

FP Essentials
Call for Authors – February 2025

Skin Cancer

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

1. Screening and Prevention
2. Diagnosis
3. Management of Precancers and Keratinocyte Carcinomas
4. Management of Cutaneous Melanoma

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. References must be numbered sequentially by section, with section headers dividing the list and each new section starting over at “1.”

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

Visits for evaluation of suspicious skin lesions are among the most common visits in primary care. Surveys of medical students, family medicine residents, and practicing family physicians have consistently identified learning gaps in dermatologic conditions and procedural training, especially as they pertain to skin cancer. To help meet this educational gap, this edition of *FP Essentials* will review screening and prevention guidelines for skin cancer, explore the nuances of diagnosing keratinocyte carcinoma and cutaneous melanoma, and evaluate evidence-based therapies for precancers, keratinocyte skin cancers, and cutaneous melanoma. Additionally, this monograph will examine the roles of family physicians and specialists in the management of skin cancer and discuss when referral is indicated.

Section 1: Screening and Prevention

Example Case

SH is a healthy 45-year-old with fair skin who presents to clinic for a health maintenance visit. He has had significant sun exposure, inconsistent sun protective habits, and a family history of basal cell carcinoma in his father. You note moderate photodamage of skin on exam. He asks if he needs to see a dermatologist for a preventive skin exam.

Key Questions to Consider

Epidemiology and Risk Factors

- How common are cutaneous melanoma and keratinocyte carcinoma (ie, basal cell and squamous cell carcinoma)? How burdensome is skin cancer at the individual and societal levels (ie, morbidity, mortality, quality-of-life effects, health-related costs)? How are the rates of skin cancer changing? What ages are affected?
- What are the risk factors for cutaneous melanoma and keratinocyte carcinoma?
- What health disparities exist in the diagnosis and prognosis of skin cancer (eg, advanced stage at diagnosis of cutaneous melanoma for patients of color)?

Screening

- What are the latest recommendations for skin cancer screening (eg, U.S. Preventive Services Task Force [USPSTF], American Academy of Dermatology [AAD]) and how and why are they different?
- Should patients get “routine skin checks,” who should do them, and when should patients be referred to a dermatologist for this?
- How are artificial intelligence (AI) and telemedicine influencing the advancement of skin cancer screening?
- What are the benefits and challenges of teledermatology in skin cancer screening? What is the best way to take photos of a concerning skin lesion? How can teledermatology help or exacerbate issues of access and health equity?
- What new tools are available to assess skin cancer risk among high-risk individuals (eg, genetic tests like melanoma gene panel testing, digital mole mapping, risk assessment models, clinical decision support systems)? How effective and safe are they?

Prevention

- How effective is sun avoidance? How should family physicians counsel patients on UV light avoidance, including tanning bed use? At what age is UV avoidance most important?
- What are the recent advancements in sun protection technologies and sunscreens (eg, broad-spectrum, photostability, water and sweat resistance, cosmetically elegant formulations, physical vs chemical sunscreens, environmental and reef-safe formulations, UV monitoring devices and wearables, “smart” sunscreens, protective clothing)? What are the current recommendations for sunscreen use, including SPF, application, reapplication, and use in conjunction with sun avoidance and forms of sun protection?
- What is the role of patient education programs in skin cancer prevention, especially for high-risk individuals? What role do family physicians play in screening and preventing skin cancer?

- How effective are systemic therapies like nicotinamide (niacinamide), retinoids (eg, acitretin), hedgehog pathway inhibitors (eg, vismodegib, sonidegib), and other novel pharmacotherapies in primary and secondary prevention of skin cancer?

