



## **ABPM CAQ Exam in Amputation Prevention and Wound Care (CAQAP) Study Guide**

This study guide was created to help prepare candidates to take the CAQAP Exam. This study guide is not all-encompassing but provides general content areas to orient the candidate to the ABPM expectations of a podiatric expert in Amputation Prevention and Wound Care. The examination committee, however, believes that most of the information needed to pass the exam is derived from the candidate's experience of practice in the specialty areas of limb salvage and wound care.

### **Exam Format**

The CAQAP exam is computer-based, in multiple-choice formats: A didactic section consisting of 125 multiple choice questions and a case section consisting of 4 clinical case scenarios.

A question stem is provided, which may include a short case-based narrative and a question, followed by a series of choices. The candidate is expected to select the best choice (or choices, depending on question format). Pay close attention to the language of the question, especially with negatively-framed questions such as those indicating "EXCEPT", "LEAST", "CONTRAINDICATED", "is NOT", etc. In addition, one or more digital media assets may accompany the question, such as a photograph or imaging study. In some questions a zoom function may be provided for the media asset. Note that an ABPM-approved list of reference ranges, normal laboratory values, and other reference material is easily accessible to the candidate while testing.

### **Exam Content**

The examination subject content:

#### **Diabetes**

- Pathogenesis of diabetic foot problems
- Etiology and risk factors of diabetic foot problems
- Prevention of diabetic foot problems, including the comprehensive diabetic foot exam, risk assessment, use of thermometry and thermography, techniques to prevent peripheral neuropathy and peripheral artery disease
- Principles of medical management of DM and DM emergencies, including the identification and emergent management of hypo- and hyperglycemia, acute cardiovascular events, and other complications of diabetes

#### **Wounds**

- Pathogenesis, including how lower extremity wounds of various etiologies develop
- Differential Diagnosis, including how to differentiate various types of wounds (diabetic, venous,

arterial, malignancy, burns, autoimmune, etc.) based on clinical, laboratory, and pathological features

- Risk Factors, including factors affecting wound healing such as perfusion, nutrition, mental status
- Classifications:
  - Wagner-Meggitt Classification of Foot Ulcers
  - University of Texas Diabetic Wound Classification System
  - National Pressure Injury Advisory Panel Classification System
  - Thermal (Burn) Injury Staging
  - PEDIS (perfusion, extent, depth, infection and sensation)

- Standard of Care, including debridement principles, local wound dressings\*, wound biopsy indications, compression.
  - \*For the purpose of the exam, local wound dressings are described by category (i.e. hydrogel, collagen, alginate, foam, etc., and not by brand name)
- Advanced Treatments, including treatments such as negative pressure wound therapy, cellular and/or tissue-based products (CTPs)\*\*, platelet rich plasma, growth factors, stem cells
  - \*\*Cellular and/or tissue-based product (CTP) is the term used for the category which includes all skin substitutes and tissues comprised of allograft or xenograft biologic material, living and non-living. While it is the convention for ABPM exams to use both generic and brand names on exams, CTPs in the same generic category (i.e. human amniotic tissue) often have sufficient differences that are specific to the brand. Be familiar with the CTP brands, FDA indications, contra-indications, precautions, and religious or cultural considerations (i.e. bovine, porcine, human tissues)
- Surgery, including skin grafts, flaps, and complications
- Hyperbaric Oxygen Therapy (HBOT) including indications, contraindications, complications and management

### **Peripheral artery disease (PAD)**

- Risk factors, including genetic and environmental risk factors
- Diagnostics
  - Non-invasive vascular studies such as: ABI, TBI, PVR, TcPO<sub>2</sub>, venous and arterial duplex ultrasound
  - Invasive studies such as: angiography, venography, CTA, MRA, and vascular anatomy including angiosomes
- Management, including indications and contra-indications for medical, endovascular, and open surgical treatments

### **Infections**

- Diagnosis, including clinical signs of infection, laboratory, and imaging studies
- Classification:
  - Soft tissue and bone infections
  - Sepsis
  - IDSA
  - Cierny/Mader
- Treatment, including medical and surgical management of soft tissue and bone infections, antibiotic stewardship principles, proper selection and dosing, complications of medications, and antibiotic resistance

### **Charcot foot**

- Diagnosis, including history and examination, clinical signs and laboratory studies
- Imaging, including basic and advanced imaging and the differentiation between neuropathic osteoarthropathy and osteomyelitis
- Classifications:
  - Sanders and Frykberg
  - Brodsky classifications
- Treatment, including medical and surgical management of acute and chronic Charcot foot

### **Pathomechanics**

- Wound genesis, the pathomechanical principles that lead to wound development
- Offloading treatment, including surgical and non-surgical offloading management
- Surgical management, including the indications for surgical management of soft-tissue and osseous deformities, for the prevention and treatment of wounds
- Orthotics/Prosthetics/Pedorthics, including the use of footwear, orthoses, and prosthetics in the prevention and management of deformities, ulcers, and amputations

While the exam is based on the current practice of wound care and amputation prevention, the following resources may be helpful in preparation for the exam:

