

Philippine Clinical Practice Guidelines for Periodic Health Examination: Screening for Cardiovascular Disease

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ABSTRACT

Background and Objective. Cardiovascular diseases remain to be the leading cause of death in the Philippines. Screening may lead to improvement of clinical outcomes if such conditions are detected and managed early and appropriately. The benefits of screening for a particular disease must be balanced with potential harms due to mislabeling or adverse effects of treatment, as well as socio-economic implications in the primary care setting. The main objective of this clinical practice guideline initiated by the Department of Health and the National Institutes of

Health is to provide evidence-based recommendations that will help primary care physicians in detecting selected cardiovascular diseases among apparently healthy, asymptomatic individuals, while considering the socio-economic implications of the diagnostic screening tests.



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Methods. We performed a systematic synthesis of evidence to address screening for six priority cardiovascular conditions among asymptomatic, apparently healthy adult Filipinos: 1) familial hypercholesterolemia, 2) coronary artery disease, 3) asymptomatic carotid artery stenosis, 4) peripheral arterial disease, 5) abdominal aortic aneurysm, and 6) atrial fibrillation. We followed the Grading of Recommendations Assessment, Development and Evaluation (GRADE) approach to CPG development recommended by the Department of Health. The process included 1) generation of critical questions and critical outcomes, 2) retrieval of current and relevant evidence, 3) synthesis and assessment of the evidence base for these critical questions, 4) formulation of draft recommendations, 5) convening of

a multisectoral stakeholder panel to discuss feasibility, values, and preferences, and assess the strength of the recommendations, and 6) planning for dissemination, implementation, impact evaluation, and updating.

Results. The CPG provides seven recommendations on six prioritized questions in the screening for certain cardiovascular disorders. After presentation of the evidence by the evidence reviewer experts and deliberation by the consensus panel, we came up with two statement recommendations for the question on screening for abdominal aortic aneurysm and one statement recommendation each for the rest of the clinical questions. The consensus panel made strong recommendations to screening for two conditions in asymptomatic and apparently healthy Filipinos, namely: familial hypercholesterolemia and abdominal aortic aneurysm (moderate).

Conclusion. Among asymptomatic, apparently healthy adult Filipinos, we recommend routine screening for two cardiovascular conditions: familial hypercholesterolemia and abdominal aortic aneurysm, with the latter being applicable only to men 60-80 years of age. These recommendations are offered to guide the primary care physician in screening key cardiovascular diseases and should not supplant but rather supplement the health-care provider's sound clinical judgment.

Keywords: guidelines, cardiovascular disease, familial hypercholesterolemia, abdominal aneurysm, coronary artery disease, peripheral arterial disease, carotid stenosis

INTRODUCTION

Republic Act Number 1123, also known as the Universal Health Care Act, mandates that all Filipinos are guaranteed equitable access to quality and affordable health care services.¹ In the implementing rules and regulations, it is the primary care provider who will act as the navigator and is the initial and continuing point person in the health care delivery system. Thus, there is a need to provide guidance to primary care physicians in the management of certain diseases. Majority of the cases managed in the primary care setting are cardiovascular diseases. Diseases of the heart and vessels are the number one cause of death in the country today based on the latest data of the Philippine Statistics Authority, accounting for 17.3% of the total deaths in the country.² Early identification of these factors and addressing them may lessen the burden of cardiovascular diseases in the country.

The Philippine Guidelines on Periodic Health Examination (PHEX), initially published last 2004, is a comprehensive appraisal and synthesis on screening interventions committed to provide early prevention services among apparently healthy Filipinos.³ It is inspired by the Canadian and American Preventive Services Task Forces but is tailored to the local

setting. This updated PHEX guidance on cardiovascular diseases, a concerted effort of different medical and paramedical organizations, supports the objectives stated in the Universal Health Care Act to guide primary care specialists in the management of cardiovascular diseases.¹

This clinical practice guideline (CPG) investigates the role of screening cardiovascular diseases among apparently healthy, asymptomatic adult Filipino individuals. These are defined as individuals without any symptoms of cardiovascular disease, such as chest pains, claudication, difficulty of breathing, abdominal pain, dizziness, unilateral extremity weakness or numbness, and signs such as elevated blood pressure, bruit, reduced pulses, pale and cold extremities, and non-healing wounds. The consensus panel (CP) also defined these individuals as having no modifiable risk factors for cardiovascular disease, such as smoking and diabetes.

This PHEX document is intended to be used by clinical practitioners in the primary care setting in their management of the identified cardiovascular diseases. However, this document should not restrict clinicians in using their best clinical judgment while handling individual cases. Payors and policy makers may also use this guideline, but nonconformance should not be the sole basis for granting or denying financial claims or should not be treated as sole basis for legal action.

