalagaan ko project, training of barangay health workers on wellness strategies to empower the community, lay fora on wellness, smoking cessation, healthy aging etc.

Health System Level

Institutionalization of the government to have evidence-based wellness packages.

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