Clinical and Economic Burden of Metastatic Uveal Melanoma: A Retrospective Analysis of Commercially-insured, Medicare, and Medicaid Patients in the United States

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Key Takeaways

- **Given the poor outcomes and substantial costs historically associated with metastatic uveal melanoma (mUM), new therapies that deliver meaningful clinical benefits are needed to support effective use of healthcare resources.**
- **Rates of adverse events and healthcare costs were high among patients receiving treatments for metastatic uveal melanoma (mUM) in the outpatient setting.**

Introduction

- Uveal melanoma (UM) is the most common ocular tumor in adults, and up to 50% of patients with primary UM will develop metastatic disease (mUM), resulting in high morbidity and mortality [1,2].
- Current treatments for mUM include locoregional approaches, systemic therapies, or a combination of both. While tebentafusp is approved to treat HLA-A*02:01-positive patients, most other treatments are not approved for mUM [3,4] and the disease and treatment burden associated with mUM has not previously been reported [5].
- This study's objective was to characterize current treatment patterns, treatment-associated adverse events, healthcare resource utilization (HCRU) and economic burden associated with treatment of mUM.

Methods

- Patients with a UM diagnosis between 1 Jan 2016 and 30 June 2025, and first diagnosis of metastasis between 1 Jan 2020 and 30 Jun 2025 were included. The date of the first metastasis diagnosis after UM diagnosis was the index date (**Figure 1**).
- Adverse events were measured during systemic lines of therapy (LOT). Rate of adverse events per 100 person-years (PY) were captured during treatment (i.e., LOT+30 days).
- Costs were calculated from paid amounts on adjudicated claims, including insurer/health plan payments and patient out of pocket payments; actual costs (vs. imputed costs) were available for most patients.
  - Adverse event-related costs were tabulated using the total cost on inpatient claims with an adverse event diagnosis in the primary position and non-diagnostic outpatient claims with an adverse event diagnosis, procedure, or medication in any position.
- Outcomes were described overall and separately by treatment type (systemic chemotherapy, checkpoint inhibitors, tebentafusp, and liver directed therapy).

Figure 1. Patient Attrition

Patients in the Merative MarketScan® Commercial, Medicare or Multi-state Medicaid Databases with ≥2 inpatient or non-diagnostic outpatient claims, ≥30 days apart, for uveal melanoma (ICD-10-CM C69.3X/C69.4X), between January 1, 2016 and June 30, 2025
N = 6,944 | 100.0%

↓

≥1 inpatient or non-diagnostic outpatient claim for metastasis (ICD-10-CM C77–C79) on/after uveal melanoma diagnosis, between January 1, 2020 and June 30, 2025. The first metastasis claim during this time was the **index date**.
N = 911 | 13.1%

↓

Age ≥18 years on the index date
N = 905 | 13.0%

↓

≥6 months of continuous enrollment before the index date and ≥30 days of continuous enrollment after the index date
N = 576 | 8.3%

↓

No metastasis diagnosis claim from Jan 1, 2016 to the index date
N = 471 | 6.8%
Final mUM cohort

Results

- This study included 471 patients with UM and a diagnosis of metastasis (**Figure 1**). Most patients had Commercial or Medicare insurance. More than a quarter of patients had another primary cancer during the baseline period, and the most common site of metastasis was the liver (**Table 1**).
- About half of mUM patients had ≥1 systemic LOT. Nearly 20% had liver directed therapy any time during the variable follow-up period (**Table 1**).
- Rates of endocrine, gastrointestinal, and hepatic adverse events were highest among patients treated with checkpoint inhibitors; rates of hematologic and neurologic adverse events were highest among patients treated with systemic chemotherapy, and rates of dermatologic adverse events and cytokine release syndrome (CRS) were highest in patients treated with tebentafusp (**Figure 2**).
- Mean per-patient-per-month (PPPM) healthcare costs for mUM patients were high. Most all-cause costs were attributed to other outpatient services (including administration of outpatient mUM treatment). Mean PPPM all-cause costs were highest in patients treated with tebentafusp (**Figure 3**).
- Adverse event-related costs were highest among patients treated with tebentafusp but were the highest percentage of total costs in patients treated with chemotherapy (**Figure 4**).