METHODS

The Grading of Recommendations Assessment, Development and Evaluation (GRADE) approach to CPG development recommended in the Department of Health (DOH) Manual on Practice Guideline Development was followed.⁴ The GRADE Adolpment and Evidence-to-decision (EtD) framework were utilized in finalizing the recommendations.

Preparation

The Task Force Steering Committee (SC) set the CPG objectives, scope, target audience, and clinical questions. The Task Force SC convened 1) the technical working group involved in creating the evidence base and 2) the CP involved in finalizing the recommendations for each clinical question included. Questions were prioritized using the criteria set by the DOH. The SC chose Evidence Reviewer Experts (EREs) in the field of cardiology, nephrology, internal medicine, and clinical epidemiology.

COI Management

All task force members submitted their declaration of conflict of interest (COI) and curriculum vitae. A COI committee reviewed and evaluated the potential conflicts of interest and gave their recommendation on how to manage them. In general, those with financial COI were not allowed to vote for questions related to the COI. Those with non-financial COIs (such as authorship related to the CPG topic) were allowed to participate but COIs were declared during the panel meeting and the final manuscript. The SC facilitated

the whole CPG formulation process, but their members had no direct participation in assessing and synthesizing the evidence, generating the evidence summaries and evidence-based draft recommendations of the EREs, and voting on final recommendations during the *en banc* CP review.

Evidence Synthesis

The clinical questions were developed using the PICO (population, intervention, comparator, and outcome) format. A consultation with the CP was done during this phase. The CPs recommended to include specific physical examination findings, such as carotid bruits in carotid artery stenosis and pulse palpation in Peripheral Arterial Disease (PAD), in screening asymptomatic individuals. They took into consideration that majority of the diagnostic tests are expensive and not available in rural areas of the country. However, they also stressed that every patient encounter should include a thorough history and physical examination to reach a diagnosis. The clinical questions addressed in this CPG is shown in Table 1.

The ERE searched and appraised international practice guidelines related to periodic health screening, including but not limited to those of the Canadian Task Force on Preventive Health Care, U.S. Preventive Services Task Force, National

Institute for Health and Care Excellence. If the CPG were of good quality and done within five years, the evidence summaries of the CPG were adopted.

If no CPG meeting the above criteria was found, we performed a systematic medical literature search of the MEDLINE (via PubMed), The Cochrane Library, and Google Scholar. Systematic reviews that met our inclusion criteria to answer our clinical questions were used directly to identify relevant articles and summary of findings. If no related reviews were found, we conducted *de novo* systematic reviews. Keywords were based on the PICO for each question.⁵ The reviewer also contacted the authors if there was a need to verify details for the appraisal. We critically appraised the methodological quality of the included studies using the standard tools such as the Cochrane Risk of Bias tool (ROB 1.0) for randomized controlled trials (RCTs), Painless EBM appraisal criteria, the Quality Assessment of Diagnostic Accuracy Studies-2 (QUADAS-2) for diagnostic accuracy studies, and the Newcastle–Ottawa Scale (NOS) for observational studies. We used the GRADE approach to rate the certainty of evidence and the strength of recommendations (Table 2).

Each evidence summary included evidence on the burden of the problem, diagnostic performance, benefits, harm, social

Table 1. Clinical Questions

Question #	Clinical Question
1	Should screening for familial hypercholesterolemia be done using family history of premature cardiovascular disease and physical examination for stigmata be done among apparently healthy, asymptomatic adults to prevent cardiovascular morbidity and mortality?
2	Should screening for coronary artery disease be done using resting or stress echocardiography among apparently healthy, asymptomatic adults to prevent cardiovascular morbidity and mortality?
3	Should screening for carotid artery stenosis be done using carotid bruit auscultation or carotid artery ultrasound among apparently healthy, asymptomatic adults to prevent cardiovascular morbidity and mortality?
4	Should screening for peripheral arterial disease be done using pulse palpation or ankle-brachial index measurement among apparently healthy, asymptomatic adults to prevent cardiovascular morbidity and mortality?
5	Should screening for abdominal aortic aneurysm (AAA) be done using abdominal ultrasonography among apparently healthy, asymptomatic adults to prevent cardiovascular morbidity and mortality?
6	Should screening for atrial fibrillation be done using pulse palpation or 12-lead electrocardiography (ECG) among apparently healthy, asymptomatic adults to prevent cardiovascular morbidity and mortality?

