

*** MENDELEY SUPPLEMENTARY MATERIALS***

Melanoma Survival by Age Group: Population-Based Disparities for Adolescent and Young Adult Patients by Stage, Tumor Thickness, and Insurance Type

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Table 3b (Mendeley Supplementary Table): Hazard Ratio for Risk of Melanoma-related Death¹, by Age Group, in patients with cutaneous melanoma at ages 15-64 in California (2004 – 2015 with follow-up through 2017)

	AYA (15 - 39)		Older Adults (40 - 64)	
	HR (95% CI)	aHR ² (95% CI)	HR (95% CI)	aHR ² (95% CI)
Sex				
Female	1.00	1.00	1.00	1.00
Male	2.48 (2.06-2.99)	1.34 (1.10-1.63)	1.94 (1.79-2.10)	1.26 (1.17-1.37)
Race/Ethnicity				
NHW	1.00	1.00	1.00	1.00
Hispanic	1.78 (1.38-2.29)	1.10 (0.84-1.44)	1.83 (1.61-2.08)	0.93 (0.81-1.06)
Black	--	--	3.38 (2.18-5.25)	1.17 (0.75-1.82)
Asian/P.I.	2.30 (1.30-4.09)	1.60 (0.89-2.90)	3.41 (2.66-4.35)	1.27 (0.99-1.64)
Other	0.07 (0.03-0.18)	0.19 (0.07-0.51)	0.11 (0.08-0.15)	0.28 (0.20-0.39)
Socioeconomic Status				
Highest	1.00	1.00	1.00	1.00
High-Middle	1.11 (0.84-1.45)	0.96 (0.73-1.28)	1.51 (1.37-1.68)	1.27 (1.14-1.41)
Middle	1.76 (1.35-2.31)	1.37 (1.04-1.80)	1.86 (1.68-2.07)	1.31 (1.18-1.46)
Low-Middle	2.41 (1.81-3.20)	1.08 (0.79-1.47)	2.67 (2.39-2.99)	1.41 (1.26-1.58)
Lowest	2.96 (2.14-4.08)	1.08 (0.76-1.54)	3.77 (3.33-4.28)	1.63 (1.43-1.86)
Insurance Status				
Private	1.00	1.00	1.00	1.00
Medicaid	8.20 (6.50-10.33)	2.34 (1.79-3.05)	7.53 (6.78-8.37)	1.83 (1.63-2.05)
Medicare	6.14 (3.85-9.78)	2.49 (1.54-4.03)	3.17 (2.81-3.59)	1.72 (1.52-1.96)
Military	2.76 (1.71-4.45)	2.23 (1.37-3.65)	1.43 (1.14-1.80)	1.06 (0.84-1.34)
Uninsured	2.04 (1.28-3.25)	1.52 (0.94-2.45)	2.89 (2.43-3.44)	1.65 (1.38-1.97)