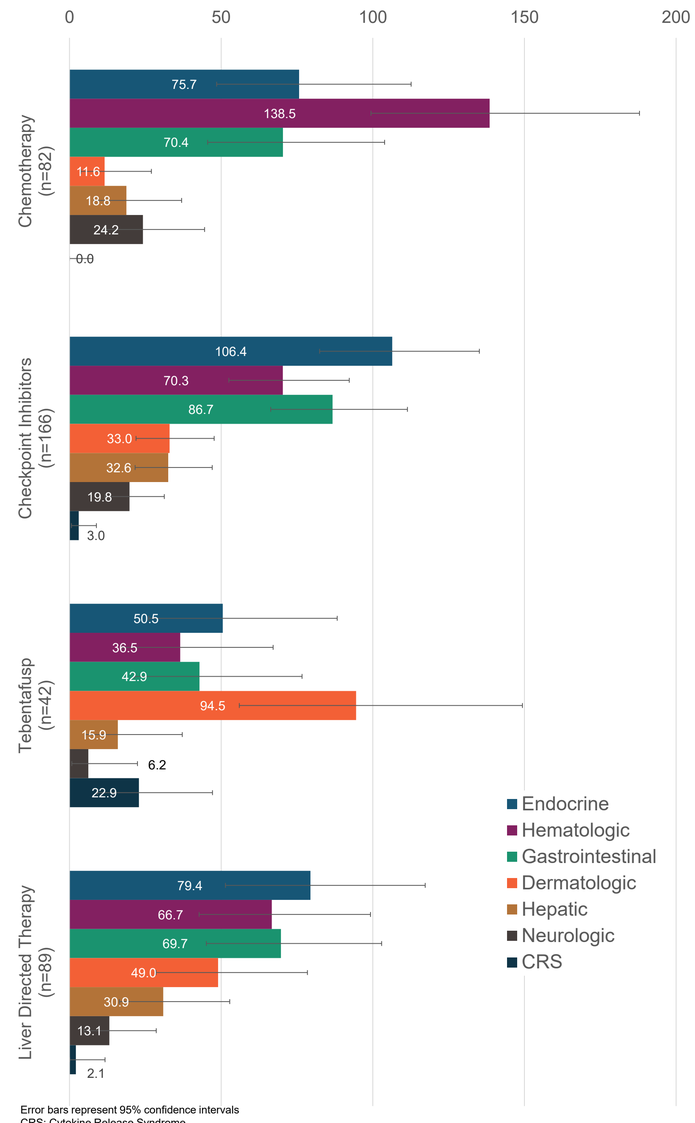
Results

Table 1. Patient Characteristics

	All mUM Patients N=471
Age, Mean (SD)	63.0 (14.0)
Female, N (%)	260 (55.2%)
Payer, N (%)	
Commercial	221 (46.9%)
Medicare	202 (42.9%)
Medicaid	48 (10.2%)
Days of follow-up, Mean (SD)	424 (368)
Other primary malignancy[1], N (%)	138 (29.3%)
Site of metastasis on index/during follow-up[2], N (%)	
Bone	166 (35.2%)
Brain	109 (23.1%)
Liver	288 (61.1%)
Lung	143 (30.4%)
Lymph Nodes	109 (23.1%)
≥1 systemic line of therapy during follow-up[2], N (%)	233 (49.5%)
Chemotherapy	82 (17.4%)
Checkpoint inhibitors	166 (35.2%)
Tebentafusp	42 (8.9%)
Liver directed therapy during follow-up, N(%)	89 (18.9%)