Table 2. GRADE Table of Strength of Recommendation and Certainty of Evidence

Certainty of Evidence	Description
<i>High</i>	We are very confident that the true effect lies close to that of the estimated effect
<i>Moderate</i>	We are moderately confident in the effect estimate: The true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different
<i>Low</i>	Our confidence in the effect estimate is limited: The true effect maybe substantially different from the estimate of the effect
<i>Very low</i>	We have very little confidence in the effect estimate: The true effect is likely to be substantially different from the estimate of effect
Strength of Recommendation	Description
<i>Strong</i>	Advantages of the intervention significantly outweigh disadvantages or disadvantage of the intervention significantly outweigh advantages
<i>Weak</i>	Advantages of the intervention may outweigh disadvantages, disadvantages of the intervention may outweigh advantages, or the relationship between advantages and disadvantages is not clear

and economic impact of the screening test/intervention. Cost-effectiveness studies and other qualitative studies were also included in the evidence summaries.⁶

Evidence to Decision Consensus Approach

The multisectoral CP was tasked to review the evidence summaries and develop recommendations during the *en banc* meeting. Prior to the meeting, the CP voted on the critical outcomes to be considered in the CPG. The critical cardiovascular outcomes considered in this CPG include cardiovascular mortality, all-cause mortality, fatal and non-fatal myocardial infarction, and cerebrovascular disease (Appendix).

The evidence collated to answer the research questions on screening tests were used in formulating the recommendations. They can be classified into two: (1) screening for a risk factor and (2) screening for early disease. The available evidence on screening for a risk factor is mostly on the effect of management of the risk factor, while the available evidence on screening for early disease is mostly on the diagnostic accuracy of the screening tests and the effect of subsequent treatment in cardiovascular outcomes. Health screening also carries potential harm, for example, mislabeling the person as being ill. It can pose a threat to the psychological, social, or physical well-being and even to the individual's financial stability. Because of these probable adverse effects of screening, criteria are set to determine if screening for a particular condition can be beneficial and pragmatic. The voting CP members considered the following in formulating recommendations: (1) burden of illness must be high, (2) screening tests must be accurate enough, (3) early treatment must be more effective than late treatment, (4) confirmatory tests and early management must be safe and available, and (5) costs of screening must be proportional with the potential benefit.

The strength of each recommendation was determined by the panel considering all the factors mentioned above. A strong recommendation means that the panel is "confident that the desirable effects of adherence to a recommendation outweigh the undesirable effects," while weak recommendation means that the "desirable effects of adherence to a recommendation probably outweigh the undesirable effect but is not confident." The recommendation for each question and its strength was determined through voting. A consensus decision was reached if 75% of all CP members agreed. If consensus was not reached in the first voting, questions and discussions were encouraged. Two further rounds of voting on an issue were conducted.

Planning for Dissemination, Implementation, and Update

All recommendations and evidence summaries were posted in a web-based application (<https://phex.ph>). The SC discussed with relevant stakeholders such as DOH and PhilHealth (PHIC) to prepare a dissemination plan that will actively promote the adoption of this guideline with strategies for copyrights. Suggestions included websites,

press conferences, social media sites, professional society conventions, and journal publications.

A full copy of this document was submitted to the DOH for transmittal and publication. The Disease Prevention and Control Bureau will transmit copies of this CPG to PHIC, and health maintenance organizations and non-government organizations involved in a periodic health examination. The recommendations and the evidence summaries will also be posted in the different medical societies involved in the consensus panel, such as the Philippine Heart Association, Philippine Academy of Family Physicians, and Philippine College of Physicians among others.

The recommendations in this PHEX statement shall hold and will be updated after three (3) years or until new evidence arise.

External Review

After completion of panel discussions, the task force engaged selected stakeholders in an open forum to seek their additional comments and inputs regarding the penultimate draft. Upon receiving preliminary comments, the task force held a dedicated forum to present the summary recommendations and obtain vital feedback. The statement recommendations were also presented in different symposia and focused group discussions with relevant stakeholders, such as the presentation to the key members (past presidents, board of trustees) of the Philippine Society of Vascular Medicine. Moreover, three independent stakeholders reviewed the draft guidelines on the content, clarity, acceptability, applicability, and feasibility of the recommendations. Their feedback was taken into consideration by the steering committee prior to finalizing the CPG.

RESULTS

The task force tackled clinical questions on screening asymptomatic, apparently healthy adult Filipinos for the following six clinically relevant cardiovascular conditions: familial hypercholesterolemia, coronary artery disease, asymptomatic carotid artery stenosis, peripheral arterial disease, abdominal aortic aneurysm, and atrial fibrillation. After presentation of evidence summaries and deliberation by the consensus panel, the task force came up with seven recommendations (Table 3).

