

(Table 1). Patients with CD4>200 had a higher risk of needing a higher number of MMS stages for the clearance of their BCCs (1.8 average stages for the CD4<200 group vs 2.1 for the CD4>200 group;  $P = .01$ ), which may have been a result of the differences in the sites of their nonmelanoma skin cancers. When ear and nose lesions were removed from the analysis, no differences in the number of MMS stages between groups was found (CD4>200 group: 1.98 [standard deviation, 0.74] vs CD4<200 group: 1.82 [SD, 0.76];  $P = .06$ ).

SCCs arising in patients with HIV are more likely to require larger surgical margins to clear during Mohs surgery and a larger number of Mohs surgery stages for tumor clearance (Fig 1). Our results support the use of MMS for the treatment of nonmelanoma skin cancers in patients with HIV.<sup>4,5</sup> CD4<sup>+</sup> T-cell count nadir may be a useful preoperative prognostic factor to predict the need for more extensive surgery, particularly before treatment of SCCs.

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#### Poor melanoma outcomes and survival in Asian American and Pacific Islander patients



*To the Editor:* Asian American and Pacific Islander (API) individuals have a significantly lower risk of developing melanoma compared to White individuals. However, once diagnosed, they have a lower likelihood of survival.<sup>1</sup> We examined the associations between melanoma and demographic and clinical factors using a large cohort of API and White patients with melanoma within the Surveillance, Epidemiology, and End Results database. The conclusions can shape public health interventions aimed at addressing disparities in melanoma survival among API patients.

Our study cohort consisted of 235,798 White and 1686 API patients with primary cutaneous melanoma diagnosed from the years 1988 to 2014. Overall, 56% of White patients and 50% of API patients were male. The mean age at diagnosis was  $57.4 \pm 16.8$  years for White patients and  $56.2 \pm 18.7$  years for API patients. Significant differences between API and White patients in tumor presentation include acral lentiginous melanoma as a percentage of all melanomas, mean Breslow depth, presence of ulceration, lymph node involvement, and stage at diagnosis (Table 1). It is known that those factors are prognostic indicators of cutaneous melanoma,<sup>2</sup> and they are reflected in a higher percentage of API patients than White patients.

In our Fine and Gray competing risks regression model assessing melanoma-specific mortality, API patients had an adjusted subdistribution hazard ratio of 1.27 (95% confidence interval, 1.12-1.43;  $P < .001$ ). In our Cox proportional hazards model assessing overall mortality, API patients had a hazard ratio of 1.17 (95% confidence interval, 1.07-1.28;  $P < .001$ ) (Table II).

We conclude from these results, which echo findings from previous studies, that API patients have poorer overall and disease-specific survival compared to White patients primarily because of late diagnosis and treatment.<sup>1</sup> Melanomas seem more aggressive in API patients because they are discovered at a later timepoint of the disease course and, consequently, present at a higher Breslow depth. API individuals rarely get skin checks, in

**Table I.** Selected demographic information and tumor characteristics\*

Examined variable	White patients	API patients	P value
n	235,798	1686	
Age at diagnosis, y, mean $\pm$ SD	57.4 $\pm$ 16.8	56.2 $\pm$ 18.7	<.001
% Male, % female	56.0, 44.0	50.2, 49.8	<.001
Melanoma type, n (%)			<.001
Melanoma in situ/NOS	115,641 (49.0)	817 (48.5)	
Superficial spreading	77,188 (32.7)	383 (22.7)	
Nodular melanoma	16,966 (7.1)	152 (9.0)	
Lentigo maligna	13,989 (5.9)	51 (3.0)	
Desmoplastic or spindle cell melanoma	6081 (2.6)	67 (4.0)	
Acral lentiginous melanoma	2077 (0.9)	187 (11.1)	
Other melanoma type	4008 (1.7)	29 (1.7)	
Breslow depth, mm, <sup>†</sup> mean $\pm$ SE	1.91 $\pm$ 0.008	3.19 $\pm$ 0.111	<.001
Breslow depth, mm, <sup>†</sup> n (%)			<.001
0.01-1.00	154,528 (65.5)	807 (47.9)	
1.01-2.00	32,479 (13.8)	228 (13.5)	
2.01-4.00	18,390 (7.8)	213 (12.6)	
>4.00	12,053 (5.1)	228 (13.5)	
No mass/tumor found	3323 (1.4)	35 (2.1)	
Lymph nodes positive, % yes <sup>‡</sup>	7.4	17.9	<.001
Ulceration, % yes <sup>§</sup>	9.4	17.4	<.001
Stage, n (%)			<.001
Local	193,782 (82.2)	1084 (64.3)	
Regional	23,068 (9.8)	348 (20.6)	
Distant	9179 (3.9)	171 (10.1)	
Unstaged	9769 (4.1)	83 (4.9)	
Life status			<.001
Alive	175,456 (74.4)	1,115 (66.1)	
Total deaths	60,342 (25.6)	571 (33.9)	
Dead due to disease	27,776 (11.8)	376 (22.3)	
Dead due to other cause	32,566 (13.8)	195 (11.6)	
Follow-up time, y, median (IQR)			
Time to event	3.5 (1.3-7.4)	2.1 (0.8-4.4)	
Time to censor	7.0 (2.9-12.0)	6.2 (2.1-11.8)	
Overall survival, %			<.001
2 year	90.9	82.8	
5 year	81.7	70.3	
Melanoma-specific survival, %			<.001
2 year	93.8	86.0	
5 year	89.0	77.0	

