



# Overall Treatment Landscape of Mucosal Melanoma

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## BACKGROUND

Mucosal melanoma (MM) is a rare and aggressive melanoma subtype, comprising ~1.2% of all melanomas and associated with poor prognosis.<sup>1,2</sup> Due to nonspecific symptoms and challenging anatomical sites, it is frequently diagnosed at advanced stages.<sup>3</sup> Surgery remains the primary curative option, yet its success is hindered by high recurrence rates and anatomical complexity.<sup>3,4</sup> Emerging systemic therapies, such as Programmed Death-1 (PD-1)/ its ligand PD-L1 and related immune checkpoint protein Cytotoxic T-Lymphocyte-Associated protein 4 (CTLA-4) inhibitors offer new hope, but real-world treatment patterns remain unclear.

## OBJECTIVE

To examine the patient flow and real-world treatment patterns across lines of therapy (LOTs) of MM in older adults (≥65) using SEER-Medicare data, from diagnosis to death.

## METHODS

The SEER-Medicare-linked database was examined for the period from 01JAN2014–31DEC2021, with follow-up through 31DEC2023.

Patients were included in the study if they had ≥1 diagnosis claim for MM using SEER histology codes and International Classification of Diseases for Oncology, 3<sup>rd</sup> Edition (ICD-O-3) topography codes, and ≥65 years of age at the initial MM diagnosis.

## METHODS, Cont'd

Continuous enrollment was not an inclusion criterion for assessing treatment patterns but was necessary for reporting patient baseline demographics and characteristics.

Curative surgery was defined as a site-specific resection of the primary tumor per the Surveillance, Epidemiology, and End Results (SEER) database. Resectable tumors were tumors classified as "localized" or "regional, regional lymph nodes only" as per SEER classifications. Unresectable tumors encompassed all other SEER summary stages. Adjuvant setting was defined as having treatment <90-days after surgery. Among patients who received surgery, first line (1L) systemic therapy was defined as having systemic therapy ≥90 days after surgery.

Table 1. Study Attrition for Patients Diagnosed with Mucosal Melanoma in the SEER-Medicare Linked Database Population

	Inclusion Criteria	Mucosal Melanoma Study Participants	
		N	%
a)	≥1 diagnosis of MM using SEER histology codes <sup>1</sup> and ICD-O-3 topography codes <sup>2</sup> during diagnosis period (01JAN2014 – 31DEC2021); first MM diagnosis claim date = index date	1,462	n/a
b)	≥65 years of age upon initial MM diagnosis during baseline period	1,362	93.16%
c)	Continuous health plan enrollment for a minimum of 6 months before initial MM diagnosis <sup>3</sup>	1,321	96.99%

<sup>1</sup>Histology codes: Patients were identified using the SEER histology codes 8720 through 8790.

<sup>2</sup>Topography codes: primary site of melanoma was classified according to the International Classification of Diseases for Oncology, 3rd edition topography code into the following categories: nasal cavity (C300), paranasal sinuses (C310–C319), lip and oral cavity (C000–C069), pharynx (C090–C148), gastroesophageal (C150–C169), rectum/anus (C199–C218), vagina (including uterine cervix) (C529–C539), female external genitalia (vulva) (C510–C519), male genitalia (penis, scrotum) (C600–C639), urinary tract (C649–C689), and conjunctiva (C690).

<sup>3</sup>ICD-O-3: International Classification of Diseases for Oncology, 3rd Edition; MM: mucosal melanoma; SEER: Surveillance, Epidemiology, and End Results

## RESULTS

### Patient Baseline Characteristics

- N = 1,321 patients with MM diagnosis aged ≥65 years had continuous enrollment in the baseline period
- MM was more frequently observed in women (57.38%).

