Real-World Treatment Attrition and Duration of Therapy Across Lines of Therapy Among Patients With Multiple Myeloma in the United States

Rafael Fonseca[1]; Laura Clark[2]; Eric Chinaeke[3]; Jinghua He[3]; Wasiulla Khan[2]; Rohan Medhekar[2]; Shuchita Kaila[2]

[1]Mayo Clinic, Phoenix, AZ, USA; [2]Johnson & Johnson, Horsham, PA, USA; [3]Johnson & Johnson, Titusville, NJ, USA

Key Takeaway

Substantial attrition and generally shorter DOT across successive LOT highlight the critical need of optimizing treatment earlier in the MM disease course

Conclusions

- Attrition due to death or treatment discontinuation without initiation of a subsequent LOT remained consistently high across LOT and was higher among non-transplant patients
- In both non-transplant and transplant cohorts, DOT generally decreased with successive LOT
- These contemporary real-world findings underscore the importance of optimizing treatment earlier in the disease course

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Introduction

- Multiple myeloma (MM) is a malignant plasma cell disorder characterized by clonal proliferation of plasma cells within the bone marrow, leading to end-organ damage that may include hypercalcemia, renal dysfunction, anemia, and osteolytic bone disease[1,2]
- Contemporary evidence on treatment attrition among US patients with MM is limited
- **Study aim:** Generate updated real-world estimates of attrition and duration of therapy (DOT) across lines of therapy (LOT), stratified by transplant status, in the current MM treatment landscape

Methods

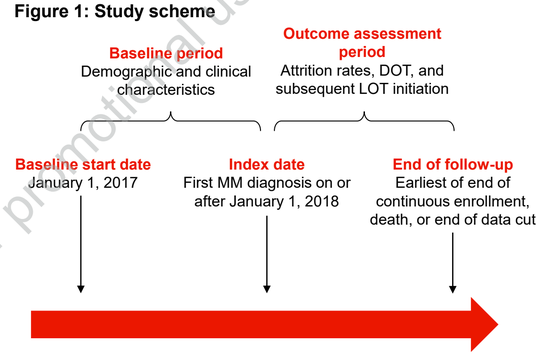
Observational study pooled real-world data from 3 databases:
- The Optum Department of Defense claims (Jan 2017 to Mar 2026)
- Komodo Research Database (Jan 2017 to Jun 2026)
- Surveillance, Epidemiology, and End Results-Medicare linked claims (Jan 2017 to Dec 2022)

Eligible patients had (Figure 1):
- First MM diagnosis on or after January 1, 2018 (index date)
- Medical and pharmacy coverage at diagnosis
- No prior malignancy within the preceding year
- ≥1 year of baseline data
- Receipt of ≥1 LOT

Patients were censored at the end of continuous enrollment or data availability, whichever occurred first

Analysis
- A LOT began with initiation of ≥1 anti-myeloma agent and ended after a ≥90-day treatment gap or initiation of a new agent
- Attrition was defined as death or treatment discontinuation without initiation of a subsequent LOT
- Patient characteristics, attrition, and DOT were summarized descriptively across LOT1–5

Figure 1: Study scheme



Results – Patient disposition and treatment regimen by LOT

- The pooled cohort included 52,663 eligible patients, including 11,178 transplant and 41,485 non-transplant patients (**Table 1**)
- Compared with transplant patients, non-transplant patients:
  - Were older at MM diagnosis (mean age, 71 vs 62 years)
  - Had a lower proportion aged <65 years (22% vs 55%)
  - Had a higher mean Charlson Comorbidity Index (CCI) (2.3 vs 1.6)

Table 1: Demographics and baseline characteristics in non-transplant and transplant patients with NDMM

	Non-transplant n=41,485	Transplant n=11,178
Age at the MM diagnosis (years)		
Mean (SD)	71.3 (10.2)	62 (9)
Median (Q1–Q3)	73 (66–79)	63 (56–69)
Age category, n (%)		
<65 years	9262 (22.3)	6151 (55)
65–74 years	13,696 (33)	4472 (40)
75–84 years	15,466 (37.3)	462 (4.1)
≥85 years	3061 (7.4)	93 (0.8)
Male, n (%)	21,233 (51.2)	6184 (55.3)
Race, n (%)		
White	23,911 (57.6)	6266 (56.1)
Black or African-American	9155 (22.1)	2033 (18.2)
Asian or Pacific Islander	1329 (3.2)	371 (3.3)
Hispanic or Latino	3585 (8.6)	994 (8.9)
Other/Unknown	3505 (8.4)	1514 (13.5)
Quan CCI		
Mean (SD)	2.3 (2.5)	1.6 (2.3)
Median (Q1–Q3)	2 (0-3)	1 (0-2)
Min, Max	0, 22	0, 19
Comorbidities during 180 days prior to index (≥20%), n (%)		
Cardiac arrythmia	12,161 (29.3)	1775 (15.9)
Complicated hypertension	10,953 (26.4)	1149 (10.3)
Simple hypertension	28,515 (68.7)	6039 (54)
Renal impairment	13,072 (31.5)	1735 (15.5)

Q, quartile.