Initial References to Consider

- Brady J, Kashlan R, Ruterbusch J, Farshchian M, Moossavi M. Racial Disparities in Patients with Melanoma: A Multivariate Survival Analysis. *Clin Cosmet Investig Dermatol*. 2021;14:547-550.
- US Preventive Services Task Force, Mangione CM, Barry MJ, et al. Screening for Skin Cancer: US Preventive Services Task Force Recommendation Statement. *JAMA*. 2023;329(15):1290-1295.
- Adamson AS. The USPSTF I Statement on Skin Cancer Screening-Not a Disappointment but an Opportunity. *JAMA Dermatol*. 2023;159(6):579-581.
- Chuchu N, Dinnes J, Takwoingi Y, et al. Teledermatology for diagnosing skin cancer in adults. *Cochrane Database Syst Rev*. 2018;(12):CD013193.
- Islam S, Wishart GC, Walls J, et al. Leveraging AI and patient metadata to develop a novel risk score for skin cancer detection. *Sci Rep*. 2024;14(1):20842.
- Li Z, Koban KC, Schenck TL, Giunta RE, Li Q, Sun Y. Artificial Intelligence in Dermatology Image Analysis: Current Developments and Future Trends. *J Clin Med*. 2022;11(22):6826.
- Liu Y, Primiero CA, Kulkarni V, Soyer HP, Betz-Stablein B. Artificial Intelligence for the Classification of Pigmented Skin Lesions in Populations with Skin of Color: A Systematic Review. *Dermatology*. 2023;239(4):499-513.
- Gosman LM, Țăpoi DA, Costache M. Cutaneous Melanoma: A Review of Multifactorial Pathogenesis, Immunohistochemistry, and Emerging Biomarkers for Early Detection and Management. *Int J Mol Sci*. 2023;24(21):15881.
- Chuchu N, Takwoingi Y, Dinnes J, et al. Smartphone applications for triaging adults with skin lesions that are suspicious for melanoma. *Cochrane Database Syst Rev*. 2018;(12):CD013192.
- Freeman K, Dinnes J, Chuchu N, et al. Algorithm based smartphone apps to assess risk of skin cancer in adults: systematic review of diagnostic accuracy studies. *BMJ*. 2020;368:m127.
- Ferrante di Ruffano L, Takwoingi Y, Dinnes J, et al. Computer-assisted diagnosis techniques (dermoscopy and spectroscopy-based) for diagnosing skin cancer in adults. *Cochrane Database Syst Rev*. 2018;(12):CD013186.
- Menzies SW, Sinz C, Menzies M, et al. Comparison of humans versus mobile phone-powered artificial intelligence for the diagnosis and management of pigmented skin cancer in secondary care: a multicentre, prospective, diagnostic, clinical trial. *Lancet Digit Health*. 2023;5(10):e679-e691.
- Sánchez G, Nova J, Rodriguez-Hernandez AE, et al. Sun protection for preventing basal cell and squamous cell skin cancers. *Cochrane Database Syst Rev*. 2016;(7):CD011161.
- US Preventive Services Task Force, Grossman DC, Curry SJ, et al. Behavioral Counseling to Prevent Skin Cancer: US Preventive Services Task Force Recommendation Statement. *JAMA*. 2018;319(11):1134-1142.

- Kanellis VG. Ultraviolet radiation sensors: a review. *Biophys Rev*. Published online June 22, 2019.
- Ford H, Herbert J, Horsham C, Wall A, Hacker E. Internet of Things Smart Sunscreen Station: Descriptive Proof-of-Concept Study. *J Med Internet Res*. 2020;22(5):e17079.
- Horsham C, Ford H, Hacker E. Promoting sunscreen use in adolescents playing outdoor sports using UV detection stickers. *Prev Med Rep*. 2020;19:101166.

Section 2: Diagnosis

Example Case

YJ is a 65-year-old farmer who presents with a 3 cm x 2 cm brown irregular right cheek patch with color variation. You suspect lentigo maligna, but you are uncertain how to proceed with the biopsy. The closest dermatologist is 2 hours away and has a 6-month wait. What options should you consider to expedite this patient's diagnosis?

Key Questions to Consider

General Diagnosis

- How accurate are family physicians and dermatologists in diagnosing skin cancer using visual inspection? How often are noncancerous lesions being biopsied? How often are cancerous lesions (especially advanced) missed?

