

FP Essentials

Call for Authors – May 2024

Cardiovascular Disease Update

We are seeking an author or author group to write an edition of *FP Essentials* on the topic of cardiovascular disease. This edition will cover four topics:

1. Peripheral artery disease
2. Coronary artery disease risk assessment and noninvasive testing
3. Medical management of stable ischemic heart disease
4. Heart failure update

The main text of the manuscript should be approximately 10,000 words in length, divided into four sections of approximately 2,500 words each, plus an abstract of approximately 200 words for each section. In addition, there should be key practice recommendations, a maximum of 15 tables/figures total, additional resources, and up to 200 references to provide support for all recommendations and factual statements in the manuscript.

This edition should focus on what is new in each topic and should answer the key questions listed for each section. Each section should begin with an illustrative case, similar to the examples provided, with modifications to emphasize key points; each case should have a conclusion that demonstrates resolution of the clinical situation. The references provided here include information that should be considered in preparation of this edition of *FP Essentials*. However, these should be used only as a starting point in identifying the most current guidelines and references to include in the edition.

Needs Assessment: Cardiovascular disease is the most common cause of mortality in the United States and is commonly managed by family physicians. A survey of American Academy of Family Physicians (AAFP) members indicated that management of heart failure and atherosclerosis were two areas in which they needed additional education. This monograph will help address those needs by providing readers with information related to the management of cardiovascular disease.

Section 1: Peripheral Artery Disease

Example case: *PM is a 62-year-old patient who has well-controlled high blood pressure and dyslipidemia. He tells you that recently he had to decrease his daily walks because of leg pain. On further questioning, PM tells you that the pain is dull, aching, located in his thighs, and occurs after he walks about a quarter of a mile. After rest, the pain improves.*

Key questions to consider:

Definition, Etiology, Risk Factors, and Prevention

- How is peripheral artery disease (PAD) defined and how common is it?
- What are the usual presenting symptoms?
- What are the complications associated with PAD? Is it associated with increased mortality rates or non-PAD morbidities?
- What are the common risk factors for PAD? Are there any new or emerging risk factors? How effective is lifestyle modification in preventing PAD development?
- Should high-risk, asymptomatic patients be screened for PAD, and if so, how?
- What preventive strategies are recommended? What blood pressure and lipid level goals are recommended?

Clinical Presentation and Diagnosis

- What are the usual physical examination findings with PAD, from early to more advanced disease presentations?
- What is the preferred diagnostic evaluation for patients with a history of and/or physical examination that is suspicious for PAD? What are the role and limitations of ankle-brachial index (ABI) measurement? When should an exercise ABI be performed rather than a resting ABI? When are the toe-brachial index or other tests preferred over ABI? Are there any recommended laboratory or imaging tests for confirmed cases? Is there a role for biomarkers?
- If patients are found to have PAD, should they be evaluated for other manifestations of cardiovascular disease (eg, carotid artery disease)?

Management

- What lifestyle modifications, including exercise, diet, and tobacco cessation, are recommended for patients with PAD? How effective are these interventions? What is the role of management of contributing conditions, such as high blood pressure, dyslipidemia, and diabetes?
- Is there any role for compression stockings in PAD? Do they improve symptoms or outcomes?
- When should pharmacotherapy be considered? Is one drug or drug class preferred over another? Do any drugs alter the natural history of the disease or improve outcomes? Can these drugs be combined with each other? What drugs need to be avoided in patients with PAD?
- What are the indications for percutaneous and surgical revascularization? Does medical management change in patients who undergo surgical treatment?
- What racial/ethnic/gender disparities exist in the management of PAD?
- How do the social determinants of health affect the management and natural history of peripheral artery disease?

Prognosis

- What is the long-term prognosis for a patient with PAD?

Initial references to consider:

- Cervilla Suárez FJ, Muñoz Cobos F, García Ruiz A, Gálvez Alcaraz LF. Alteration of the ankle brachial index, follow-up of patients at risk of peripheral arterial disease, a descriptive longitudinal study. *Curr Probl Cardiol.* 2024;49(2):102243.
- Aboyans V, Ricco JB, Bartelink MEL, et al. Editor's Choice—2017 ESC guidelines on the diagnosis and treatment of peripheral arterial diseases, in collaboration with the European Society for Vascular Surgery (ESVS). *Eur J Vasc Endovasc Surg.* 2018;55(3):305-368.
- Polonsky TS, McDermott MM. Lower extremity peripheral artery disease without chronic limb-threatening ischemia: a review. *JAMA.* 2021;325(21):2188-2198.
- Willems SA, Dolfing SG, van Wissen RC, et al. Diagnostic accuracy of the maximal systolic acceleration to detect peripheral arterial disease. *J Vasc Surg.* 2024;79(2):405-411.
- Varaki ES, Gargiulo GD, Malone M, Breen PP. Arterial and venous peripheral vascular assessment using wearable electro-resistive morphic sensors. *Sci Rep.* 2024;14(1):1327.
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- Wardle BG, Ambler GK, Radwan RW, Hinchliffe RJ, Twine CP. Atherectomy for peripheral arterial disease. *Cochrane Database Syst Rev.* 2020;(9):CD006680.
- Toledo Barros MG, Fonseca AV, Amorim JE, Vasconcelos V. Retrograde distal access versus femoral access for below the knee angioplasty. *Cochrane Database Syst Rev.* 2024;(1):CD013637.