1. Handbook of Lower Extremity Infections, Third Edition by Warren Joseph, DPM
2. Diabetic Charcot Foot; Principles and Practice, First Edition by Robert Frykberg, DPM
3. Chronic Wound Care, Fifth Edition by Diane Krasner, et al.
4. Rogers LC, et al. The Charcot foot in Diabetes. J Am Podiatr Med Assoc 2011;101:437-46
5. Lipsky BA, et al. 2012 Infectious Diseases Society of America Clinical Practice Guideline for the Diagnosis and Treatment of Diabetic Foot Infections. Clin Infectious Dis 2012;54:132-173
6. Kirsner RJ, et al. Consensus recommendations on advancing the standard of care for treating neuropathic foot ulcers in patients with diabetes. Ostomy Wound Manage 2010;56(suppl 4):S1- S24
7. Wukich DK, et al. Inpatient management of diabetic foot disorders: A clinical guide. Diabetes Care 2013;36:2862-2871
8. Hingorani A, et al. The management of diabetic foot: A clinical practice guideline by the Society for Vascular Surgery in collaboration with the American Podiatric Medical Association and the Society for Vascular Medicine. J Vasc Surg 2016;63:3S-21S
9. Snyder RJ, et al. The management of diabetic foot ulcers through optimal off-loading. Building consensus guidelines and practical recommendations to improve outcomes. J Am Podiatr Med Assoc 2014;104:555-567
10. Serial surgical debridement: A retrospective study on outcomes in chronic lower extremity wounds. Wound Rep Reg 2009;17:306-311
11. Armstrong DG, Lipsky BA. Diabetic foot infections: stepwise medical and surgical management. Int Wound J 2004;1:123-132
12. Liu C. Clinical practice guidelines by the Infectious Diseases Society of America for the treatment of methicillin-resistant Staphylococcus aureus infections in adults and children. Clin Infect Dis 2011;52:1-38

13. Armstrong DG, et al. Choosing a practical screening instrument to identify patients at risk for diabetic foot ulceration. *Arch Intern Med* 1998;158:289-292
14. Lavery LA, et al. Ankle equinus deformity and its relationship to high plantar pressure in a large population with diabetes mellitus. *J Am Podiatr Med Assoc* 2002;92:479-482
15. Combemale P, et al. Malignant transformation of leg ulcers: a retrospective study of 85 cases. *J European Acad Derm Venereology* 2007;21:935-941
16. Maluf KS, Mueller MJ. Comparison of physical activity and cumulative plantar tissue stress among subjects with and without diabetes mellitus and a history of recurrent plantar ulcers. *Clinical Biomechanics* 2003;18:567-575
17. Bus SA, et al. The effectiveness of footwear and offloading interventions to prevent and heal foot ulcers and reduce plantar pressure in diabetes: a systematic review. *Diab Metab Res Rev* 2008;24:S162-S180
18. Reiber GE, et al. Ch. 18. Lower extremity foot ulcers and amputations in diabetes. In *Diabetes in America*. Pg 409. Accessed: <https://www.niddk.nih.gov/about-niddk/strategic-plans-reports/Documents/Diabetes%20in%20America%202nd%20Edition/chapter18.pdf>
19. Laborde JM. Neuropathic plantar forefoot ulcers treated with tendon lengthenings. *Foot Ankle Int* 2008;29:378
20. Hincliffe RJ, et al. Specific guidelines on wound and wound-bed management. *Diab Metab Res Rev* 2008;24:S188-189
21. Armstrong DG, et al. Validation of a diabetic wound classification system. *Diabetes Care* 1998;21:855
22. Armstrong DG, Frykberg RG. Classifying diabetic foot surgery: toward a rational definition. *Diabet Med* 2003;20:329-331
23. Bril V, et al. Evidence-based guideline: Treatment of painful neuropathy: Report of the American Academy of Neurology, the American Association of Neuromuscular and Electrodiagnostic Medicine, and the American Academy of Physical Medicine and Rehabilitation. *Neurology* 2011;77:603
24. Ha Van G, et al. Ankle-to-brachial ratio index underestimates the prevalence of peripheral occlusive disease in diabetic patients at high risk for arterial disease. *Diabetes Care* 2009;32:e44
25. Wukich DK, et al. Noninvasive arterial testing in patients with diabetes: a guide for foot and ankle surgeons. *Foot Ankle Int* 2015;36:1391
26. Lavery LA, et al. What are the most effective interventions in preventing diabetic foot ulcers? *Int Wound J* 2008;5:425-433
27. Oyibo SO, et al. A comparison of two diabetic foot ulcer classification systems: the Wagner and the University of Texas wound classification systems. *Diabetes Care* 2001;24:84
28. Peters EJ, Lavery LA. Effectiveness of the diabetic foot risk classification system of the international working group on the diabetic foot. *Diabetes Care* 2001;24:1442-7
29. Sheehan P, et al. Percent change in wound area of diabetic foot ulcers over a 4-week period is a robust predictor of complete healing in a 12-week prospective trial. *Diabetes Care* 2003;26:1879
30. *The Foot in Diabetes, Fourth Edition* by Andrew JM Boulton, MD