Familial Hypercholesterolemia (FH)

Recommendation 1: Among asymptomatic, apparently healthy adults, we recommend screening for familial hypercholesterolemia using family history of premature cardiovascular disease and physical examination for stigmata* to prevent cardiovascular morbidity and mortality. (*Low certainty of evidence, strong recommendation*)

*stigmata are pathognomonic findings of familial hypercholesterolemia such as corneal arcus in those age ≤ 45 years old, tendon xanthoma, xanthelasma

Key Findings: Familial hypercholesterolemia (FH) is a genetically linked condition characterized by unusually elevated lipid levels that may manifest clinically in the form of physical stigmata or premature occurrence of CV disease. A very high LDL-C level of ≥ 190 mg/dL is the sine qua non for the diagnosis of FH and lifetime exposure to such high lipid levels is independently associated with worse prognosis.⁷ Certain physical stigmata have been identified to raise the clinical index of suspicion for FH, such as corneal arcus, tendon xanthomas, and xanthelasmas.

There were no studies directly evaluating the effect of screening for FH compared to no screening. There were also no studies evaluating the accuracy and possible harms of screening based on family history of premature cardiovascular disease and physical examination for stigmata. The dictum is once a proband is identified, cascade screening to their first-degree relatives must be done to start early treatment to those relatives with the genetic mutation.

In a meta-analysis of seven observational studies that included genetically confirmed FH patients, the frequency of CVD in those with xanthomas was higher compared to those without xanthomas (OR 3.20, 95% CI 2.12 – 4.82, $p < 0.01$).⁸ Another meta-analysis showed that patients with FH who do not receive treatment have higher risk of peripheral arterial disease (OR 3.59, 95% CI 1.30-9.89).⁹ Younger patients aged 20-39 years old diagnosed with FH had higher deaths due to coronary heart disease (standardized mortality ratio of 386, 95% CI 210-639).¹⁰

Justification: The consensus panel agreed that established diagnostic criteria and treatment for FH exist, and that early diagnosis and proper treatment will have a big impact on patients. Despite the low certainty of evidence, they made a strong recommendation to screen for FH by checking for a family history of premature CV disease and by looking for physical clues such as arcus cornealis, tuberous xanthomas,

and xanthelasmas. The basis for the strong recommendation is the data showing that FH, if left untreated, magnifies the risk for peripheral arterial disease and mortality due to coronary heart disease particularly in the younger population. Moreover, the consensus panel considered that genetic screening for LDL-R mutation, which is the ideal screening test for FH, is not readily available in many regions of the country nor affordable to majority of the population. In the Philippine setting, the impact of undetected and untreated FH in asymptomatic healthy adults who are often the main income generators will be far-reaching.

The panel further recommended that primary care physicians be educated regarding the clinical detection of FH stigmata (corneal arcus, tendon xanthomas, and xanthelasmas), as this should immediately prompt an evaluation of the lipid panel and possible pharmacologic treatment. Pharmacologic treatment has been unequivocally proven to significantly reduce CV events in patients with confirmed FH.

Coronary Artery Disease

Recommendation 2: Among asymptomatic, apparently healthy adults, we recommend AGAINST screening for coronary artery disease using resting or stress echocardiography to prevent cardiovascular morbidity and mortality. (Moderate certainty of evidence, strong recommendation)

Key Findings: There were no studies on the impact of screening for coronary artery disease in asymptomatic, apparently healthy adults with either resting or stress echocardiography compared to no screening. A 2016 meta-analysis investigated the impact of screening asymptomatic patients with diabetes for coronary artery disease using both resting and stress echocardiography. There was inconclusive effect of screening compared to no screening on all-cause mortality (OR 1.00, 95% CI 0.67–1.50), cardiovascular

Table 3. Summary of Recommendations

	Recommendation	Certainty of Evidence	Strength of Recommendation
1.	Among asymptomatic, apparently healthy adults, we recommend screening for family history of premature cardiovascular disease and physical examination to diagnose familial hypercholesterolemia to prevent cardiovascular morbidity and mortality.	Low	STRONG
2.	Among asymptomatic, apparently healthy adults, we recommend AGAINST screening for coronary artery disease using resting or stress echocardiography to prevent cardiovascular morbidity and mortality.	Moderate	STRONG
3.	Among asymptomatic, apparently healthy adults, we recommend AGAINST routine screening for carotid artery stenosis using carotid bruit auscultation or carotid ultrasound to prevent cardiovascular morbidity and mortality.	Low	STRONG
4.	Among asymptomatic, apparently healthy adults, we recommend AGAINST routine screening for peripheral arterial disease using pulse palpation or Doppler Ankle-Brachial Index to prevent cardiovascular morbidity and mortality.	Low	STRONG
5.1.	Among asymptomatic men aged 60 to 80 years old, we recommend one-time screening for abdominal aortic aneurysm using ultrasonography.	Moderate	STRONG
5.2.	Among asymptomatic women, we recommend AGAINST screening for abdominal aortic aneurysm using ultrasonography.	Low	STRONG
6.	Among asymptomatic, apparently healthy adults, we recommend AGAINST screening for atrial fibrillation using pulse palpation or 12-lead electrocardiography to prevent cardiovascular morbidity and mortality.	Low	STRONG