API, Asian American and Pacific Islander; IQR, interquartile range; NOS, not otherwise specified; SD, standard deviation; SE, standard error.

\*Percentages may not add up to 100% because of rounding or unknown cases.

<sup>†</sup>There were 15,200 (6.4%) total cases with unknown Breslow depth: 175 (10.4%) API patients and 15,025 (6.4%) White patients.

<sup>‡</sup>There were 39,135 (16.5%) total cases with unknown lymph node status: 302 (17.9%) API patients and 38,833 (16.5%) White patients.

<sup>§</sup>There were 12,881 (5.4%) total cases with unknown ulceration status: 139 (8.2%) API patients and 12,742 (5.4%) White patients.

part, we hypothesize, because of the common misconception that they are immune to skin cancer.<sup>3</sup> Additionally, it is possible that even physicians have lower suspicion for melanoma because of the low incidence among API individuals. For example, acral melanomas in the nail bed can be mistaken for fungal infections and left ignored.<sup>4</sup>

The results of this study direct us toward steps in improving the survival of API individuals at risk for or with melanoma. Because API patients consistently

present with more advanced tumors, increasing melanoma awareness and education in the API community with the goal of earlier diagnoses may positively affect survival. Because of the difference in histology and anatomic location of tumors for API patients, prevention techniques and clinical practice should be specifically tailored. It is imperative for providers to perform complete skin examinations by removing patients' shoes and socks.

**Table II.** Multivariable analysis using proportional hazards models

Endpoint	Events, n (%)	Adjusting for demographics only		Adjusting for all variables*	
		HR/SHR (95% CI)	P value	HR/SHR (95% CI)	P value
Overall survival					
White patients	60,342 (25.6)	1.00 (Reference)		1.00 (Reference)	
API patients	571 (33.9)	1.60 (1.47-1.74)	<.001	1.17 (1.07-1.28)	<.001
Melanoma-specific survival					
White patients	27, 776 (11.8)	1.00 (Reference)		1.00 (Reference)	
API patients	376 (22.3)	2.21 (1.99-2.45)	<.001	1.27 (1.12-1.43)	<.001

API, Asian and Pacific Islander; CI, confidence interval; HR, hazard ratio; SHR, subdistribution hazard ratio.

\*All variables include demographics (age, sex, and region), county social factors (median income and language isolation), tumor characteristics (anatomic site, melanoma type, Breslow depth lymph node involvement, and ulceration), and treatment. The variable for stage is omitted because of its collinearity with depth.

A specific intervention we would recommend piloting is taking an educational intervention into frequently inhabited public spaces in API communities. This type of intervention has proven effective in promoting healthy living and improved screening for cardiometabolic diseases in African American men in barbershops.<sup>5</sup> Similarly, information about the risks of melanoma can be passed down to the API community through grassroots efforts such as holding workshops or engaging neighborhood shop owners.

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#### Rural health disparities in melanoma staging and prognostic outcomes in Iowa



*To the Editor:* Melanoma is currently the fifth most common cancer in men and the sixth most common cancer in women, with 91,000 estimated new cases of melanoma and 9300 deaths in the United States in 2018. Presentation at a higher stage and higher mortality rates for multiple cancers<sup>1</sup> have been found to be comparatively higher in numerous studies of