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### Authors

Niehues, Nicole B  
Evanson, Bradley  
Smith, W Austin  
[et al.](#)

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# Melanoma patient notification and treatment timelines

Nicole B Niehues<sup>1</sup> BS, Bradley Evanson<sup>2</sup> MD, W Austin Smith<sup>3</sup> MD, Connie T Fiore<sup>4</sup> MD, Palak Parekh<sup>2,5</sup> MD

Affiliations: <sup>1</sup>Texas A&M College of Medicine, Temple, Texas, USA, <sup>2</sup>Baylor Scott & White, Department of Dermatology, Temple, Texas, USA, <sup>3</sup>Southwest Skin & Cancer, St George, Utah, USA, <sup>4</sup>Baylor University Medical Center, Division of Dermatology, Dallas, Texas, USA, <sup>5</sup>Baylor Scott & White, Department of Pathology, Temple, Texas, USA

Corresponding Author: Nicole B. Niehues, 3107 Butterfly Drive, Temple, Texas 76502, Tel: 325-656-8644, Email: [nbniehues@gmail.com](mailto:nbniehues@gmail.com)

## Abstract

Melanoma is an extremely aggressive cancer for which the American Academy of Dermatology currently does not have formal recommendations outlining a timeline from biopsy to definitive treatment. Our dermatology department investigated our treatment timeline for melanoma. Using the database from our electronic medical record, Epic, we evaluated patients over a one-year period; in total we identified 109 melanomas. We evaluated patient demographics, tumor characteristics, and timelines regarding diagnosis and treatments. There was a statistically significant difference in patient notification of diagnosis and treatment times between stage 1 and stages 2-4 combined (based on the American Joint Committee on Cancer staging system). We found that 84% of melanomas were treated within 4 weeks of diagnosis and 96% within 6 weeks. The lower the stage, the earlier the melanoma was definitively treated; higher stage melanomas had a longer delay to definitive treatment. Herein, we have presented our single institutional experience of the melanoma timeline from diagnosis to definitive treatment and have identified factors that impact timely definitive treatment.

*Keywords: melanoma, timelines, staging*

## Discussion

Melanoma has a 5-year survival ranging from 98.5% for localized disease, to 19.9% for metastatic disease [1]. Currently the American Academy of Dermatology does not have formal recommendations outlining a timeline from biopsy

to definitive treatment. In Europe the current informal, hypothesis-based guidelines recommend treatment within 4-6 weeks [2]. There have been a few small studies that support this timeline [3, 4]. However, a recent, larger study showed that treatment delay beyond 29 days for stage 1 melanoma negatively affected overall survival [5], supporting early treatment for stage 1 melanoma.

At Baylor Scott and White Health (BSWH) dermatology we investigated our treatment timeline for melanoma. Using the Epic database we evaluated patients from February 2014 through February 2015; in total we identified 109 melanomas. We evaluated patient demographics, tumor characteristics, and timelines regarding diagnosis and treatments.

Our patient population consisted of 57 males and 52 females, averaging 68 years in age (male 71.6 years, female 64.3 years). Fifty-four cancers were in-situ and 55 were invasive. We found no difference in patient notification of diagnosis and treatment times when comparing male versus female, location of melanoma, and in-situ versus invasive melanoma.

We utilized the 8th edition of the American Joint Committee on Cancer staging system (**Table 1**). There was a statistically significant difference in patient notification of diagnosis and treatment times between stage 1 and stages 2-4 combined (**Table 2**). There was also a statistical difference between departments that ultimately treated the patients. Those patients with more advanced melanomas were notified of biopsy results sooner but took longer to treat. We hypothesize this is related to communication delays, surgery departments

**Table 1.** Melanoma staging.

Combined Stage	AJCC Stage	Breslow Depth (mm)	Ulceration
1	T1a	<0.8	No Ulceration
	T1b	<0.8	With Ulceration
		0.8-1.0	With or without ulceration
2	T2a	1.0-2.0	No ulceration
	T2b	1.0-2.0	Ulceration
3	T3a	2.0-4.0	No ulceration
	T3b	2.0-4.0	Ulceration
4	T4a	>4.0	No ulceration
	T4b	>4.0	Ulceration

requiring scheduling time in the operating room, and planning of more extensive procedures. Communication and scheduling delays are more easily mitigated in our clinic because we are in the same physical location. An option to reduce these delays in other departments could be to have designated liaisons between departments who understand the importance of expedited treatment.

Conic et-al [5] reported that delay of treatment beyond 29 days for stage 1 melanoma negatively affected overall survival. Almost all of our stage 1 melanomas were treated within 29 days, with only 3 being treated at 34 days post-diagnosis. This is still between 43 and 56 days, the time period which was reported to lead to worse outcomes [5]. It was also reported that waiting longer than 90 days reduced overall survival regardless of the stage of melanoma;

we did not have any patients that were treated more than 90 days after diagnosis.

In conclusion, 84% of melanomas were treated within four weeks of diagnosis and 96% within 6 weeks. The lower the stage, the earlier the melanoma was definitively treated; higher stage melanomas had a longer delay to definitive treatment. Factors that likely contributed to this delay include scheduling issues and communication with other services and could potentially be minimized. Herein, we have presented our single institutional experience of the melanoma timeline from diagnosis to definitive treatment and have identified factors that impact timely definitive treatment.

### Potential conflicts of interest

The authors declare no conflicts of interests.

**Table 2.** Days from diagnosis to patient notification and treatment.

	Mean No. of Days from Dx to Patient Notification	Mean No. of Days from Dx to Treatment
Stage 1	2.6	12
Stage 2	1.6	24
Stage 3	1.5	27
Stage 4	1.5	69
Dermatology Treated	2.7	12.6
Plastic Surgery	1.0	23.5
Surgical Oncology	1.2	26.0
Overall Average	2.4	16

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