Other/Unknown	0.54 (0.39-0.75)	0.82 (0.59-1.15)	0.60 (0.53-0.67)	1.10 (0.97-1.23)
Clinical Stage				
In-Situ/Stage I	1.00	1.00	1.00	1.00
Stage II	16.77 (12.13-23.18)	2.18 (1.35-3.54)	14.61 (12.93-16.50)	2.58 (2.12-3.14)
Stage III	25.62 (19.27-34.07)	3.80 (2.47-5.85)	33.95 (30.42-37.89)	6.77 (5.66-8.10)
Stage IV	229.62 (174.14-302.77)	24.03 (14.69-39.29)	169.64 (152.59-188.59)	24.20 (19.88-29.46)
Unknown	8.89 (6.27-12.62)	2.22 (1.31-3.75)	9.69 (8.45-11.11)	2.73 (2.21-3.38)
Location				
Limbs	1.00	1.00	1.00	1.00
Head/Neck	1.73 (1.30-2.30)	1.04 (0.77-1.41)	1.43 (1.29-1.59)	1.56 (1.40-1.75)
Trunk	1.32 (1.04-1.66)	1.21 (0.95-1.56)	1.35 (1.23-1.48)	1.23 (1.12-1.35)
Other	30.03 (23.37-38.59)	2.41 (1.63-3.56)	27.07 (24.50-29.92)	1.91 (1.63-2.25)
Histology³				
SSM	1.00	1.00	1.00	1.00
NM	9.93 (6.93-14.23)	0.83 (0.56-1.24)	10.91 (9.47-12.57)	1.52 (1.31-1.76)
ALM	4.75 (2.17-10.41)	1.19 (0.52-2.69)	5.71 (4.26-7.65)	1.50 (1.11-2.04)
LMM	1.10 (0.40-3.02)	2.19 (0.78-6.15)	0.31 (0.22-0.43)	0.59 (0.42-0.83)
NOS/Other	2.30 (1.74-3.04)	1.01 (0.75-1.37)	2.10 (1.87-2.36)	1.22 (1.08-1.38)
Year of Diagnosis				
2004 - 2006	1.00	1.00	1.00	1.00
2007 - 2009	1.08 (0.87-1.35)	1.10 (0.87-1.38)	0.94 (0.86-1.03)	0.99 (0.91-1.08)
2010 - 2012	1.02 (0.80-1.31)	0.96 (0.74-1.23)	0.73 (0.66-0.81)	0.75 (0.68-0.83)
2013 - 2015	0.49 (0.33-0.71)	0.48 (0.32-0.70)	0.52 (0.46-0.59)	0.54 (0.48-0.61)
Tumor Thickness				
In-Situ/<1.00mm	1.00	1.00	1.00	1.00
1.00-<2.00mm	11.67 (8.25-16.51)	5.79 (3.85-8.70)	7.92 (6.94-9.05)	3.22 (2.73-3.80)
2.00-<4.00mm	25.11 (17.61-35.82)	5.72 (3.39-9.63)	20.07 (17.65-22.82)	3.31 (2.70-4.05)
≥4.00mm	61.76 (44.12-86.46)	8.13 (4.78-13.84)	43.47 (38.59-48.97)	4.52 (3.70-5.52)