Basal Cell Carcinoma

- What morphologic features (on clinical exam) are suggestive of the following subtypes of basal cell carcinoma (BCC): nodular, superficial, sclerosing, and infiltrating BCC?
- What other cutaneous conditions mimic BCC?
- What is the role of dermoscopy in diagnosing BCC? How accurate is it? What dermoscopic findings are associated with BCC? Consider original figures and tables to highlight key concepts.
- How accessible is dermoscopic training and how can family physicians incorporate this in their practice?
- How should biopsy be performed when BCC is suspected? What are the key histopathologic findings associated with BCC?
- What is the role of exfoliative cytology, reflectance confocal microscopy, high-frequency ultrasound, and optical coherence tomography in the diagnosis of BCC?
- When should referral to a dermatologist be considered?

Cutaneous Squamous Cell Carcinoma

- What morphologic features (on clinical exam) are suggestive of cutaneous squamous cell carcinoma (CSCC)?
- What other cutaneous conditions mimic CSCC?
- What is the role of dermoscopy in diagnosing CSCC? How accurate is it? What dermoscopic findings are associated with CSCC? Consider original figures and tables to highlight key concepts.
- How should biopsy be performed when CSCC is suspected? What are the key histopathologic findings associated with CSCC?
- What is the role of exfoliative cytology, reflectance confocal microscopy, high-frequency ultrasound, and optical coherence tomography in the diagnosis of CSCC?
- When should referral to a dermatologist be considered?

Cutaneous Melanoma

- What morphologic features (on clinical exam) are suggestive of the following subtypes of cutaneous melanoma: lentigo maligna, melanoma in situ, superficial spreading, nodular, acral lentiginous, and amelanotic melanoma?
- What other cutaneous conditions mimic cutaneous melanoma?

- What is the role of dermoscopy in diagnosing cutaneous melanoma? How accurate is it? What dermoscopic findings are associated with cutaneous melanoma? Consider original figures and tables to highlight key concepts.
- How should biopsy be performed when cutaneous melanoma is suspected? What are the key histopathologic, immunohistochemical, and genetic testing findings associated with it?
- What is the role of exfoliative cytology, reflectance confocal microscopy, high-frequency ultrasound, and optical coherence tomography in the diagnosis of cutaneous melanoma?
- When should referral to a dermatologist be considered?

Initial References to Consider

- Firnhaber JM. Basal Cell and Cutaneous Squamous Cell Carcinomas: Diagnosis and Treatment. *Am Fam Physician*. 2020;102(6):339-346.
- Lauters R, Brown AD, Harrington KA. Melanoma: Diagnosis and Treatment. *Am Fam Physician*. 2024;110(4):367-377.
- Harrington E, Clyne B, Wesseling N, et al. Diagnosing malignant melanoma in ambulatory care: a systematic review of clinical prediction rules. *BMJ Open*. 2017;7(3):e014096.
- Work Group; Invited Reviewers, Kim JYS, et al. Guidelines of care for the management of basal cell carcinoma. *J Am Acad Dermatol*. 2018;78(3):540-559.
- Work Group; Invited Reviewers, Kim JYS, et al. Guidelines of care for the management of cutaneous squamous cell carcinoma. *J Am Acad Dermatol*. 2018;78(3):560-578.
- Swetter SM, Tsao H, Bichakjian CK, et al. Guidelines of care for the management of primary cutaneous melanoma. *J Am Acad Dermatol*. 2019;80(1):208-250.
- Marghoob AA, Usatine RP, Jaimes N. Dermoscopy for the family physician. *Am Fam Physician*. 2013;88(7):441-450.
- Dinnes J, Deeks JJ, Chuchu N, et al. Visual inspection and dermoscopy, alone or in combination, for diagnosing keratinocyte skin cancers in adults. *Cochrane Database Syst Rev*. 2018;(12):CD011901.
- Ferrante di Ruffano L, Dinnes J, Chuchu N, et al. Exfoliative cytology for diagnosing basal cell carcinoma and other skin cancers in adults. *Cochrane Database Syst Rev*. 2018;(12):CD013187.
- Dinnes J, Deeks JJ, Chuchu N, et al. Reflectance confocal microscopy for diagnosing keratinocyte skin cancers in adults. *Cochrane Database Syst Rev*. 2018;(12):CD013191.
- Dinnes J, Deeks JJ, Grainge MJ, et al. Visual inspection for diagnosing cutaneous melanoma in adults. *Cochrane Database Syst Rev*. 2018;(12):CD013194.
- Dinnes J, Deeks JJ, Chuchu N, et al. Dermoscopy, with and without visual inspection, for diagnosing melanoma in adults. *Cochrane Database Syst Rev*. 2018;(12):CD011902.
- Dinnes J, Deeks JJ, Saleh D, et al. Reflectance confocal microscopy for diagnosing cutaneous melanoma in adults. *Cochrane Database Syst Rev*. 2018;(12):CD013190.
- Dinnes J, Bamber J, Chuchu N, et al. High-frequency ultrasound for diagnosing skin cancer in adults. *Cochrane Database Syst Rev*. 2018;(12):CD013188.
- Ferrante di Ruffano L, Dinnes J, Deeks JJ, et al. Optical coherence tomography for diagnosing skin cancer in adults. *Cochrane Database Syst Rev*. 2018;(12):CD013189.