Section 2: Risk Assessment and Noninvasive Testing for Coronary Artery Disease

Example case: *TK is a 54-year-old patient with high blood pressure, type 2 diabetes, and dyslipidemia. She tells you that over the weekend she developed shortness of breath and chest discomfort while walking with her grandson. The symptoms lasted about 5 minutes and then stopped, and she has not had any since then. What is the next step in assessing her risk of coronary artery disease?*

Key questions to consider:

- Which patients benefit from coronary artery disease (CAD) risk assessment? Is there a difference between risk assessment in patients with established atherosclerotic CAD compared with those who have not previously been diagnosed? Does bias in screening affect outcomes (eg, do we still screen fewer women)?
- Which risk calculators are available to aid physicians in risk assessment? What are the components of these calculators and which ones are thought to be most accurate? Are there any limitations to their use? Are there situations and patient characteristics that make one calculator preferable for certain patients? What patient characteristics determine how often calculator-based risk assessment should be repeated?
- What laboratory tests and biomarkers can be used to aid in risk assessment? Are there any novel biomarkers to identify CAD or the risk of progression? What is their use in primary and secondary prevention? How (and why) do these evaluations differ between their recommended use in primary care vs cardiology practices?
- Should electrocardiography be used routinely in primary care settings for screening or to monitor patients with established CAD to assess for risk for recurrent episodes?
- What is the role of imaging tests, such as coronary computed tomography scan and cardiac magnetic resonance imaging study, for risk assessment in primary care settings?
- What is the role of echocardiography as part of CAD risk assessment in primary care settings?
- What are the indications for coronary artery calcium scores? Are there any limitations to these scores? What is their use for risk assessment in patient care settings?
- What is the role of functional tests for CAD risk assessment in primary care? Discuss exercise stress tests, stress echocardiography, and nuclear stress tests. What are the options for functional testing for patients who cannot exercise?
- For each of the above approaches to risk assessment, what are the indications, contraindications, limitations, positive predictive values, and negative predictive values? Presenting this information in a table could be useful.
- What are the next steps if any of these noninvasive tests are positive? Is it different if those tests are obtained by the patient's physician vs if they are performed through direct-to-consumer approaches?

Initial references to consider:

- Garg PK, Brown DL. Coronary artery calcium screening-data first. *JAMA Intern Med.* 2023;183(11):1270-1271.
- Patel AR, Kramer CM. Perfusion imaging for the heart. *Magn Reson Imaging Clin N Am.* 2024;32(1):125-134.

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- Wu J, Liu C. Recent advances in cardiac SPECT instrumentation and imaging methods. *Phys Med Biol*. 2019;64(6):06TR01.
- Gill EA, Blaha MJ, Guyton JR. JCL roundtable: coronary artery calcium scoring and other vascular imaging for risk assessment. *J Clin Lipidol*. 2019;13(1):4-14.
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Section 3: Medical Management of Stable Ischemic Heart Disease

Example case: *BP is a 71-year-old patient who had a myocardial infarction 6 years ago. He is receiving appropriate therapy for his contributing risk factors and was able to successfully stop smoking. He is interested in taking a trip to visit his grandchildren next year but is concerned about “overdoing it.” He wants to know if there is anything he can do to improve his exercise endurance without damaging his heart.*

Key questions to consider:

Definitions and Epidemiology

- How is stable ischemic heart disease defined?
- How common is it in the primary care setting?
- What percentage of patients who have had an acute coronary syndrome develops stable ischemic heart disease? Conversely, what proportion of patients with stable ischemic heart disease goes on to experience an acute coronary syndrome?

Diagnosis

- What are the diagnostic criteria, and what testing is required to establish the diagnosis or need for intervention?

Management

- What are the dietary and exercise recommendations for patients with stable ischemic heart disease?
- Is cardiac rehabilitation beneficial even in the absence of new symptoms?
- How should contributing factors, such as hypertension, diabetes, and dyslipidemia, be managed in the setting of stable ischemic heart disease?
- What is the preferred pharmacotherapy for stable ischemic heart disease? Specifically address the following (consider using a table):
 - Long-term beta blocker therapy
 - Antianginal management
 - Statins and nonstatin management of dyslipidemia
 - Antiplatelet therapy in patients with and without coronary stents
 - Angiotensin-converting enzyme inhibitors and angiotensin receptor blockers (after myocardial infarction)
 - Sodium-dependent glucose cotransporter 2 inhibitors
 - Glucagon-like peptide 1 receptor agonists
 - Oral anticoagulants
- Do these patients require periodic electrocardiograms, echocardiograms, or functional testing? If so, at what interval?
- What is the preferred management for breakthrough anginal symptoms?