Unknown	49.47 (36.38-67.27)	5.50 (3.11-9.74)	40.66 (36.49-45.30)	3.57 (2.87-4.43)
Ulceration				
No	1.00	1.00	1.00	1.00
Yes	12.67 (10.19-15.74)	2.03 (1.53-2.70)	11.80 (10.84-12.85)	1.79 (1.61-1.99)
Unknown	7.33 (5.84-9.19)	1.25 (0.93-1.67)	7.96 (7.29-8.69)	1.34 (1.19-1.50)

¹Excludes patients with unknown cause of death

²Fully adjusted models represent mutual adjustment for all the variables shown in the table

³Histology definitions: SSM=Superficial Spreading Melanoma, NM=Nodular Melanoma, ALM=Acral Lentiginous Melanoma. LMM=Lentigo Maligna Melanoma, NOS/Other=Malignant Melanoma, NOS and other rare subtypes.

Table 4 (Mendelely Supplementary Table): Sentinel lymph node biopsy, ulceration, and mitotic activity by clinical stage and age group in cutaneous melanoma patients from the California Cancer Registry (2010 – 2015 with follow-up through 2017)

AYA (15-39 Years)					Older Adults (40 -64 Years)			
Sentinel Lymph Node Biopsy Performed								
Clinical Stage	n (%)	Yes (%)	No (%)	Unknown (%)	n (%)	Yes (%)	No (%)	Unknown (%)
In-Situ	1,847 (31.4)	*	1,837 (99.5)	*	16,112 (43.1)	70 (0.4)	15,988 (99.2)	54 (0.3)
Stage I	2,982 (50.7)	721 (24.2)	2,255 (75.6)	*	15,278 (40.9)	3,165 (20.7)	12,084 (79.1)	29 (0.2)
Stage II	247 (4.2)	159 (64.4)	88 (35.6)	*	1,908 (5.1)	1,237 (64.8)	670 (35.1)	*
Stage III	339 (5.8)	119 (35.1)	220 (64.9)	*	1,438 (3.9)	555 (38.6)	879 (61.1)	*
Stage IV	113 (1.9)	*	109 (96.5)	*	836 (2.2)	26 (3.1)	789 (94.4)	21 (2.5)
Unknown	357 (6.1)	30 (8.4)	314 (88.0)	*	1,793 (4.8)	158 (8.8)	1,559 (87.0)	76 (4.2)
Ulceration								
Clinical Stage	n (%)	Yes (%)	No (%)	Unknown (%)	n (%)	Yes (%)	No (%)	Unknown (%)
In-Situ	1,847 (31.4)	*	1,699 (92.0)	138 (7.5)	16,112 (43.1)	70 (0.4)	14,893 (92.4)	1,149 (7.1)
Stage I	2,892 (49.1)	49 (1.7)	2,881 (99.7)	52 (1.8)	15,278 (40.9)	344 (2.3)	14,714 (96.3)	220 (1.4)
Stage II	247 (4.1)	116 (47.0)	124 (50.2)	*	1,908 (5.1)	985 (51.6)	884 (46.3)	39 (2.0)
Stage III	339 (5.8)	102 (30.1)	204 (50.2)	33 (9.7)	1,438 (3.8)	509 (35.4)	762 (53.0)	167 (11.6)
Stage IV	113 (1.9)	*	27 (23.9)	68 (60.1)	836 (2.2)	112 (13.4)	224 (26.8)	500 (59.8)
Unknown	357 (6.1)	*	232 (65.0)	121 (33.9)	1,793 (4.8)	63 (3.5)	1,136 (63.4)	594 (33.1)
Mitotic Activity Present ¹								
Clinical Stage	n (%)	Yes (%)	No (%)	Unknown (%)	n (%)	Yes (%)	No (%)	Unknown (%)
In-Situ	1,847 (31.4)	*	375 (20.3)	1461 (79.1)	16,112 (43.1)	59 (0.4)	3,151 (19.6)	12,902 (80.1)
Stage I	2,892 (49.1)	822 (28.4)	1549 (53.6)	611 (21.1)	15,278 (40.9)	4118 (27.0)	8,182 (53.6)	2,978 (19.5)
Stage II	247 (4.1)	176 (71.3)	24 (9.7)	47 (19.0)	1,908 (5.1)	1361 (71.3)	186 (9.7)	361 (18.9)
Stage III	339 (5.8)	222 (65.5)	34 (10.0)	83 (24.5)	1,438 (3.8)	893 (62.1)	118 (8.2)	427 (29.7)
Stage IV	113 (1.9)	*	*	95 (84.1)	836 (2.2)	135 (16.1)	30 (3.6)	671 (80.3)
Unknown	357 (6.1)	31 (8.7)	105 (29.4)	221 (61.9)	1,793 (4.8)	168 (9.4)	560 (31.2)	1,065 (59.4)

*=information suppressed for case counts less than 20

¹ Mitotic Rate information was not routinely collected in this registry data until 2010; defined as present if ≥ 1 mitosis/mm²

Table 5a (Mendeley Supplementary Table): Hazard Ratio for Risk of All-Cause Death, by age group, in non-Hispanic white patients with cutaneous melanoma at ages 15-64 in California (2010 – 2015 with follow-up through 2017)

