



# MICROGRAPHIC DERMATOLOGIC SURGERY (MDS) SUBSPECIALTY CERTIFICATION EXAMINATION STUDY GUIDE

## STUDY GUIDE FOR MICROGRAPHIC DERMATOLOGIC SURGERY (MDS)

**NOTICE:** The exam content outlined is an overview of the knowledge and skills obtained through fellowship training in micrographic dermatologic surgery and may be used as a study guide for the MDS certification examination. Please note that, while an effort has been made to cover the content that may be on the exam, there is no guarantee that every subject on the exam will have been included in the study guide.

This study guide may be periodically updated.

Since specialty board certification is a prerequisite to sit for the MDS subspecialty exam, it is assumed that examinees will already have demonstrated competence in basic surgical knowledge and skills. Nevertheless, it is expected that there will be some overlap between content tested in the MDS exam and content tested in the general dermatology certifying exams. \*

| <b>MDS EXAM CONTENT OVERVIEW</b>                   |  |
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| <i>See detailed topics on the following pages.</i> |  |
| <input type="checkbox"/>                           | Demonstrate competence in obtaining and processing Mohs micrographic surgery (MMS) specimens.  |
| <input type="checkbox"/>                           | Interpret findings on MMS slides.  |
| <input type="checkbox"/>                           | Demonstrate an in-depth understanding of the appropriate utilization, design, and execution of methods to repair surgical defects.                               |
| <input type="checkbox"/>                           | Demonstrate competence in nail surgery, scar revision, and tissue expansion techniques.  |
| <input type="checkbox"/>                           | Provide safe and effective pre-, peri-, and post-operative care.   |
| <input type="checkbox"/>                           | Understand the usefulness and impact of chemotherapeutic agents used in cutaneous oncology as well as those used by specialists providing care for our patients. |
| <input type="checkbox"/>                           | Understand the appropriate use of radiation therapy.   |
| <input type="checkbox"/>                           | Diagnose and appropriately manage keratinocyte carcinomas and other non-melanoma skin cancers.   |
| <input type="checkbox"/>                           | Diagnose and appropriately manage melanoma and melanoma-in-situ.   |
| <input type="checkbox"/>                           | Understand the principles of correct coding and documentation.   |
| <input type="checkbox"/>                           | Understand the requirements of relevant regulatory authorities and how to adopt practices that assure compliance.  |

\* Click these embedded links for provide information about content that is covered in the exams for first year residents ([BASIC](#)), senior residents ([CORE](#)), and graduated residents ([APPLIED](#)). Together, these reflect the surgical knowledge and skills that are tested in the examinations for general dermatology.



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## **Demonstrate competence in obtaining and processing Mohs micrographic surgery (MMS) specimens.**

- Obtain typical MMS specimens with beveled edges or appropriate releasing techniques and perform proper marking and orientation.
- Understand tissue mapping techniques, including three-dimensional orientation.
- Conserve tissue while obtaining appropriate specimens for full examination, including obtaining thin first layers, narrow peripheral additional layers, and shallow deep additional layers.
- Know how to obtain MMS specimens in more difficult locations, including tumor involvement of muscle, cartilage, periosteum, and nail bed, and extension into the ear canal, orbit, urethra or conjunctiva.
- Recognize rare settings in which MMS may need to be terminated without obtaining clear margins, including deep extension into the ear canal, orbit, sinuses, urethra, and anal canal or bone; inability to maintain adequate local anesthesia (especially with deeper muscle resection); and concerns about excessive bleeding or patient safety.
- Understand and demonstrate how to section MMS specimens using a cryostat, and how to stain and immunostain MMS specimens.
- Understand how to use and care for MMS laboratory equipment, including cryostat, stainer, and microscope.
- Understand and comply with requirements of regulatory authorities for MMS laboratory and MMS.

## **Interpret findings on MMS slides.**

- Interpret typical MMS slides, recognizing adequacy of skin edge and margin, common skin cancer growth patterns, positive versus negative specimens, histologic tissue planes of involvement, and technical problems that impact slide quality.
- Recognize histology of common and rare skin malignancies, tumor simulators, and situations in which recuts or special stains may be required.
- Recognize utility of submitting the debulking specimen or nonmarginal tissue for staging and/or prognostication purposes.

## **Demonstrate an in-depth understanding of the appropriate utilization, design, and execution of the following methods to repair surgical defects:**

- Second intention
- Intermediate/complex closure
- Flaps
  - Advancement
  - Rotation
  - Transposition
  - Interpolation
  - Pedicle
  - Tunneled
- Skin Grafts
  - Split thickness
  - Full thickness
  - Composite



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**Demonstrate competence in nail surgery, scar revision, and tissue expansion techniques.**

**Provide safe and effective pre-, peri-, and post-operative care.**

- Identify comorbidities such as diabetes, tobacco use, and immunosuppression that may require adjustments in pre-, peri-, or post-operative management.
- Know clinical settings in which prophylactic pre-, peri-, or post-operative antibiotics are indicated.
- Understand the impact of different anticoagulants and hemostatic agents on the various stages of coagulation.
- Know the time frames required for discontinuing different agents to normalize coagulation, and the risks of causing postoperative bleeding associated with individual agents and combinations of agents.
- Understand fundamentals of wound healing and effective interventions to optimize wound care. Identify factors that promote or impede wound healing, both cellular (e.g., platelets, macrophages, fibroblasts) and extracellular (e.g., tissue oxygenation, immunosuppressive medications).
- Recognize and manage surgical complications.
- Recognize and respond to emergency situations.