### Treatment Pathways

- Among patients with resectable tumor (n=618; 45.37%):
  - 44.66% received curative surgery
    - Of those, 61.23% received adjuvant systemic therapy; among those with adjuvant systemic therapy, 61.68% had first LOT therapy ≥90 days post-surgery
  - 55.34% did not receive curative surgery
    - Of those, 58.48% received systemic therapy as first LOT
- Among patients with non-resectable tumor (n=744; 54.63%):
  - 61.00% received systemic therapy as 1L therapy
- Overall, among patients diagnosed with MM aged ≥65 years received systemic therapy as follows: 12.41% as adjuvant therapy; 52.59% as 1L therapy

### Limitations

The analysis was restricted to Medicare beneficiaries aged ≥65 years, limiting generalizability to younger populations and non-Medicare patients. The classification of resectable vs non-resectable tumors and the definition of curative surgery was based on standardized SEER classifications rather than detailed clinical assessments, which may not capture the nuanced surgical complexity, margin status, or treatment decisions that guide real-world oncological care. Coding inaccuracies and incomplete claims submission could result in misclassification of treatment exposure and underestimation of therapy receipt.

Table 2. Baseline Descriptive Characteristics for Patients with Mucosal Melanoma upon Initial Diagnosis 2014 - 2021 in the SEER-linked Medicare Population

Characteristics	Patients Diagnosed with Mucosal Melanoma N = 1,321		Characteristics	Patients Diagnosed with Mucosal Melanoma N = 1,321	
	N	%		N	%
Age			Mucosal Melanoma Primary Site <sup>1</sup>		
Age group: 65-69 years	409	30.96%	Nasal cavity	22	1.67%
Age group: 70-74 years	349	26.42%	Paranasal sinuses	6	0.45%
Age group: 75-79 years	225	17.03%	Lip and oral cavity	135	10.22%
Age group: 80+ years	338	25.59%	Pharynx	32	2.42%
Sex			Gastroesophageal	49	3.71%
Female	758	57.38%	Rectum/anus	446	33.76%
Male	563	42.62%	Vagina (including uterine cervix)	201	15.22%
Race/Ethnicity			Vulva	557	42.17%
White, non-Hispanic	1,229	93.04%	Male genitalia	109	8.25%
Black	15	1.14%	Urinary tract	132	9.99%
Asian or Pacific Islander	61	4.62%	Conjunctiva	18	1.36%
American Indian/Alaska Native	8	0.61%	Tumor Histology		
Unknown Race	8	0.61%	Mucosal lentiginous melanoma	62	4.69%
Marital Status			Malignant melanoma not otherwise specified	966	73.13%
Married (including common law)	387	29.30%	Superficial spreading melanoma	168	12.72%
Single (never married)	67	5.07%	Spindle cell melanoma, type A	9	0.68%
Divorced	56	4.24%	Epithelioid cell melanoma	115	8.71%
Unmarried or Domestic Partner	4	0.30%	Amelanotic melanoma	9	0.68%
Separated	2	0.15%	Malignant melanoma in junctional nevus	9	0.68%
Widowed	269	20.36%	Malignant melanoma in precancerous melanosis	23	1.74%
Unknown	536	40.58%	SEER Summary Stage		
Initial Diagnosis Year			Localized	578	43.75%
2014	160	15.79%	Regional <sup>2</sup>	661	50.04%
2015	194	19.15%	Distant	82	6.21%
2016	104	10.27%	Individual Comorbidities		
2017	186	18.36%	Hypothyroidism	3	0.30%
2018	168	16.58%	Multiple sclerosis	5	0.49%
2019	178	17.57%	Cardiovascular disease	36	3.55%
2020	150	14.81%	Stroke	115	11.35%
2021	181	17.87%	Chronic obstructive pulmonary disease	102	10.07%
Prior Malignancy			Cellar disease	7	0.69%
	54	5.33%	Polymyalgia rheumatica	20	1.97%

<sup>1</sup>Primary site calculations were not mutually-exclusive; total percentages are >100%.