<i>n</i>	AYA (15 - 39) 4,288			Older Adults (40 - 64) 30,023		
	n (%)	HR (95%CI)	aHR ¹ (95%CI)	n (%)	HR (95%CI)	aHR ¹ (95%CI)
Sex						
Female	1,690 (39.4)	1.00	1.00	17,015 (56.7)	1.00	1.00
Male	2,598 (60.6)	3.22 (2.28-4.54)	1.65 (1.14-2.39)	13,008 (43.3)	2.03 (1.83-2.27)	1.32 (1.18-1.48)
Socioeconomic Status						
Highest	1,500 (35.0)	1.00	1.00	11,548 (38.5)	1.00	1.00
Higher-Middle	1,285 (30.0)	1.13 (0.70-1.84)	0.79 (0.48-1.31)	7,975 (26.6)	1.64 (1.42-1.88)	1.30 (1.13-1.48)
Middle	826 (19.3)	2.19 (1.37-3.49)	1.48 (0.91-2.42)	5,627 (18.7)	2.04 (1.76-2.36)	1.40 (1.21-1.63)
Lower-Middle	458 (10.7)	2.83 (1.70-4.71)	1.31 (0.75-2.27)	3,400 (11.3)	3.07 (2.64-3.56)	1.70 (1.45-1.98)
Lowest	219 (5.1)	3.74 (2.08-6.71)	1.04 (0.53-2.02)	1,473 (4.9)	4.12 (3.45-4.92)	1.93 (1.61-2.32)
Insurance Status						
Private	3,151 (73.5)	1.00	1.00	20,954 (69.8)	1.00	1.00
Medicaid	185 (4.3)	7.46 (4.99-11.14)	3.33 (2.08-5.33)	959 (3.2)	7.48 (6.47-8.64)	1.88 (1.60-2.20)
Medicare	48 (1.1)	5.54 (2.56-11.98)	3.70 (1.62-8.43)	1,312 (4.4)	3.29 (2.80-3.87)	1.95 (1.65-2.30)
Military	88 (2.1)	3.18 (1.47-6.87)	1.66 (0.72-3.84)	576 (1.9)	2.32 (1.79-3.01)	1.51 (1.16-1.97)
Uninsured	83 (1.9)	1.41 (0.45-4.46)	0.74 (0.22-2.43)	454 (1.5)	3.60 (2.79-4.64)	1.96 (1.52-2.54)
Other/Unknown	733 (17.1)	0.58 (0.31-1.08)	0.60 (0.32-1.14)	5,768 (19.2)	1.07 (0.92-1.23)	1.32 (1.14-1.53)
Clinical Stage						
In-Situ/Stage I	3,549 (82.8)	1.00	1.00	25,280 (84.2)	1.00	1.00
Stage II	189 (4.4)	9.67 (5.29-17.69)	3.20 (1.33-7.69)	1,654 (5.5)	6.16 (5.25-7.22)	2.46 (1.88-3.21)
Stage III	277 (6.5)	16.18 (10.10-25.94)	4.92 (2.38-10.15)	1,212 (4.0)	12.47 (10.82-14.38)	4.81 (3.80-6.08)
Stage IV	81 (1.9)	156.08 (99.07-245.88)	29.77 (13.34-66.39)	712 (2.4)	69.02 (60.91-78.20)	19.23 (14.92-24.80)
Unknown	192 (4.5)	7.14 (3.59-14.20)	2.93 (1.14-7.48)	1,165 (3.9)	5.70 (4.70-6.91)	2.80 (2.12-3.68)
Location						
Limbs	1,998 (46.6)	1.00	1.00	13,013 (43.3)	1.00	1.00
Head/Neck	701 (16.3)	1.65 (0.99-2.72)	1.07 (0.63-1.82)	6,282 (20.9)	1.56 (1.35-1.80)	1.41 (1.21-1.63)
Trunk	1,495 (34.9)	1.46 (0.96-2.24)	1.31 (0.83-2.05)	9,997 (33.3)	1.43 (1.25-1.62)	1.23 (1.08-1.40)
Other	94 (2.2)	29.80 (19.15-46.37)	2.49 (1.15-5.37)	731 (2.4)	23.86 (20.79-27.38)	1.63 (1.29-2.06)
Histology²						
SSM	1,107 (25.8)	1.00	1.00	5,846 (19.5)	1.00	1.00
NM	144 (3.4)	8.49 (4.24-16.99)	0.95 (0.44-2.06)	944 (3.1)	6.63 (5.45-8.07)	1.33 (1.08-1.65)
ALM	20 (0.5)	6.86 (1.57-29.99)	2.42 (0.49-11.93)	113 (0.4)	3.07 (1.72-5.50)	1.77 (0.98-3.20)
LMM	66 (1.5)	--	--	2,279 (7.6)	0.73 (0.55-0.98)	0.92 (0.68-1.25)
NOS/Other	2,951 (68.8)	2.77 (1.62-4.75)	1.45 (0.81-2.58)	20,841 (69.4)	1.65 (1.42-1.91)	1.01 (0.86-1.18)
Year of Diagnosis						