**Understand the usefulness and impact of chemotherapeutic agents used in cutaneous oncology as well as those used by specialists providing care for our patients.**

- Know the clinical settings in which topical and oral chemotherapeutic agents and biologic agents are indicated, their strengths and limitations, relative efficacy, relative cost, dosing, monitoring for and treatment of side effects, and settings in which adjuvant post-operative therapy may be valuable.
- Know how to perform photodynamic therapy (PDT), its indications, strengths and limitations, and how to monitor for and treat side effects.
- Know which systemic therapies are in current use for advanced disease in patients with squamous cell carcinoma, basal cell carcinoma, melanoma, dermatofibrosarcoma protuberans, and Merkel cell carcinoma.

**Understand the appropriate use of radiation therapy.**

- Know the strengths, limitations, relative efficacy, contraindications, and side effects of radiation therapy for definitive treatment or adjunctive therapy of skin cancers.
- Know the situations in which NCCN guidelines recommend consideration of radiation therapy for the treatment of primary, regional, and metastatic basal cell carcinoma, squamous cell carcinoma, melanoma, Merkel cell carcinoma, and dermatofibrosarcoma protuberans.



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### **Diagnose and appropriately manage keratinocyte carcinomas and other non-melanoma skin cancers.**

- Understand fundamentals of carcinogenesis related to dermatology.
  - Know the major cellular pathways involved in the development of skin cancers in those situations where knowledge of the pathway is relevant to diagnosis or treatment.
  - Identify environmental factors conferring an increased risk for skin cancer, along with measures to lower risk.
  - Understand risks of carcinogenicity of different immunosuppressive agents, including combinations of immunosuppressive agents such as those used to treat organ transplant recipients.
  - Know genetic syndromes or developmental anomalies conferring increased risk for skin cancer formation.
- Understand advantages and disadvantages of treatment options for non-melanoma skin cancer, including electrodesiccation and curettage, excision, cryotherapy, Mohs micrographic surgery, and radiation therapy.
- Understand what features and tumor stages indicate increased risk of recurrence or metastasis and consider nodal staging, imaging, surveillance and adjuvant treatment appropriately.
- Know how to modify management, and other special considerations related to skin cancer risk for immunosuppressed patients.
- Understand treatment and adjunctive options for patients with multiple tumors or advanced disease, including retinoids, immunomodulators, chemotherapeutic agents, biologic modifiers, radiation therapy, and sentinel lymph node biopsy.
- Know chemoprophylaxis options, e.g., nicotinamide, oral retinoids for high-risk patients. Know indications, strengths, limitations, risks, contraindications, details of use, and monitoring of oral retinoids for inhibition of development of squamous cell carcinoma in selected patients.
- Know the active ingredients in sunscreens, their strengths and limitations, the difference between chemical and physical agents, and their use.
- Know characteristic clinical presentations, surgical considerations, evaluation and management, and prognosis related to uncommon malignant neoplasms, including Merkel cell carcinoma, sebaceous carcinoma, microcystic adnexal carcinoma, eccrine carcinoma, dermatofibrosarcoma protuberans, Kaposi sarcoma, extramammary Paget disease, angiosarcoma, atypical fibroxanthoma, undifferentiated pleomorphic sarcoma, and lymphomas for which surgical treatment is indicated.
- Know guidelines of care.
  - Appropriate use criteria (AUC) guidelines for Mohs micrographic surgery
  - NCCN guidelines of care for BCC, SCC, Merkel cell carcinoma and dermatofibrosarcoma protuberans
  - AAD guidelines of care for non-melanoma cancers, as well as the AAD position statement on superficial radiation therapy and electronic surface brachytherapy
- Demonstrate familiarity with staging systems for cutaneous cancers.



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- AJCC staging of Merkel cell carcinoma
- AJCC and Brigham and Women's staging of squamous cell carcinoma

### **Diagnose and appropriately manage melanoma and melanoma-in-situ.**

- Distinguish dermatoscopic characteristics of melanoma from those of benign lesions and non-melanoma cancers.
- Know how to manage familial atypical multiple mole and melanoma syndrome.
- Know management options for advanced disease, including radiologic tests and sentinel lymph node biopsy, immunomodulators, chemotherapeutic agents, and biologic modifiers.
- Demonstrate familiarity with guidelines of care and staging systems for melanoma.
  - NCCN guidelines of care for melanoma.
  - AAD guidelines of care for melanoma.
  - AJCC staging of melanoma

### **Understand the principles of correct coding and documentation.**

- Know how to choose appropriate CPT codes for all surgery-related procedures, including biopsies; destruction; incision and drainage; nail surgery; Mohs surgery and other skin excisions (benign and malignant); soft tissue tumor excisions (all body sites); simple, intermediate and complex closures; adjacent tissue transfers; delayed interpolation flaps; and skin and cartilage grafts.
- Understand appropriate use of surgery-related modifiers, including -25, -51, -59, -76, -78, and -79.

### **Understand the requirements of relevant regulatory authorities and how to adopt practices that assure compliance.**

- Understand rules and regulations pertaining to scope of practice and billing for physician extenders such as nurses, nurse practitioners, and physician assistants.
- Understand HIPAA, CLIA, and OSHA regulations for a dermatology office and MMS laboratory.
- Adhere to the JCAHO recommendations for compliance with relevant National Patient Safety Goals.