Section 3: Management of Precancers and Keratinocyte Carcinomas

Example Case

XR is 95 years old and with limited life expectancy. You evaluated her at the skilled nursing facility and performed a shave biopsy of a 1 cm ulcerated nodule on her face that came back as a low-risk invasive squamous cell carcinoma. The patient and her family are not interested in surgical excision and wonder what other treatment options they should consider.

Key Questions to Consider

Overview

- How much can family physicians contribute in the management of precancers and keratinocyte carcinomas? In light of current challenges to timely dermatology access or for those with special interest in skin disorders, how can family physicians improve their knowledge and skills in treating precancers and keratinocyte cancers?

Management of Precancers

- What are actinic keratosis and field change? How are they diagnosed? Why are they important to recognize? Should they be treated?
- What local and field-directed treatment options are available (eg, topical therapies, cryotherapy, photodynamic therapy [PDT], surgical treatments)? How effective are these therapies? Which treatments are most cost-effective?
- What follow-up is recommended for patients with these conditions?

Management of Basal Cell Carcinoma

- Based on clinical and histopathologic features, how are low-risk and high-risk basal cell carcinoma (BCC) defined? How should they be managed? Consider original figures and tables to highlight key concepts.
- When should surgical treatments (eg, standard excision, Mohs micrographic surgery [MMS], curettage and electrodesiccation, cryosurgery) be considered? How effective are they? What size surgical margins are recommended for standard excision? What steps should be taken if margins are narrowly free on initial excision?
- When should topical and intralesional therapies like imiquimod and 5-fluorouracil (5-FU) be considered? How effective are they?
- When should energy devices (eg, PDT, laser, radiation therapy) be considered? How effective are they?
- When should referral to a dermatologist be considered?
- For advanced or complicated BCC, what are the treatment options (eg, hedgehog inhibitors)?
- How should patients with prior BCC be monitored?

Management of In Situ and Invasive Cutaneous Squamous Cell Carcinoma

- Based on clinical and histopathologic features, how are in situ and invasive cutaneous squamous cell carcinoma (cSCC) (low-risk and high-risk) defined? How should they be managed? Consider original figures and tables to highlight key concepts.
- When should surgical treatments (eg, standard excision, MMS, curettage and electrodesiccation, cryosurgery) be considered? How effective are they? What size surgical margins are recommended for standard excision? What steps should be taken if margins are narrowly free on initial excision?

- When should topical and intralesional therapies like imiquimod and 5-FU be considered? How effective are they?
- When should energy devices (eg, PDT, laser, radiation therapy) be considered? How effective are they?
- When should referral to a dermatologist be considered?
- How should locally advanced or metastatic CSCC, be managed? What are the roles of surgery, systemic treatments, multidisciplinary teams, supportive and palliative care?
- How should patients with prior CSCC be monitored?

