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Importance of Quality Metrics for Providing High Quality Melanoma Care

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Melanoma incidence is increasing faster than any other malignancy in the United States, particularly in the elderly population. As patients are relatively young at presentation, deaths due to melanoma account for a considerable number of years of life lost. (1,2) However, recent advances in the treatment of melanoma have been cause for some excitement. Sentinel lymph node biopsy (SLNB) has revolutionized the surgical management of melanoma patients by allowing selective use of lymphadenectomy in only those patients with positive sentinel nodes, dramatically reducing morbidity and cost of surgical treatment. (3,4) For the first time in decades, new systemic therapies leveraging the immune system and molecular targets have been found to be promising and have recently received approval from the Food and Drug Administration. (5) In addition, new prognostic factors are being used to change how melanoma is staged and treated. (6)

To facilitate incorporation of these practices into clinical practice, several organizations have put forth clinical treatment guidelines for melanoma, including the National Comprehensive Cancer Network (NCCN), Society of Surgical Oncology (SSO), and the American Society of Clinical Oncology (ASCO). (7,8) For more than 10 years, the NCCN has published detailed consensus guidelines to assist with diagnostic, treatment, and surveillance decisions for multiple malignancies, including melanoma.

Despite the dissemination of these guidelines, several studies have documented a widespread, poor adherence to recommended treatment guidelines. (9-11) Perhaps the guidelines are never seen by those physicians most in need of reviewing them — those who infrequently treat melanoma patients and who do not engage in multidisciplinary conferences, attend relevant national meetings, or review the related literature. Moreover, access to guidelines may be limited, such as for those physicians at non-NCCN centers and for non-ASCO members who may not receive email updates about guideline releases and

intermediate-thickness melanomas. (9-11) In multiple studies, only approximately 50% of patients with intermediate-thickness melanomas were found to undergo a SLNB (9-11) This is further demonstrated by single institution series which have bravely shown that melanoma surgical treatment guidelines are frequently not followed at their own centers, even at teaching hospitals, especially for SLNB. (12,13) Similar issues have been identified in the appropriate use of completion lymph node dissection (i.e., removal of all lymph nodes in a nodal basin) following a positive SLNB. Using national cancer registry data, we found that only 50% of patients underwent a completion lymph node dissection (CLND) when indicated, though this rate was higher at specialized centers. (11,14) Thus, a large proportion of patients with a positive sentinel lymph node are not undergoing a CLND as recommended. The reasons for this are unclear, but lymphadenectomies, particularly of the inguinal nodal basin, are morbid procedures, and patients and surgeons may have nihilistic attitudes regarding the short-term complications and the long-term durability of these procedures. Some use prognostic models which include tumor burden in the sentinel lymph node and primary tumor factors to justify avoiding a CLND. Nonetheless, CLND is currently the standard of care following a positive SLNB.

To address these and other quality of care problems, several groups have introduced melanoma quality metrics. For example, we previously assembled an international, multidisciplinary expert panel to identify melanoma quality metrics using a modified-Delphi approach. (15) Of the 55 potential indicators, 26 were found to be acceptable. Indicator statements, upon which quality measures can be based, are presented in Table 1. In addition, we assessed adherence to these indicator statements at more than 1,400 hospitals accredited by the American College of Surgeons Commission on Cancer. Adherence to many of the indicator statements was found to be relatively low at these centers, and most hospitals were adherent with 50% or fewer of the individual indicators. Performance on these metrics will be reported back to participating hospitals to help spur targeted quality improvement as is done through the Commission on Cancer's quality reporting tools, the Rapid Quality Reporting System (RQRS), the Cancer Program Practice Profile Reports (CP3R), and ASCO's Quality Oncology Practice Initiative. (16)

In addition to the reporting of results back to individual participating hospitals, a potentially more effective version of this approach involves the public reporting of performance data. This approach has been shown to successfully spur quality improvement. (17,18) Moreover, reporting of quality metrics or requiring a specific level of performance can be tied to reimbursement in pay-for-performance or value-based purchasing programs, though the effectiveness of this approach is less clear. (19,20) Although melanoma quality metrics have not been included in public reporting and pay-for-performance initiatives, the American

System (PQRS) now includes these metrics. Thus, physicians treating melanoma will be required to report on their adherence to these metrics. (21)

Data capture and feedback systems are good initial steps to improve the quality of care, but such approaches are retrospective and do not benefit patients who are about to undergo treatment for melanoma. Instead, quality of care needs to be ensured prospectively for each patient. For years, payers have required justification and preauthorization for certain medical tests (e.g., positron emission tomography [PET] scans). If any questions arise about whether the test is needed, a peer-to-peer discussion is required to investigate further. One option to improve the quality of melanoma care would be to require preapproval from the payer for the specific procedure to be performed based on information about the patient and his/her melanoma. If the surgical approach is justified, then insurance preauthorization is complete. If there is any uncertainty about the procedure, a peer-to-peer discussion can be undertaken. This would address overuse and underuse of SLNB, insufficient or excessive margins, and appropriate regional nodal surgery. We are developing such a system for melanoma care with the hope of prospectively ensuring appropriate, high-quality melanoma care in a prospective fashion that benefits patients about to be treated for melanoma. Ensuring high quality melanoma care will be challenging, but development and iterative adaptations of quality metrics are a critical first step.