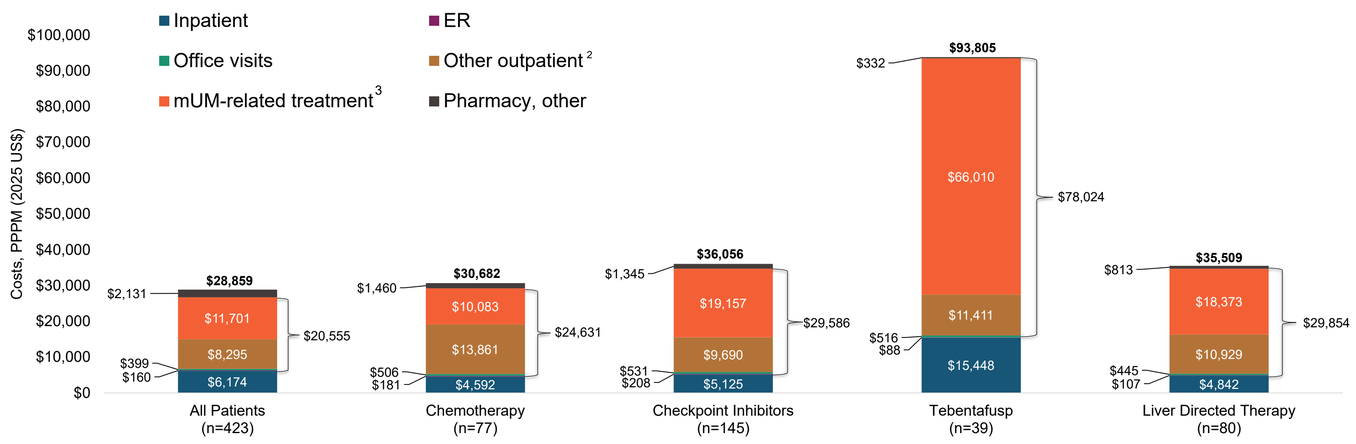
1. Identified as ≥2 inpatient or non-diagnostic outpatient medical claims at least 30 days apart for the same primary malignancy during the 6-month baseline period.
2. Categories are not mutually exclusive. Patients with multiple sites of metastasis/treatment type are included in all applicable categories.

Figure 2. Rates of Adverse Events per 100 PY during Treatment[1]



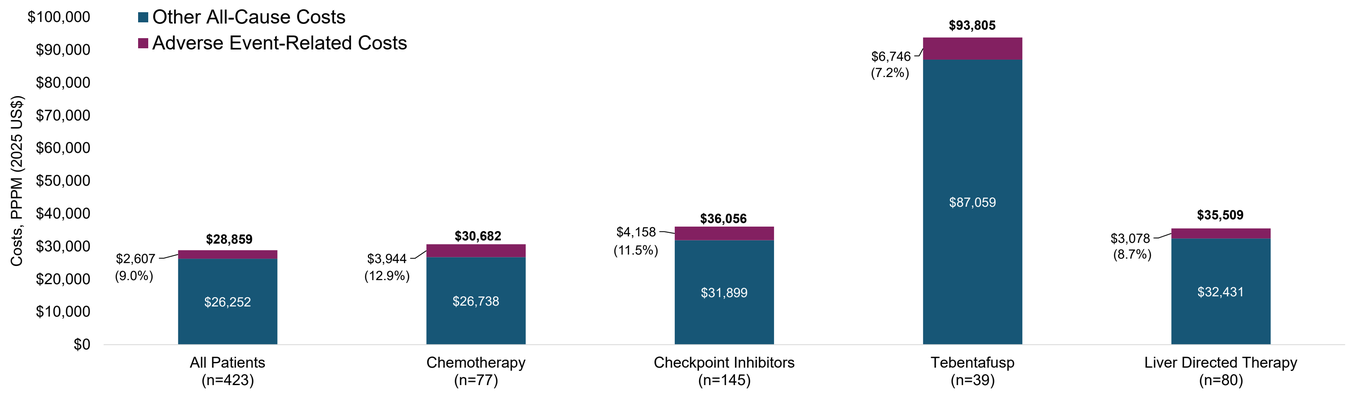
Error bars represent 95% confidence intervals
CRS: Cytokine Release Syndrome
Chemotherapy: carboplatin, carmustine, cisplatin, dacarbazine, doxorubicin, irinotecan, paclitaxel, temozolomide, vincristine
Checkpoint inhibitors: ipilimumab, nivolumab, nivolumab/relatlimab, pembrolizumab
Liver directed therapy: hepatic arterial infusion chemotherapy, percutaneous hepatic perfusion, ablation, radiotherapy, embolization, liver metastasectomy, liver resection, thermal ablation
1. Treatment period was defined as during systemic LOT or in the 30 days following the end of a systemic LOT.

