Economic Burden Associated with the Early Initiation of Second-line Treatment Among Patients with Newly Diagnosed Multiple Myeloma who did not Receive a Stem-cell Transplant

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Key Takeaway

Among patients with NDMM who did not receive SCT, use of effective 1L treatment strategies could lead to lower long-term healthcare costs by delaying the need for subsequent treatment

Conclusions

Among patients with NDMM who did not receive SCT, initiating 2L therapy within 18 months of 1L treatment initiation was associated with approximately 50% higher subsequent all-cause healthcare costs

These findings highlight the potential economic benefits of using effective 1L treatment strategies that may delay the need for subsequent therapy

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Disclosures
RM, WK and SK are employees and stockholders of Johnson & Johnson. PTL, ATS, AR and DS are employees of Analysis Group ULC, a consulting company that has provided paid consulting services to Johnson & Johnson Innovative Medicine, which funded the development and conduct of this study. XY was an employee and stockholder of Johnson & Johnson at the time of the study.

Introduction

- Among patients with multiple myeloma (MM) who are ineligible for stem-cell transplantation (SCT), early initiation of second-line (2L) therapy may reflect suboptimal disease control and may be associated with greater downstream economic burden[1]
- Delaying the need for subsequent lines of therapy may help reduce the overall economic burden of MM treatment, as later lines of therapy are associated with higher costs[2,3,4]
- Additional real-world evidence is needed to quantify the economic burden associated with early transition to 2L among patients with MM who did not receive SCT

Objective

To evaluate real-world healthcare costs among US patients with newly diagnosed MM (NDMM) who did not receive SCT, based on whether they initiated 2L therapy within 18 months of frontline (1L) treatment initiation

Methods

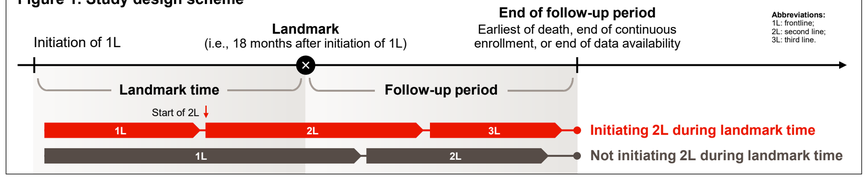
Data source and study design

- Retrospective cohort landmark study using closed claims from the Komodo Research Database (January 1, 2016–April 30, 2026; **Figure 1**)
  - **1L initiation:** first claim for an MM antineoplastic agent after first MM diagnosis
  - **Baseline period:** 12 months before 1L initiation
  - **Landmark:** 18 months after 1L initiation
  - **Follow-up** (post-landmark) **period:** from the landmark until the earliest of death, end of continuous enrollment, or end of data availability

Patient eligibility criteria

- Inclusion criteria
  - ≥2 claims with an MM diagnosis (International Classification of Diseases, Tenth Revision, Clinical Modification [ICD-10-CM]: C90.0) on separate days
  - Aged ≥18 years at 1L initiation
  - Initiated 1L on or after May 7, 2018 and within 12 months of the first MM diagnosis
  - Had continuous enrollment for ≥12 months before and ≥18 months after 1L initiation, including during a ≥6-month washout period before the first MM diagnosis

Figure 1. Study design scheme



- Exclusion criteria
  - Antineoplastic agent use during the washout period
  - Another primary solid tumor or blood cancer during the washout period, or amyloid light-chain amyloidosis before 1L initiation
  - Evidence of SCT or participation in a clinical trial at any time during continuous enrollment
- Cohorts
  - **Early initiation of 2L:** Patients who initiated 2L within the 18-month landmark time
  - **No early initiation of 2L:** Patients who did not initiate 2L within the 18-month landmark time

Outcomes

- All-cause healthcare costs (2025 USD) during the follow-up period were reported for each cohort per patient per month (PPPM) using means, standard deviations (SDs), and medians
  - Costs were based on estimated allowed amounts

Sensitivity analysis

- Analyses were replicated separately using a 12-month and a 24-month landmark time

Results

Sample size and patient characteristics

- A total of 9,253 patients were eligible: 4,543 (49.1%) initiated 2L during the landmark time and 4,710 (50.9%) did not. Baseline demographic and clinical characteristics are presented in **Figure 2**
- Most common 1L regimens are presented in **Figure 3**
- Mean post-landmark follow-up was 20.5 among patients who initiated 2L during the landmark time and 21.8 months among patients who did not

Healthcare costs

- Mean all-cause healthcare costs during the follow-up period were approximately 50% higher among patients who initiated 2L during the landmark time than among those who did not ($19,177 [SD, $21,181] vs $12,750 [SD, $14,846] PPPM; **Figure 4**)

Sensitivity analyses

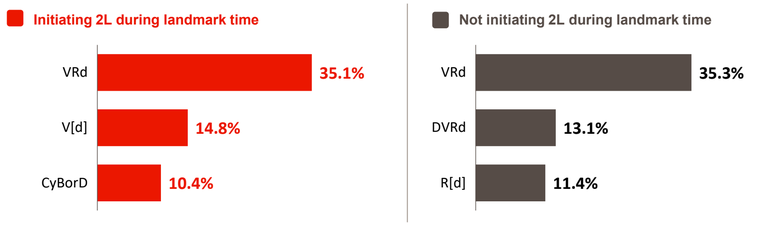
- Findings were consistent at the 12- and 24-month landmark times, with mean all-cause costs approximately 43% and 55% higher, respectively, among patients who initiated 2L during each landmark times than among those who did not (12-month landmark time: $19,999 vs $13,981 and 24-month landmark time: $18,157 vs $11,707)