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Potential Conflicts of Interest

Dr. Bilimoria declared no potential conflicts of interest with respect to this expert commentary.

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Table 1

Indicator Statement
IF a surgeon performs SLNB or LND for melanoma, THEN the surgeon must be certified by the American Board of Surgery or equivalent board or international association
IF a patient has a melanoma in situ (Tis), THEN the surgical excision margins must be 5 mm (or the specific anatomic or cosmetic factors limiting margin distance should be noted)
IF a patient has a melanoma, THEN the surgeon must document the measured surgical margin in the operative report
IF a patient has a melanoma, THEN the clear histologic margin must be documented
IF a patient has a melanoma <=1 mm thick (T1), THEN the surgical excision margins must be 1 cm (or the specific anatomic or cosmetic factors limiting margin distance should be noted)
IF a patient has a melanoma 1-2 mm thick (T2), THEN the surgical excision margins must be 1-2 cm (or the specific anatomic or cosmetic factors limiting margin distance should

IF a patient has a melanoma >=2 mm thick (T3 or T4), THEN the surgical excision margins must be 2-3 cm (or the specific anatomic or cosmetic factors limiting margin distance should be noted)

IF a patient is to undergo a SLNB, THEN lymphosyntigraphy must be performed to identify the draining nodal basin(s) when drainage to more than one basin is possible.

IF a patient undergoes a SLNB, THEN the SLNs must be sent for permanent sectioning only (no frozen sections), unless a reason is documented.

IF a patient undergoes a SLNB, THEN the SLNs must be examined with serial sectioning/H&E and IHC if the H&E analysis is negative or equivocal (i.e., S-100, HMB-45, and MART-1)

IF a patient has a Stage Ib or II melanoma, SLNB must be discussed with the patient.

IF a patient has clinically apparent/palpable lymphadenopathy, THEN a LND must not be performed without an antecedent histologic diagnosis

IF a patient undergoes a cervical LND or CLND, THEN at least 15 regional lymph nodes must be resected and pathologically examined

IF a patient undergoes an axillary LND or CLND, THEN at least 10 regional lymph nodes must be resected and pathologically examined

IF a patient undergoes an inguinal LND or CLND, THEN at least 5 regional lymph nodes must be resected and pathologically examined

IF a patient has a melanoma, THEN the pathology report must document Breslow thickness, Clark level, histologic ulceration, peripheral/radial and deep margin status, satellitosis, anatomic location of the lesion, regression, and mitotic rate

IF a patient has a melanoma, THEN the pathology report must document Breslow thickness, Clark level, histologic ulceration, peripheral/radial and deep margin status, satellitosis, regression, and mitotic rate

IF a patient undergoes a SLNB or LND for melanoma, THEN the pathology report must document the number of lymph nodes examined and the number of lymph nodes found to contain metastases

pelvic CT or PET must be obtained to rule out pelvic lymphadenopathy

IF a patient has a resected primary melanoma metastatic to regional lymph nodes or distant sites, THEN the patient must have a documented discussion regarding adjuvant therapy

IF a patient has a Stage 0, I or IIA melanoma, THEN an abdominal CT/MRI, pelvic CT/MRI, or PET scan are NOT indicated unless in response to specific signs or symptoms

If a patient is newly diagnosed with Stage IV melanoma, THEN a serum LDH level must be measured

IF a melanoma patient has biopsy-proven or palpable nodal disease and no evidence of distant metastases, THEN the patient must undergo a LND

IF a patient has a metastatic lymph node detected on SLNB, THEN a CLND must be performed except in the context of a clinical trial or if the patient has severe comorbidities

IF a melanoma patient has biopsy-proven palpable nodal disease, THEN the patient should not undergo SLNB

IF a patient is treated for melanoma, THEN stage-specific follow-up including future skin exams should be discussed and documented

SLNB: sentinel lymph node biopsy; SLN: sentinel lymph node; CLND: completion lymph node dissection; LND: lymph node dissection; LDH: lactate dehydrogenase