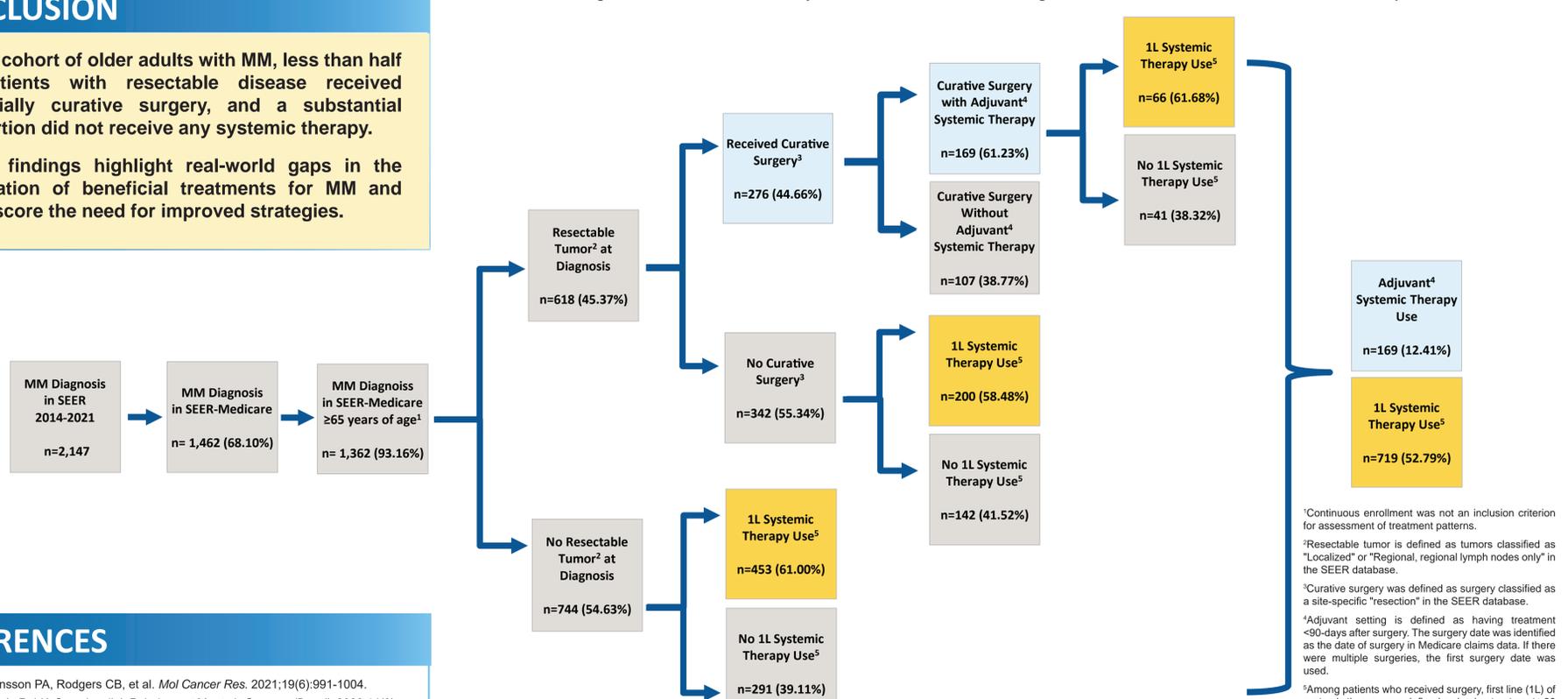
<sup>2</sup>Regional encompasses direct extension only, regional lymph nodes only, and direct extension AND regional lymph nodes staging.

## CONCLUSION

In this cohort of older adults with MM, less than half of patients with resectable disease received potentially curative surgery, and a substantial proportion did not receive any systemic therapy.

These findings highlight real-world gaps in the application of beneficial treatments for MM and underscore the need for improved strategies.

Figure 1. Patient Treatment Journey from Initial Mucosal Melanoma Diagnosis, 2014 - 2021 in the US SEER-Medicare Linked Population



<sup>1</sup>Continuous enrollment was not an inclusion criterion for assessment of treatment patterns.

<sup>2</sup>Resectable tumor is defined as tumors classified as "Localized" or "Regional, regional lymph nodes only" in the SEER database.

<sup>3</sup>Curative surgery was defined as surgery classified as a site-specific "resection" in the SEER database.

<sup>4</sup>Adjuvant setting is defined as having treatment <90-days after surgery. The surgery date was identified as the date of surgery in Medicare claims data. If there were multiple surgeries, the first surgery date was used.

<sup>5</sup>Among patients who received surgery, first line (1L) of systemic therapy was defined as having treatment ≥90 days after surgery.

1L, first-line (treatment); MM, mucosal melanoma; SEER, Surveillance, Epidemiology, and End Results

## REFERENCES

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