mortality (OR 0.72, 95% CI 0.33–1.57), and non-fatal myocardial infarction (OR 0.71, 95% CI 0.40–1.20) at the end of the 5-year follow up period.¹¹ Event rates were low even in this relatively higher risk population. Furthermore, only 8% (130 out of 1662) of patients with a positive screening test eventually underwent coronary angiography. In total, only 2.5% of the total patients screened underwent Percutaneous Coronary Intervention, and only 1.5% underwent Coronary Artery Bypass Graft.¹¹

Studies on the diagnostic accuracy of resting echocardiography for screening coronary artery disease are limited, mostly focusing on patients with an acute coronary syndrome.

There were no studies evaluating the diagnostic accuracy of stress echocardiography for screening for coronary artery disease among asymptomatic individuals without comorbidities. A 2021 meta-analysis compared the diagnostic accuracies of dobutamine stress echocardiography and vasodilator myocardial perfusion cardiovascular magnetic resonance imaging (pCMR) in mostly asymptomatic patients deemed at intermediate risk for coronary artery disease.¹²

Justification: The consensus panel recognized that coronary artery disease is a very important cause of morbidity and mortality across the world. Such a condition is often detected once symptoms such as angina or chest pain develop, but certain individuals may have silent (asymptomatic) ischemia. Based on the evidence, the panel noted that there were no studies on the impact of screening asymptomatic individuals with either resting or stress echocardiography. In consideration of this observation, as well as study findings showing low event rates even in high-risk but asymptomatic individuals, the panel made a strong recommendation AGAINST the use of either resting or stress echocardiograms to screen for coronary artery disease in asymptomatic, apparently healthy individuals.

Carotid Artery Disease

Recommendation 3: Among asymptomatic, apparently healthy adults, we recommend AGAINST routine screening for carotid artery disease using carotid bruit auscultation or carotid ultrasound to prevent cardiovascular morbidity and mortality. (*Low certainty of evidence, strong recommendation*)

Key Findings: Screening methods for carotid artery stenosis include carotid bruit auscultation and carotid Doppler ultrasound. There are no studies which evaluated the effectiveness and safety of screening versus no screening for asymptomatic carotid artery stenosis.¹³ Other potential outcomes of interest include harms associated with confirmatory tests such as angiography, however, no evidence was seen. Despite being considered the reference standard for the diagnosis of carotid artery stenosis, carotid angiography is not an ideal screening tool due to its invasive nature, unavailability, prohibitive cost, and lack of validated risk stratification tools.

There are no direct studies on the diagnostic accuracy of carotid bruit auscultation among asymptomatic, apparently healthy individuals. Most studies involved participants with a history of cardiovascular or cerebrovascular disease, or symptomatic patients. A meta-analysis in 2012 involved 26 studies whose study participants included outpatients consulting at neurology or vascular clinics, patients with coronary artery disease, peripheral vascular disease, and patients scheduled to undergo coronary artery bypass grafting (CABG).¹⁴ Results showed that the pooled sensitivity of carotid bruit auscultation is low at 53% (95% CI 50, 55%) and the pooled specificity is 83% (95% CI 82, 84%) for detecting clinically relevant stenosis (defined as >70–80% stenosis).

There are no studies on the diagnostic accuracy of carotid Doppler ultrasonography among asymptomatic individuals. Most studies included symptomatic patients and/or those with cerebrovascular and cardiovascular risk factors. Furthermore, some studies used the terms 'symptomatic' and 'asymptomatic' to refer to the ipsilateral and contralateral arteries being evaluated, respectively. A meta-analysis of 12 studies involved 1,456 patients, where 86 to 100% of patients had symptomatic carotid artery stenosis.¹⁵ Nine studies compared non-invasive testing, which included Doppler ultrasonography, with intraarterial angiography, which is the reference standard for diagnosis. Results showed that carotid Doppler ultrasonography has a sensitivity of 31 to 83% for detecting symptomatic carotid artery stenosis, and 48 to 67% for detecting asymptomatic carotid stenosis. Specificity ranged from 54 to 84% for symptomatic carotid stenosis, and 90 to 93% for asymptomatic carotid stenosis.