2010 - 2012	2,061 (48.1)	1.00	1.00	13,895 (46.3)	1.00	1.00
2013 - 2015	2,227 (51.9)	0.58 (0.40-0.84)	0.52 (0.35-0.78)	16,128 (53.7)	0.68 (0.61-0.76)	0.67 (0.60-0.75)
Tumor Thickness						
In-Situ/<1.00mm	3,298 (76.9)	1.00	1.00	23,786 (79.2)	1.00	1.00
1.00-<2.00mm	494 (11.5)	4.76 (2.71-8.34)	2.38 (1.18-4.82)	2,562 (8.5)	3.22 (2.72-3.80)	1.73 (1.39-2.16)
2.00-<4.00mm	182 (4.2)	10.03 (5.51-18.25)	2.11 (0.87-5.14)	1,245 (4.2)	6.30 (5.29-7.49)	1.51 (1.14-1.99)
≥4mm	104 (2.4)	36.92 (21.95-62.11)	4.89 (2.05-11.62)	883 (2.9)	14.74 (12.66-17.16)	2.21 (1.70-2.89)
Unknown	210 (4.9)	35.10 (22.28-55.30)	1.97 (0.76-5.11)	11,240 (37.4)	21.00 (18.61-23.70)	1.80 (1.36-2.39)
SLN Biopsy³						
No	3,402 (79.3)	1.00	1.00	25,208 (84.0)	1.00	1.00
Yes	871 (20.3)	0.92 (0.61-1.38)	0.74 (0.47-1.18)	4,697 (15.6)	1.12 (0.98-1.27)	0.67 (0.58-0.78)
Unknown	15 (0.3)	1.85 (0.26-13.27)	0.75 (0.09-6.15)	118 (0.4)	6.07 (4.30-8.57)	1.26 (0.88-1.81)
Ulceration						
No	3,760 (87.7)	1.00	1.00	26,125 (87.0)	1.00	1.00
Yes	233 (5.4)	7.81 (5.13-11.88)	1.06 (0.62-1.80)	1,737 (5.8)	7.02 (6.20-7.94)	1.61 (1.37-1.90)
Unknown	295 (6.9)	9.99 (6.88-14.48)	1.61 (0.89-2.90)	2,161 (7.2)	7.72 (6.88-8.66)	1.41 (1.18-1.67)
Mitotic Activity Present⁴						
No	1,589 (37.1)	1.00	1.00	10,185 (33.9)	1.00	1.00
Yes	1,020 (23.8)	4.38 (2.56-7.49)	0.97 (0.51-1.82)	5,762 (19.2)	4.08 (3.49-4.77)	1.26 (1.05-1.52)
Unknown	1,679 (39.2)	3.85 (2.31-6.44)	0.89 (0.48-1.65)	14,076 (46.9)	2.80 (2.42-3.23)	1.10 (0.94-1.30)

¹Fully adjusted models represent mutual adjustment for all the variables shown in the table

²Histology definitions: SSM=Superficial Spreading Melanoma, NM=Nodular Melanoma, ALM=Acral Lentiginous Melanoma, LMM=Lentigo Maligna Melanoma, NOS/Other=Malignant Melanoma, NOS and other rare subtypes.

³SLN=Sentinel Lymph Node; indicates biopsy was performed.

⁴Defined as present if ≥ 1 mitosis/mm²

Table 5b (Mendeley Supplementary Table): Hazard Ratio for Risk of Melanoma-related Death, by age group, in non-Hispanic white patients with cutaneous melanoma at ages 15-64 in California (2010 – 2015 with follow-up through 2017)