Prognosis

- What is the long-term prognosis for patients with stable ischemic heart disease?
- How do the social determinants of health affect the management and natural history of stable ischemic heart disease?

Initial references to consider:

- Davies A, Fox K, Galassi AR, Banai S, Ylä-Herttuala S, Lüscher TF. Management of refractory angina: an update. *Eur Heart J*. 2021;42(3):269-283.
- Knuuti J, Wijns W, Saraste A, et al. 2019 ESC guidelines for the diagnosis and management of chronic coronary syndromes. *Eur Heart J*. 2020;41(3):407-477.
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- Arnold SV, Bhatt DL, Barsness GW, et al. Clinical management of stable coronary artery disease in patients with type 2 diabetes mellitus: a scientific statement from the American Heart Association. *Circulation*. 2020;141(19):e779-e806.
- Maron DJ, Hochman JS, Reynolds HR, et al. Initial invasive or conservative strategy for stable coronary disease. *N Engl J Med*. 2020;382(15):1395-1407.
- Spertus JA, Jones PG, Maron DJ, et al. Health-status outcomes with invasive or conservative care in coronary disease. *N Engl J Med*. 2020;382(15):1408-1419.
- Al-Lamee R, Thompson D, Dehbi HM, et al. Percutaneous coronary intervention in stable angina (ORBITA): a double-blind, randomised controlled trial. *Lancet*. 2018;391(10115):31-40.
- Fordyce CB, Douglas PS, Roberts RS, et al. Identification of patients with stable chest pain deriving minimal value from noninvasive testing: the PROMISE minimal-risk tool, a secondary analysis of a randomized clinical trial. *JAMA Cardiol*. 2017;2(4):400-408.
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- Long L, Anderson L, Dewhirst AM, et al. Exercise-based cardiac rehabilitation for adults with stable angina. *Cochrane Database Syst Rev*. 2018;(2):CD012786.

Section 4: Heart Failure Treatment Guidelines Update

Example case: *GK is a 62-year-old patient who was diagnosed with heart failure with reduced ejection fraction. Despite adequate doses of lisinopril, carvedilol, spironolactone, and furosemide, she has been admitted to the hospital twice in the past 4 months. She wants to know if there is something else that she should be doing or taking to prevent another exacerbation.*

Key questions to consider:

Definitions and Etiology

- What is the most widely accepted definition of heart failure (HF)? What are the causes and classifications of HF?
- How is the term *heart failure with recovered ventricular function* defined, and what are its clinical implications?
- What are the nonischemic etiologies of HF of which family physicians should be aware?

Diagnosis

- Are there any new strategies for HF diagnosis? When are noninvasive tests recommended?
- What is the role of wearable technologies in HF?

Management

- Are there major management differences between HF with preserved ejection fraction and HF with reduced ejection fraction?
- What are the dietary and exercise recommendations for patients with HF, including the role of sodium and fluid restriction?
- What is the definition of dry weight and why is this a therapeutic target? What affect does it have on short- and long-term outcomes, including hospital readmission?
- Are there any new recommendations for managing acute decompensated HF?
- What are the current components of goal-directed pharmacotherapy for patients with HF, including:
 - Angiotensin-converting enzyme inhibitors and angiotensin receptor blockers
 - Beta blockers
 - Sacubitril-valsartan
 - Mineralocorticoid receptor antagonists
 - Sodium-dependent glucose cotransporter 2 inhibitors
- When should implantable cardioverter-defibrillators and cardiac resynchronization therapy be considered?
- When should a patient be referred to and treated by an HF specialist?
- What are the signs and symptoms suggesting a patient with HF would benefit from end-of-life discussions?

Initial references to consider:

- Heidenreich PA, Bozkurt B, Aguilar D, et al. 2022 AHA/ACC/HFSA guideline for the management of heart failure: a report of the American College of Cardiology/American Heart Association Joint Committee on Clinical Practice Guidelines. *Circulation*. 2022;145(18):e895-e1032.

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- Kenny HC, Abel ED. Heart failure in type 2 diabetes mellitus. *Circ Res*. 2019;124(1):121-141.
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- Ferreira VM, Schulz-Menger J, Holmvang G, et al. Cardiovascular magnetic resonance in nonischemic myocardial inflammation: expert recommendations. *J Am Coll Cardiol*. 2018;72(24):3158-3176.
- Galinier M, Roubille F, Berdague P, et al. Telemonitoring versus standard care in heart failure: a randomised multicentre trial. *Eur J Heart Fail*. 2020;22(6):985-994.
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- Velazquez EJ, Morrow DA, DeVore AD, et al. Angiotensin-neprilysin inhibition in acute decompensated heart failure. *N Engl J Med*. 2019;380(6):539-548.
- Zannad F, Ferreira JP, Pocock SJ, et al. SGLT2 inhibitors in patients with heart failure with reduced ejection fraction: a meta-analysis of the EMPEROR-Reduced and DAPA-HF trials. *Lancet*. 2020;396(10254):819-829.