Justification: The consensus panel discussed that a complete medical history with a thorough physical examination is a prerequisite to arrive at a logical and valid diagnosis for most medical conditions. However, routine auscultation of the carotid artery specifically for detection of carotid stenosis in asymptomatic individuals is NOT recommended due to the wide variation in diagnostic accuracy of this method. The presence of bruit may connote several differential diagnoses (e.g., cervical venous hum, extrinsic compression of the carotid artery tortuosity, radiation of an aortic stenosis murmur, and carotid artery disease). The consensus panel unanimously voted AGAINST the routine use of carotid Doppler ultrasound as a screening tool for carotid artery stenosis among asymptomatic, apparently healthy patients due to lack of evidence and cost issues.

Peripheral Arterial Disease (PAD)

Recommendation 4: Among asymptomatic, apparently healthy adults, we recommend AGAINST routine screening for peripheral arterial disease using pulse palpation or Doppler ankle-brachial index to prevent cardiovascular morbidity and mortality. (*Low certainty of evidence, strong recommendation*)

Key Findings: There are no studies on the benefits or harms of screening using pulse palpation for PAD among asymptomatic, apparently healthy adults.

The association of absent pulses to ankle-brachial index (ABI) scores in the diagnosis of PAD was evaluated in primary clinics involving 403 patients, among which 67 (16.6%) had PAD. Most study participants had hypertension, diabetes, and elevated cholesterol. The mean ABI was 0.72 ± 0.02 for patients with PAD and 1.13 ± 0.01 for patients without PAD ($P < .0001$). Among those with PAD, 25 (37.3%) had no leg symptoms, 37 (55.2%) had atypical leg symptoms, and five (7.5%) had symptoms of classic intermittent claudication. The odds of having a palpable pulse were lower for patients with ABI of 0.51 to 0.69 compared to those with ABI of 0.7 to 0.89 (OR 0.07, 95% CI 0.01, 0.85).¹⁶

A systematic review of eight studies comprising 2,043 patients evaluated the diagnostic accuracy of ABI scores ≤ 0.90 for detecting PAD with $\geq 50\%$ stenosis compared to a standard reference such as arteriography. ABI had high specificity (83–99%), but sensitivity values ranged widely from 15–79%. Sensitivity was especially low in elderly individuals and patients with diabetes.¹⁷

Evidence from 16 cohort studies that evaluated patients with asymptomatic PAD showed significant benefit in all-cause mortality among those given antiplatelet treatment compared to no antiplatelet treatment (hazard ratio [HR] 0.93, 95% CI 0.88, 0.98).¹⁸

A critical appraisal of 14 international guidelines on the screening and treatment of asymptomatic PAD showed varying recommendations on pulse palpation and the ankle-brachial index. Although the American Heart Association, Belgian Working Group, Central European Venous Forum, European Society of Vascular Surgery, German Society of Angiology and Society of Vascular Surgery had either moderate or strong recommendations on the use of ABI for screening patients who are asymptomatic, these patients must have significant risk factors for atherosclerosis including increased age, presence of diabetes, hypertension, smoking or family history of lower extremity arterial disease. The US preventive task force stated that there is insufficient evidence to do ABI screening in the asymptomatic population.¹⁹

Justification: The consensus panel voted AGAINST the use of pulse palpation as a screening test for PAD in apparently healthy, asymptomatic individuals due to lack of evidence. Similarly, the panel voted AGAINST the routine use of Doppler ABI as a screening tool for PAD due to cost issues and the paucity of evidence for benefit in the apparently healthy and asymptomatic population. The panel considered that primary care physicians still lack dedicated training in the use of Doppler ABI, and existing literature reinforce the low sensitivity and high variability in results of auscultatory ABI, palpatory ABI, automated ABI, and Doppler ABI as screening tools for symptomatic PAD. Moreover, such a diagnostic test may not be affordable to low-income sectors and is not readily available particularly in rural areas of the country.

The consensus panel recognized the importance of thorough history-taking and physical examination by the primary care physician in the diagnosis and management of patients with suspected cardiovascular disease. There was a lengthy discussion by the panel on age as a risk factor that should be considered for screening for PAD. However, despite the increased prevalence of vascular disease in the older population, majority of benefit with treatment was seen in the symptomatic population. Patients with asymptomatic PAD showed no significant benefit with antiplatelet treatment. Hence, the consensus panel decided to recommend AGAINST screening for PAD in all asymptomatic, apparently healthy adults, regardless of age. However, it was agreed that in succeeding guideline discussions, age will be included as a risk factor for disease.