<i>n</i>	AYA (15 - 39) 4,277			Older Adults (40 - 64) 29,862		
	n (%)	HR (95%CI)	aHR ² (95%CI)	n (%)	HR (95%CI)	aHR ² (95%CI)
Sex						
Female	1,683 (39.4)	1.00	1.00	16,891 (56.6)	1.00	1.00
Male	2,594 (60.7)	3.31 (2.22-4.95)	1.55 (1.00-2.38)	12,971 (43.4)	2.19 (1.88-2.54)	1.24 (1.06-1.45)
Socioeconomic Status						
Highest	1,495 (35.0)	1.00	1.00	11,507 (38.5)	1.00	1.00
Higher-Middle	1,285 (30.0)	1.36 (0.78-2.38)	0.92 (0.51-1.65)	7,928 (26.6)	1.65 (1.36-2.00)	1.22 (1.00-1.48)
Middle	823 (19.2)	2.23 (1.28-3.88)	1.36 (0.76-2.44)	5,580 (18.7)	1.92 (1.57-2.36)	1.21 (0.98-1.49)
Lower-Middle	456 (10.7)	3.31 (1.84-5.94)	1.28 (0.68-2.43)	3,384 (11.3)	3.48 (2.84-4.26)	1.63 (1.32-2.01)
Lowest	218 (5.1)	3.15 (1.50-6.62)	0.71 (0.31-1.64)	1,463 (4.9)	4.79 (3.79-6.06)	1.86 (1.45-2.37)
Insurance Status						
Private	3,142 (73.5)	1.00	1.00	20,851 (69.8)	1.00	1.00
Medicaid	185 (4.3)	7.99 (5.06-12.61)	3.64 (2.12-6.26)	939 (3.1)	8.27 (6.87-9.96)	1.58 (1.29-1.93)
Medicare	47 (1.1)	3.34 (1.05-10.63)	2.18 (0.64-7.35)	1,298 (4.4)	3.03 (2.42-3.79)	1.67 (1.32-2.10)
Military	87 (2.0)	3.73 (1.62-8.62)	1.78 (0.69-4.57)	568 (1.9)	1.36 (0.86-2.14)	0.85 (0.53-1.35)
Uninsured	83 (1.9)	1.29 (0.31-5.25)	0.51 (0.12-2.21)	450 (1.5)	4.14 (3.01-5.70)	1.93 (1.39-2.67)
Other/Unknown	733 (17.1)	0.64 (0.32-1.29)	0.67 (0.32-1.38)	5,756 (19.3)	0.77 (0.62-0.96)	1.15 (0.92-1.44)
Clinical Stage						
In-Situ/Stage I	3,547 (82.9)	1.00	1.00	25,207 (84.4)	1.00	1.00
Stage II	187 (4.4)	16.36 (7.78-34.38)	3.43 (1.20-9.81)	1,632 (5.5)	16.50 (12.77-21.31)	5.08 (3.42-7.53)
Stage III	274 (6.4)	27.62 (14.96-51.00)	6.03 (2.44-14.88)	1,183 (4.0)	40.19 (31.94-50.56)	12.36 (8.69-17.59)
Stage IV	78 (1.8)	260.45 (143.00-474.39)	32.87 (11.98-90.22)	685 (2.3)	247.05 (200.03-305.12)	59.63 (41.27-86.15)
Unknown	191 (4.5)	12.10 (5.30-27.66)	3.58 (1.15-11.10)	1,155 (3.9)	15.43 (11.51-20.69)	6.61 (4.41-9.90)
Location						
Limbs	1,993 (46.6)	1.00	1.00	12,954 (43.4)	1.00	1.00
Head/Neck	699 (16.3)	2.19 (1.24-3.87)	1.41 (0.76-2.61)	6,244 (20.9)	1.56 (1.27-1.92)	1.49 (1.20-1.85)
Trunk	1,493 (34.9)	1.51 (0.90-2.55)	1.22 (0.70-2.13)	9,956 (33.3)	1.46 (1.21-1.75)	1.22 (1.01-1.48)
Other	92 (2.2)	36.85 (21.97-61.80)	2.86 (1.19-6.89)	708 (2.4)	37.01 (30.91-44.32)	1.50 (1.12-2.02)
Histology³						
SSM	1,106 (25.9)	1.00	1.00	5,823 (19.5)	1.00	1.00
NM	141 (3.3)	9.16 (3.96-21.20)	0.77 (0.31-1.95)	927 (3.1)	10.56 (8.02-13.90)	1.43 (1.07-1.91)
ALM	20 (0.5)	10.28 (2.25-46.93)	2.58 (0.47-14.24)	110 (0.4)	3.77 (1.65-8.64)	1.59 (0.69-3.70)
LMM	66 (1.5)	--	--	2,271 (7.6)	0.21 (0.10-0.46)	0.41 (0.19-0.90)