Initial References to Consider

- de Berker D, McGregor JM, Mohd Mustapa MF, Exton LS, Hughes BR. British Association of Dermatologists' guidelines for the care of patients with actinic keratosis 2017. *Br J Dermatol*. 2017;176(1):20-43.
- Jansen MHE, Kessels JPHM, Nelemans PJ, et al. Randomized Trial of Four Treatment Approaches for Actinic Keratosis. *N Engl J Med*. 2019;380(10):935-946.
- Jansen MHE, Kessels JPHM, Merks I, et al. A trial-based cost-effectiveness analysis of topical 5-fluorouracil vs. imiquimod vs. ingenol mebutate vs. methyl aminolaevulinate conventional photodynamic therapy for the treatment of actinic keratosis in the head and neck area performed in the Netherlands. *Br J Dermatol*. 2020;183(4):738-744.
- Lapidus AH, Lee S, Liu ZF, Smithson S, Chew CY, Gin D. Topical Calcipotriol Plus 5-Fluorouracil in the Treatment of Actinic Keratosis, Bowen's Disease, and Squamous Cell Carcinoma: A Systematic Review. *J Cutan Med Surg*. 2024;28(4):375-380.
- Firnhaber JM. Basal Cell and Cutaneous Squamous Cell Carcinomas: Diagnosis and Treatment. *Am Fam Physician*. 2020;102(6):339-346.
- Work Group; Invited Reviewers, Kim JYS, et al. Guidelines of care for the management of basal cell carcinoma. *J Am Acad Dermatol*. 2018;78(3):540-559.
- Peris K, Fargnoli MC, Kaufmann R, et al. European consensus-based interdisciplinary guideline for diagnosis and treatment of basal cell carcinoma-update 2023. *Eur J Cancer*. 2023;192:113254.
- Nasr I, McGrath EJ, Harwood CA, et al. British Association of Dermatologists guidelines for the management of adults with basal cell carcinoma 2021. *Br J Dermatol*. 2021;185(5):899-920.
- Thomson J, Hogan S, Leonardi-Bee J, Williams HC, Bath-Hextall FJ. Interventions for basal cell carcinoma of the skin. *Cochrane Database Syst Rev*. 2020;(11):CD003412.
- Sharma A, Birnie AJ, Bordea C, et al. British Association of Dermatologists guidelines for the management of people with cutaneous squamous cell carcinoma in situ (Bowen disease) 2022. *Br J Dermatol*. 2023;188(2):186-194.
- Work Group; Invited Reviewers, Kim JYS, et al. Guidelines of care for the management of cutaneous squamous cell carcinoma. *J Am Acad Dermatol*. 2018;78(3):560-578.
- Stratigos AJ, Garbe C, Dessinioti C, et al. European consensus-based interdisciplinary guideline for invasive cutaneous squamous cell carcinoma: Part 2. Treatment-Update 2023. *Eur J Cancer*. 2023;193:113252.
- Keohane SG, Botting J, Budny PG, et al. British Association of Dermatologists guidelines for the management of people with cutaneous squamous cell carcinoma 2020. *Br J Dermatol*. 2021;184(3):401-414.

Section 4: Management of Cutaneous Melanoma

Example Case

HP is a healthy 35-year-old in for a routine preventive visit. You find a 6 mm black nodule on the back that was confirmed on biopsy to be a nodular melanoma that was 1.2 mm thick. Your margins are narrowly free. What are the next steps in management?

Key Questions to Consider

Note: For this section, please find a good balance between providing information that family physicians will find useful while avoiding overly detailed discussion of therapies beyond the interest or scope of primary care physicians.

Overview

- What role do family physicians play in the management of cutaneous melanoma?

Management

- Based on histopathologic, immunohistochemical, and genetic testing, how should primary cutaneous melanoma be managed? Consider original figures and tables to highlight key concepts.
- What laboratory tests and imaging are recommended during the initial evaluation of primary cutaneous melanoma ?
- How is disease stage determined? How does stage of disease affect treatment plan and prognosis?
- When should surgical treatments be utilized (eg, Mohs micrographic surgery, wide local excision, sentinel lymph node biopsy, complete lymph node dissection)?
- What are the recommended surgical margins based on Breslow depth or thickness? What are their outcomes?
- When should medical therapies be utilized (eg, systemic treatments, immunotherapy, gene targeting therapy)? How effective are they?
- When is neoadjuvant therapy recommended? What are the emerging data on personalized, biomarker-driven neoadjuvant immunotherapy?
- When is adjuvant therapy recommended? How have systemic immunotherapies affected the prognosis for advanced melanoma?
- When should referral to a dermatologist or surgical oncologist be considered?
- When should genetic testing for germline risk prediction be considered for individuals and families at high risk for cutaneous melanoma?
- How should patients with primary and advanced/metastatic cutaneous melanoma be monitored?