A consultation meeting with key members (past presidents, board of trustees) of the Philippine Society of Vascular Medicine (PSVM) was conducted after the consensus panel meeting. During the discussion, society representatives strongly emphasized the need to actively pursue the diagnosis of PAD using pulse palpation even in the asymptomatic population given that peripheral arterial disease increases patient risk for cardiovascular events. They cited the observation that pulse palpation, if done repeatedly and correctly, can help determine if the patient will require further testing and subsequent management. However, considering the available evidence showing the low accuracy of pulse palpation for detecting PAD, they then recommended that education and skills training in proper pulse palpation be reinforced at the medical school and postgraduate levels (residency training) especially in regions where diagnostic tests are not readily available.

Abdominal Aortic Aneurysm (AAA)

Recommendation 5.1: Among asymptomatic men aged 60 to 80 years old, we recommend one-time screening for abdominal aortic aneurysm using ultrasonography. (*Moderate certainty of evidence, strong recommendation*)

Recommendation 5.2: Among asymptomatic women, we recommend AGAINST screening for abdominal aortic aneurysm using ultrasonography. (*Low certainty of evidence, strong recommendation*)

Key Findings: There were four randomized controlled trials ($n = 134\ 271$) assessing the effect of one-time screening for abdominal aortic aneurysm (AAA) screening using ultrasound compared to no screening.^{19–22} All studies included asymptomatic men aged 64 years and older. Pooled results showed significant benefit in reducing AAA-related mortality (RR 0.57, 95% CI 0.44, 0.72) and aneurysm rupture (RR 0.52, 95% CI 0.35, 0.79) for patients who underwent ultrasound screening compared to no screening, at follow-up of 3 to 5 years. There was no significant difference in all-cause mortality (RR 0.94, 95% CI 0.88, 1.02).

Screening resulted in the doubling of the total number of AAA-related operations performed, driven largely by elective operations.²² A statistically significant decrease in 30-day post-operative mortality was associated with one-time AAA screening compared to no screening (RR 0.31, 95% CI 0.20, 0.48).

Justification: The consensus panel recognized the preponderance of evidence on the benefits of screening for AAA in men aged 60–80 years of age and strongly recommended one-time screening for AAA in this population using ultrasonography. In contrast, the panel recommended AGAINST the use of abdominal ultrasound among apparently healthy, asymptomatic women because of lack of evidence of benefit. Moreover, the panel recognized that ultrasonography is not readily available in rural areas and carries considerable cost. There is also lack of evidence for screening young, apparently healthy individuals. Hence, the panel recommended that a statement dedicated to this population be made in succeeding guidelines once new evidence arises.

Atrial Fibrillation (AF)

Recommendation 6: Among asymptomatic, apparently healthy adults, we recommend AGAINST screening for atrial fibrillation using pulse palpation or 12-lead electro-cardiography to prevent cardiovascular morbidity and mortality. (*Low certainty of evidence, strong recommendation*)

Key Findings: There are no studies on the benefits or harms of screening for AF among asymptomatic, apparently healthy adults. The same observation was also stated in the 2021 Evidence Review of the US Preventive Services Task Force and the 2019 UK National Screening Committee.^{23,24}

There were two RCTs which presented clinical outcomes after screening for AF and subsequent medical therapy, including anticoagulation if indicated, among adult patients. One RCT compared screening for AF using AliveCor Kardia, a handheld device able to record a single lead ECG similar to lead I for 30 seconds (n= 500), with no screening (n= 501) over 12 months. This RCT involved 1,001 participants aged 65 and above with a CHADS₂VASc score of 2 and above. There was inconclusive effect on the composite outcome of stroke, transient ischemic attack, and systemic embolism in the screening group compared to the no-screening group (HR 0.6, 95% CI, 0.2 to 1.7).²⁵

Another RCT compared screening for AF using intermittent ECG recorded twice daily for two weeks via a handheld single lead ECG, Zenicor, (n= 13,979) with no screening (n= 13,996). This study enrolled 75–76-year-old patients, including those with comorbidities, with no prior AF. There was minimal to no reduction in the composite outcome of ischemic or hemorrhagic stroke, systemic embolism, bleeding leading to hospitalization, and all-cause death in the screening group compared to the no screening group (HR 0.96, 95% CI 0.92–1.00).²⁶

Justification: The consensus panel considered the low prevalence of atrial fibrillation in the general population,

although the prevalence increased in the elderly and among males. The panel also considered that the risk of stroke increases among AF patients with at least any of the two risk factors (Congestive heart failure, Hypertension, Age ≥65 years, Diabetes mellitus, history of Stroke, transient ischemic attack (TIA) or thromboembolism, Vascular disease, and Female gender), or CHADS₂VASc scores of at least 2. The panel emphasized that even if AF is detected among apparently asymptomatic, healthy individuals, treatment is NOT recommended because there is no benefit for patients with CHADS₂VASc scores lower than 2.