NOS/Other	2,944 (68.8)	3.13 (1.63-6.03)	1.53 (0.75-3.12)	20,731 (69.4)	2.21 (1.76-2.78)	1.09 (0.85-1.39)
Year of Diagnosis						
2010 - 2012	2,057 (48.1)	1.00	1.00	13,819 (46.3)	1.00	1.00
2013 - 2015	2,220 (51.9)	0.55 (0.35-0.85)	0.50 (0.32-0.80)	16,043 (53.7)	0.62 (0.53-0.71)	0.60 (0.52-0.70)
Tumor Thickness						
In-Situ/<1.00mm	3,295 (77.0)	1.00	1.00	23,719 (79.4)	1.00	1.00
1.00-<2.00mm	493 (11.5)	10.42 (5.06-21.47)	4.80 (1.91-12.09)	2,540 (8.5)	7.84 (6.03-10.18)	2.15 (1.52-3.04)
2.00-<4.00mm	180 (4.2)	18.67 (8.52-40.92)	3.65 (1.19-11.25)	1,229 (4.1)	16.47 (12.67-21.43)	1.66 (1.12-2.47)
≥4mm	102 (2.4)	74.43 (37.01-149.67)	9.56 (3.20-28.58)	864 (2.9)	44.20 (35.06-55.74)	2.74 (1.88-3.99)
Unknown	207 (4.8)	68.61 (36.12-130.35)	2.47 (0.74-8.27)	1,510 (5.1)	64.10 (52.26-78.63)	1.98 (1.33-2.97)
SLN⁴						
No	3,394 (79.4)	1.00	1.00	25,087 (84.0)	1.00	1.00
Yes	868 (20.3)	1.06 (0.67-1.67)	0.82 (0.49-1.38)	4,662 (15.6)	1.27 (1.07-1.50)	0.72 (0.59-0.87)
Unknown	15 (0.4)	2.56 (0.36-18.42)	1.27 (0.15-10.66)	113 (0.4)	7.13 (4.52-11.25)	1.02 (0.64-1.65)
Ulceration						
No	3,760 (87.7)	1.00	1.00	26,031 (87.2)	1.00	1.00
Yes	233 (5.4)	11.75 (7.30-18.90)	1.54 (0.85-2.79)	1,703 (5.7)	11.49 (9.72-13.57)	1.54 (1.26-1.90)
Unknown	295 (6.9)	13.78 (8.89-21.36)	2.21 (1.11-4.40)	2,128 (7.1)	13.59 (11.64-15.86)	1.57 (1.25-1.97)
Mitotic Activity						
Present⁵						
No	1,587 (37.1)	1.00	1.00	10,156 (34.0)	1.00	1.00
Yes	1,014 (23.7)	4.65 (2.42-8.94)	0.66 (0.31-1.39)	5,707 (19.1)	9.93 (7.50-13.13)	1.69 (1.23-2.32)
Unknown	1,676 (39.2)	4.54 (2.45-8.44)	0.81 (0.38-1.72)	13,999 (46.9)	6.24 (4.76-8.19)	1.39 (1.02-1.89)

¹Excludes patients with unknown cause of death

²Fully adjusted models represent mutual adjustment for all the variables shown in the table

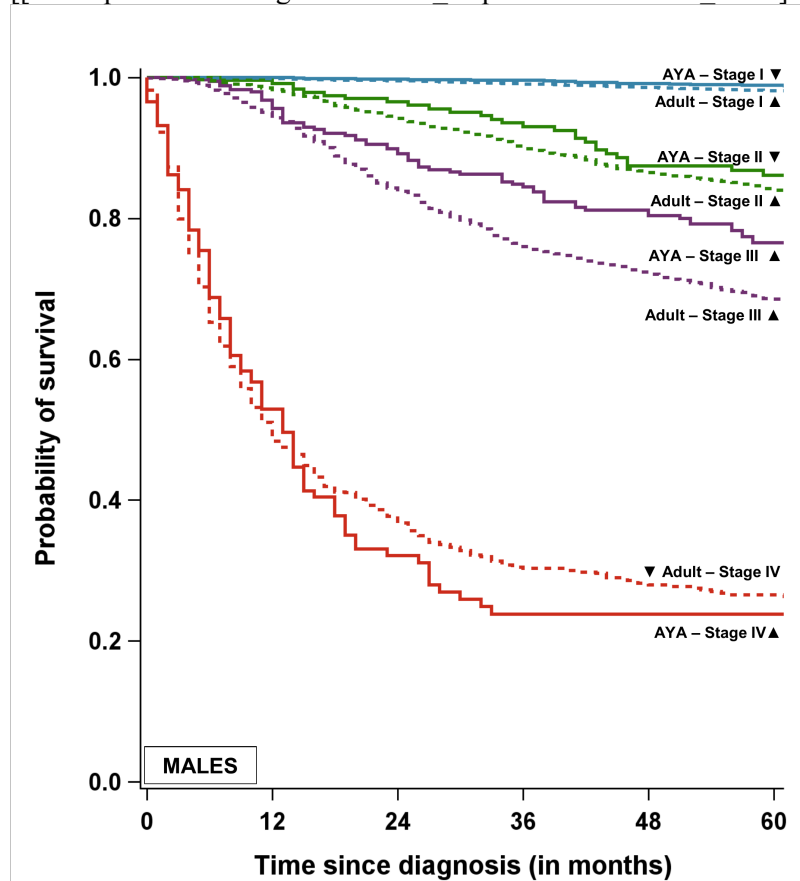
³Histology definitions: SSM=Superficial Spreading Melanoma, NM=Nodular Melanoma, ALM=Acral Lentiginous Melanoma, LMM=Lentigo Maligna Melanoma, NOS/Other=Malignant Melanoma, NOS and other rare subtypes.