Initial References to Consider

- Swetter SM, Tsao H, Bichakjian CK, et al. Guidelines of care for the management of primary cutaneous melanoma. *J Am Acad Dermatol.* 2019;80(1):208-250.
- Lauters R, Brown AD, Harrington KA. Melanoma: Diagnosis and Treatment. *Am Fam Physician.* 2024;110(4):367-377.
- Michielin O, van Akkooi ACJ, Ascierto PA, et al. ESMO Guidelines Committee. Cutaneous melanoma: ESMO clinical practice guidelines for diagnosis, treatment and follow-up. *Ann Oncol.* 2019;30(12):1884-1901.

- Michielin O, van Akkooi A, Lorigan P, et al. ESMO consensus conference recommendations on the management of locoregional melanoma: under the auspices of the ESMO Guidelines Committee. *Ann Oncol*. 2020;31(11):1449-1461.
- Patel VR, Roberson ML, Pignone MP, et al. Risk of mortality after a diagnosis of melanoma in situ. *JAMA Dermatol*. 2023;159(7):703-710.
- Cust AE, Scolyer RA. Melanoma in situ-getting the diagnosis and prognosis right. *JAMA Dermatol*. 2023;159(7):699-701.
- Thomas NE, Krickler A, Waxweiler WT, et al; Genes, Environment, and Melanoma (GEM) Study Group. Comparison of clinicopathologic features and survival of histopathologically amelanotic and pigmented melanomas: a population-based study. *JAMA Dermatol*. 2014;150(12):1306-1314.
- Tzellos T, Kyrgidis A, Mocellin S, et al. Interventions for melanoma in situ, including lentigo maligna. *Cochrane Database Syst Rev*. 2014;(12):CD010308.
- Sladden MJ, Balch C, Barzilai DA, et al. Surgical excision margins for primary cutaneous melanoma. *Cochrane Database Syst Rev*. 2009;(4):CD004835.
- Gorry C, McCullagh L, O'Donnell H, et al. Neoadjuvant treatment for stage III and IV cutaneous melanoma. *Cochrane Database Syst Rev*. 2023;(1):CD012974.
- Pasquali S, Hadjinicolaou AV, Chiarion Sileni V, et al. Systemic treatments for metastatic cutaneous melanoma. *Cochrane Database Syst Rev*. 2018;(2):CD011123.
- Huang K, Fan J, Misra S. Acral lentiginous melanoma: incidence and survival in the United States, 2006–2015, an analysis of the SEER registry. *J Surg Res*. 2020;251:329-339.
- Davis EJ, Johnson DB, Sosman JA, et al. Melanoma: what do all the mutations mean? *Cancer*. 2018;124(17):3490-3499.
- Gosman LM, Țăpoi DA, Costache M. Cutaneous Melanoma: A Review of Multifactorial Pathogenesis, Immunohistochemistry, and Emerging Biomarkers for Early Detection and Management. *Int J Mol Sci*. 2023;24(21):15881.
- Bruno W, Dalmaso B, Barile M, et al. Predictors of germline status for hereditary melanoma: 5 years of multi-gene panel testing within the Italian Melanoma Intergroup. *ESMO Open*. 2022;7(4):100525.
- Hoeijmakers LL, Reijers ILM, Blank CU. Biomarker-Driven Personalization of Neoadjuvant Immunotherapy in Melanoma. *Cancer Discov*. 2023;13(11):2319-2338.
- Shenenberger DW. Cutaneous malignant melanoma: a primary care perspective. *Am Fam Physician*. 2012;85(2):161-168.