Nevertheless, the panel still emphasized the value of thorough history taking and physical examination as critical components in the clinical investigation of patients with suspected or confirmed cardiovascular disease. They also recommend that primary care health professionals be encouraged to perform a one-minute pulse rate check during physical examination, especially for those with a heightened clinical index of suspicion for rhythm abnormalities.

DISCUSSION

A thorough clinical history and complete physical examination is key to determining whether the patient is asymptomatic and apparently healthy. A patient is truly asymptomatic and apparently healthy if there are no typical and atypical symptoms, risk factors, and any abnormal physical examination finding. The use of the guidelines in this PHEX document regarding screening for specific cardiovascular diseases should only be applied to patients without risk factors, without symptoms, and without abnormal signs after physical examination. The document is not applicable for patients who have risk factors, have symptoms, or have abnormal physical findings.

In rural areas, certain screening tests such as the carotid ultrasound and ankle-brachial index are not readily available. Given the lack of direct evidence, the tendency for subsequent tests to be performed, the cost and harm these tests may bring, and the lack of significant reduction on cardiovascular events with antiplatelet treatment, it was recommended NOT to use the screening tests in asymptomatic, apparently healthy individuals. During the consensus panel discussion, the panel felt strongly about the costs of further testing after an abnormal physical examination and the lack of benefit in the asymptomatic population. Hence, strong recommendations were made AGAINST carotid ultrasound, ankle-brachial index, and 12-lead ECG in screening for diseases in asymptomatic adults.

Strengths and Limitations

The strength of this guideline is the thorough research the task force made in answering the clinical questions. All evidence regarding the efficacy and safety of diagnostic tests, health economic data, and patient preferences were included in the presentation of evidence. The consensus panel considered

not just the evidence presented, but the applicability of these diagnostic tests in the local setting. The guidelines provide a holistic view on the screening of the above-mentioned cardiovascular diseases among asymptomatic, apparently healthy individuals.

The main limitation of this guideline is the lack of diagnostic accuracy studies for some tests in apparently healthy individuals, local prevalence data, and local cost-effectiveness data which are vital in coming up with a robust guideline for Filipinos.

Research Gaps

This guideline recommends local data on the effect of screening compared to no screening among apparently healthy individuals, local cost-effectiveness studies, and social science research that will examine the impact of screening. This will provide us with a holistic view of the effect of screening in an apparently healthy Filipino individual.

CONCLUSION

The intention of this CPG is to guide health policies for the general population. However, this should not be the sole basis for recreating or abolishing practices to improve the health conditions of many Filipinos. Clinicians must always exercise sound clinical judgment, taking into consideration the individual patient's history and current physical examination in the management of the condition.

Disclaimer

This guideline is intended to be used by general practitioners, specialists, and health professionals who are primary care providers. Although adherence to these guidelines is encouraged, it should not restrict the primary care providers in using their sound clinical judgment in handling individual cases. Payors and policymakers, including hospital administrators and employers, can also utilize this CPG, but this document should not be the sole basis for evaluating insurance claims. Recommendations from the PHEX app and the guidelines therein should also not be treated as strict rules on which to base legal action.

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Statement of Authorship

All authors certified fulfillment of ICMJE authorship criteria.

Author Disclosure

All steering committee members including technical writer/coordinator, apart from JDA, and all evidence reviewers, except for BLL and JAA, have disclosed relevant but manageable conflicts of interest at the time of CPG development.

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APPENDIX

Prioritization and ranking of clinical outcomes using GRADE Score

Outcomes	Score	Rank
<i>Cardiovascular Mortality</i>	9	Critical
<i>All-cause Mortality</i>	9	Critical
<i>Fatal and non-fatal MI</i>	9	Critical
<i>Stroke or Cerebrovascular disease</i>	9	Critical
<i>Lower limb amputation</i>	8	Critical
<i>Major adverse cardiovascular events</i>	7	Important
<i>Coronary Revascularization</i>	7	Important
<i>Unstable Angina</i>	7	Important
<i>Chronic stable angina</i>	7	Important
<i>Peripheral arterial revascularization</i>	6	Important
<i>Carotid/cerebrovascular revascularization</i>	6	Important
<i>Heart failure</i>	6	Important
<i>Repair of aneurysm</i>	6	Important
<i>Lower limb revascularization</i>	6	Important
<i>Acute limb ischemia</i>	6	Important
<i>Reduction of laboratory parameters (LDL, troponin, BNP)</i>	5	Important
<i>Symptom reduction</i>	4	Important

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