Figure 2. Baseline demographic and clinical characteristics[1]

	Initiating 2L during landmark time (N= 4,543)	Not initiating 2L during landmark time (N= 4,710)
Median age	69 years	73 years
Female	47.1%	49.0%
Quan-CCI[2], mean ± SD	5.6 ± 2.9	5.6 ± 2.9
Race/ethnicity		
White	53.0%	55.3%
Black or African American	23.6%	24.8%
Hispanic or Latino	12.2%	10.8%
Asian or Pacific Islander	3.6%	3.5%
Other	3.0%	2.3%
Unknown	4.6%	3.4%
Type of health insurance		
Medicare	62.7%	76.5%
Commercial	28.4%	17.0%
Medicaid	8.7%	6.2%
Unknown	0.2%	0.2%
Region		
South	34.8%	37.8%
Northeast	26.2%	23.2%
Midwest	21.9%	23.8%
West	16.8%	15.0%
Puerto Rico	0.3%	0.3%

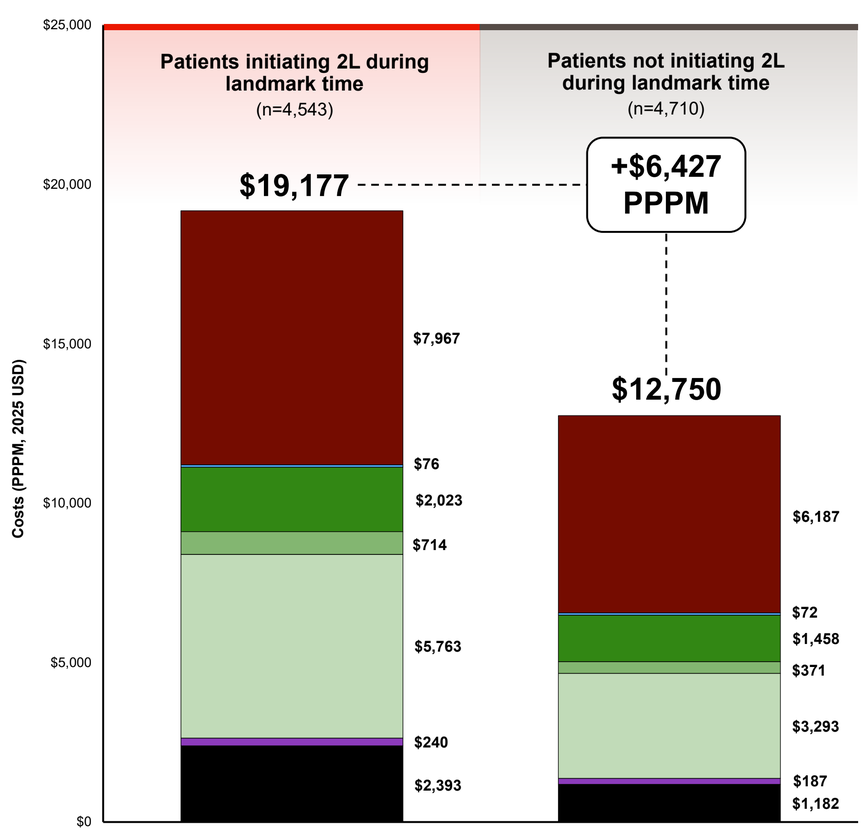
Abbreviations: 1L: frontline; 2L: second line; MM: multiple myeloma; SD: standard deviation; Quan-CCI: Quan-Charlson Comorbidity Index.
Notes: [1] Demographic characteristics were evaluated at 1L initiation and comorbidities during the 12-month baseline period; [2] Modified Quan-CCI was calculated excluding MM (ICD-10-CM: C90.0). Quan H & al. *Am J Epidemiol.* 2011;173(6):676-82.

Figure 3. Most common regimens received in 1L



Abbreviations: 1L: frontline; 2L: second line; CyBorD: bortezomib, cyclophosphamide, and dexamethasone; DVRd: daratumumab, bortezomib, lenalidomide, and dexamethasone; R[d]: lenalidomide with or without dexamethasone; V[d]: bortezomib with or without dexamethasone; VRd: bortezomib, lenalidomide, and dexamethasone.

Figure 4. Healthcare costs during the follow-up period - 18-month landmark



Abbreviations: 2L: second line; PPPM: per patient per month; USD: United States dollars.

Limitations

- Results may not be generalizable to all patients with MM in the US who did not receive SCT (e.g., uninsured patients)
- Landmark analyses were limited to patients who survived and remained continuously enrolled through the landmark
- Analyses were descriptive and unadjusted; cost differences may partly reflect differences in patient characteristics rather than an isolated causal effect of the timing of 2L initiation
- Clinical data such as cytogenetic risk were unavailable

References

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Multiple Myeloma

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