⁴SLN=Sentinel Lymph Node; indicates biopsy was performed.

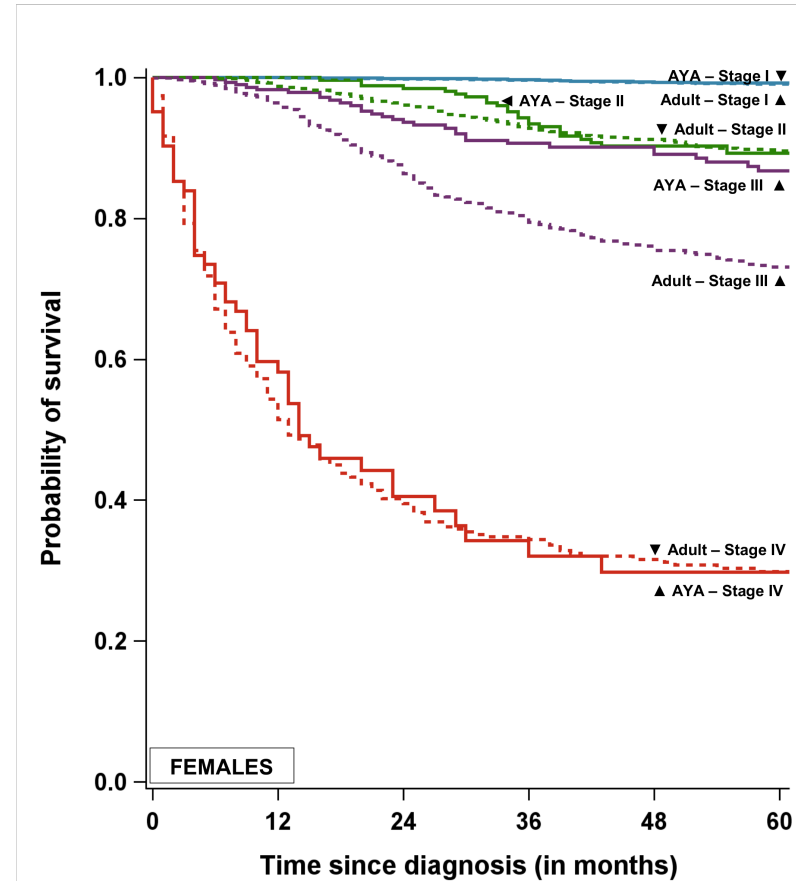
⁵Defined as present if ≥1 mitosis/mm²

Figure 2 (Mendeley Supplementary Figure). Melanoma Patients and Age-Group-Specific Survival (Melanoma-Specific Cause). Probability of melanoma-specific survival since diagnosis in patients with cutaneous melanoma by age group and clinical stage, stratified by sex, from the California Cancer Registry (2004-2015 with follow-up through 2017).

[[See separate file – Figure 2 - MSS_Kaplan Meier Curves_final]]



AYA	0	12	24	36	48	60
Stage I	2,358	2,231	2,066	1,900	1,724	1,550
Stage II	249	235	205	177	1,148	129
Stage III	352	328	278	236	204	168
Stage IV	146	67	33	21	<20	<20
Adult	3,105					
Stage I	15,904	15,081	13,809	12,341	10,859	9,473
Stage II	2,277	2,117	1,841	1,547	1,298	1,089
Stage III	1,755	1,583	1,243	987	791	650
Stage IV	1,050	442	279	185	130	106



AYA	0	12	24	36	48	60
Stage I	4,182	3,949	3,642	3,342	2,995	2,670
Stage II	281	274	250	219	194	170
Stage III	292	272	231	192	170	136
Stage IV	82	41	21	<20	<20	<20
Adult	4,837					
Stage I	13,443	12,818	11,795	10,486	9,278	8,106
Stage II	1,239	1,152	997	861	759	643
Stage III	844	771	623	498	414	341
Stage IV	468	204	126	89	76	63