Figure 3. Mean All-cause Healthcare Costs[1], PPPM



ER: Emergency Room; PPPM: Per Patient Per Month
1. Healthcare costs were measured during the variable follow-up period in Commercial and Medicare patients.
2. Other outpatient costs include laboratory, radiology, and administration/infusion costs not included on mUM treatment claims
3. mUM treatments included: chemotherapy, checkpoint inhibitors, tebentafusp, liver directed therapy, or targeted therapy (binimetinib, cobimetinib, crizotinib, dabrafenib, encorafenib, trametinib, vemurafenib)

Figure 4. Adverse Event-Related Healthcare Costs[1], PPPM



PPPM: Per Patient Per Month
1. Adverse event-related healthcare costs were measured during the variable follow-up period in Commercial and Medicare patients.

Conclusions

- **In this claims-based analysis, only half of mUM patients received any systemic treatment and 19% received liver directed therapy. These suboptimal outpatient treatment rates may be attributable to limitations inherent to all claims databases including lack of data on inpatient treatment or treatments received as part of clinical trials.**
- **While a rare disease with historically poor outcomes [1,2], in this study, mUM was associated with substantial healthcare costs, primarily attributable to outpatient medical services, including treatment administration. These findings characterize healthcare spending but do not establish whether costs were associated with better clinical outcomes.**
- **Adverse event-related costs accounted for 7–13% of total healthcare costs, highlighting the need for effective toxicity management by multidisciplinary care teams to optimize total costs and treatment outcomes.**

Disclosures: This study was funded by IDEAYA Biosciences. Dr. Patrick Ott is an unpaid consultant of IDEAYA Biosciences. Aanan Misra, Dr. Tiffany Kung, Dr. Hu Li, and Dr. Gary Palmer are employees of IDEAYA Biosciences. Elizabeth Packnett and Dr. Carolyn Lew are employees of Merative, which was contracted by IDEAYA Biosciences to conduct this study. Drs. Kristin Kistler and Tasneem Lokhandwala are employees of Cencora and paid consultants of IDEAYA Biosciences.

References: 1. National Cancer Institute. Center for Cancer Genomics. Uveal Melanoma Study. Accessed Sep 2026. **2.** Piperno-Neumann S. Uveal Melanoma: Changing Paradigms of Treatment. Ocul Oncol Pathol. 2026 Jun;12(2):107-116. doi: 10.1159/000549994**. 3.** Hassel JC, Piperno-Neumann S, Rutkowski P, et al. Three-Year Overall Survival with Tebentafusp in Metastatic Uveal Melanoma. N Engl J Med. 2023;389(24):2256-2266.**4.** FDA approves tebentafusp-tebn for unresectable or metastatic uveal melanoma [press release]. 2022. **5.** Luo S, Xie C, Lin N, et al. Cost-effectiveness analysis of an orphan drug tebentafusp in patients with metastatic uveal melanoma and a call for value-based pricing. Melanoma Res. 2023;33(6):525-531.