
Delivering value in dermatology: Insights from skin cancer detection in routine clinical visits

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Background: There are increasing demands to demonstrate and report on outcomes in dermatology. Skin cancer diagnosis through skin examination has been well studied, and is promising as a value-delivering intervention.

Objective: This study seeks to identify the rate of skin cancer diagnosis during routine visits to a large tertiary dermatology clinic.

Methods: Medical records of patients presenting for routine dermatologic care at Massachusetts General Hospital between March 28 and September 28, 2012, were retrospectively reviewed. All patients given a diagnosis of nonmelanoma skin cancer (NMSC) confirmed on biopsy specimen were identified. Billing data were used to identify the total number of patients evaluated during the study period.

Results: NMSC was diagnosed in 1266 skin biopsy specimens from 1047 (7.0%) of the 14,829 patients who presented for routine care. In all, 55% of patients with NMSC were men (mean age 70 years). Chief symptoms of patients with NMSC included general dermatologic concerns (37%), routine cancer screening (43%), and specific lesion(s) of concern (19%).

Limitations: Retrospective design and restriction to a single institution may limit the generalizability of our findings.

Conclusion: The incidence of NMSC in routine dermatology is high; these findings validate the value of care provided by dermatologists and highlight the likely increasing need for their diagnostic skills as the population ages in the United States. (*J Am Acad Dermatol* 2015;72:310-3.)

Key words: basal cell carcinoma; nonmelanoma skin cancer; quality improvement; screening; skin cancer incidence; squamous cell carcinoma; value in health care delivery.

In this era of renewed focus on health cost containment, dermatology is likely to be one of several specialties targeted by increasing demands to demonstrate value.¹ Indeed, the *New York Times* recently published an article on health care delivery nationwide, including a focus on dermatology.² Dermatology, unfortunately, currently lacks rigorous, widely applied outcomes measures; but an area of clearly demonstrable value is the management of nonmelanoma skin cancer (NMSC).

The practice of skin examination is attractive as a value-delivering intervention—it is relatively inexpensive and minimally invasive, potentially reducing morbidity and health care expenditure by detecting cancers at an earlier stage. Nonetheless, the US Preventative Service Task Force (USPSTF) does not recommend routine skin cancer screening in the general population, because of insufficient evidence available to address the balance of benefits and harms of screening by primary care clinicians. Specifically, benefits are defined as a reduction in

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patient morbidity and mortality, whereas harms potentially include misdiagnosis, overdiagnosis, and resultant harms from biopsy, overtreatment, or both.³ But even the recommended screening tests involve trade-offs and most do not have high detection rates in the general population. For example, screening mammography yields a sensitivity of 79%.⁴ One study of 1000 50-year-old women who received annual screening mammograms for a decade showed that 0.3 to 3.2 will avoid a breast cancer death; 490 to 670 will have at least 1 false alarm, and 3 to 14 will experience overdiagnosis and overtreatment.⁵ Prostate cancer screening guidelines were also modified after years of controversy. In 2012, the USPSTF recommended against early detection efforts using the prostate-specific antigen, concluding that potential negative effects of screening outweighed the benefits.⁶ Overall, this debate has heralded a paradigm shift towards optimizing early detection by narrowing the populations being tested by risk stratification with the goal of shared and informed decision-making regarding screening.⁵

In this investigation we examined the detection of skin cancer in our dermatology clinic (as opposed to population-wide screening), where presumably more patients have elevated risk. We note however, that the majority of the patients do not present to dermatology for skin checks; they also come for psoriasis, acne, skin infections, and a myriad of other concerns. By quantifying the rate of skin cancer detected in this enriched setting, we seek to demonstrate the value of being enrolled in dermatologic care, regardless of presenting symptom or diagnosis.

METHODS

This study was approved by the Massachusetts General Hospital Institutional Review Board. Medical records of patients presenting for routine dermatologic care between March 28 and September 28, 2012, at the Massachusetts General Hospital, a busy multiprovider urban practice setting, were retrospectively reviewed. All patients given a diagnosis of NMSC histopathologically confirmed by skin biopsy specimen were identified. Demographic information was abstracted from patient medical records, and the clinic population

size was derived from medical billing data. NMSC incidence was then determined from the number of patients given a diagnosis of NMSC divided by the total clinical population size during the study period.

The criteria for NMSC diagnosis and characterization were in accordance with current standards of dermatopathology practice. To compare the overall clinic population and NMSC cohort, 2-sample *t* tests and χ^2 analyses were performed with a level of statistical significance of *P* less than .05.

RESULTS

In all, 14,829 patients (42% male, mean age 51.1 years) were evaluated for routine care among 27 medical dermatology providers. NMSC was detected in 1266 (32%) of the 4217 total skin biopsy specimens during the study period.

The incidence of NMSC was 7.1%, diagnosed in 1047 of 14,829 unique patients who presented for care. The NMSC subpopulation consisted of patients evaluated for general dermatologic issues, specific lesions of concern, and routine skin cancer screening examinations. Of the patients with NMSC diagnosed during this time, 450 patients received a full-body skin examination either for skin cancer screening or for a comprehensive examination because of a concerning lesion. In all, 597 patients received a focused evaluation for a specific concern identified by either patient or provider.

The lesions identified consisted of 61% basal cell carcinomas, 38% squamous cell carcinomas, and 1% other nonmelanoma carcinomas (Table 1). Fewer than 5% (*n* = 53) of lesions had originally lacked definitive diagnoses (because of tumor present along the biopsy specimen base). After excision, repeated histologic evaluation diagnosed squamous cell carcinoma in 15 of these cases. The remaining 38 lesions were noncarcinomatous epidermal hyperplasias (namely, actinic keratosis, verruca, and lichen planus).

Compared with the overall clinic population, the NMSC subpopulation was significantly older (mean age 70 vs 51 years, *P* < .01), and composed of significantly more men (55% vs 42%, *P* < .01). The majority (77%, *n* = 809) of patients given a diagnosis of NMSC had a personal history of skin cancer. The most common anatomic locations where NMSC

CAPSULE SUMMARY

- Skin cancer is a significant public health burden, and its diagnosis represents a value-delivering intervention in dermatology.
- This study demonstrates that the incidence of skin cancer is high in routine dermatology, regardless of patients' chief symptom.
- These findings highlight the importance and value of regular dermatologic care.

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