- In both cohorts, bortezomib, lenalidomide, and dexamethasone (VRd) was the most common LOT1 regimen and lenalidomide and dexamethasone (Rd) predominated in LOT2–3, whereas no regimen predominated in LOT4–5 (**Table 2**)

Table 2: Treatment regimen by LOT

Non-transplant			Transplant		
LOT	**Regimen**	**n (%)**	**LOT**	**Regimen**	**n (%)**
LOT1 n=41,485	VRd	10,595 (26)	LOT1 n=11,178	VRd	4101 (37)
	DVRd	5105 (12)		DVRd	2641 (24)
LOT2 n=15,558	Rd	2250 (14)	LOT2 n=5658	Rd	1001 (18)
	DRd	1456 (9)		DPd	403 (7)
LOT3 n=6059	DPd	572 (9)	LOT3 n=2619	Rd	428 (16)
	Dd	556 (9)		DPd	239 (9)

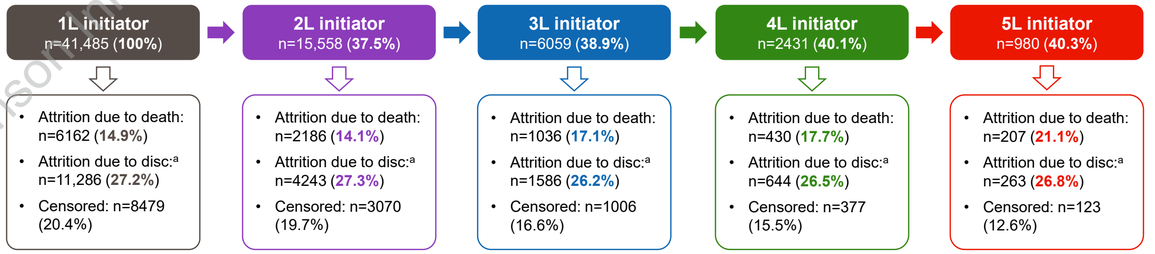
Dd, daratumumab and dexamethasone; DPd, daratumumab, pomalidomide, and dexamethasone; DRd, daratumumab, lenalidomide, and dexamethasone; DVRd, daratumumab, bortezomib, lenalidomide, and dexamethasone.

Results – Attrition, DOT, and follow-up by LOT in non-transplant and transplant patients

Non-transplant patients
- Among non-transplant patients, the proportion who received the next LOT was 38% after LOT1 and 39–40% after LOT2–5 (**Figure 2**)
- Attrition was consistently high across LOT1–5 (41–48%) (**Figure 2**)
  - Death (14–21%)
  - Treatment discontinuation without initiation of a subsequent LOT (26–27%)
- The proportion of patients remaining on treatment at the end of follow-up decreased from 20% in LOT1 to 13% in LOT5 (**Figure 2**)

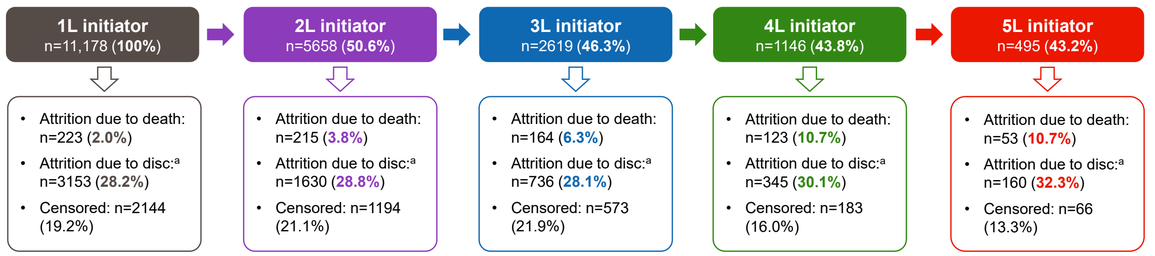
Transplant patients
- Among transplant patients, the proportion who received the next LOT was 51% after LOT1 and 43–46% after LOT2–5 (**Figure 3**)
- Attrition remained substantial across LOT1–5 (30–43%) (**Figure 3**)
  - Death (2–11%)
  - Treatment discontinuation without initiation of a subsequent LOT (28–32%)
- The proportion of patients remaining on treatment at the end of follow-up increased from 19% in LOT1 to 21–22% in LOT2–3 and declined to 13% in LOT5 (**Figure 3**)

Figure 2: Attrition by LOT – Non-transplant patients



[a]Discontinuation without subsequent treatment.
disc, discontinuation; L, line of therapy.

Figure 3: Attrition by LOT – Transplant patients

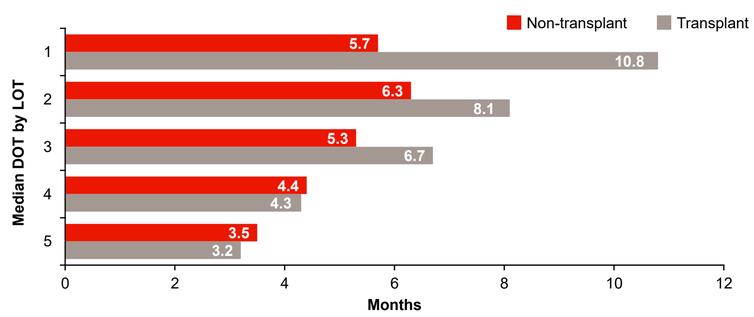


[a]Discontinuation without subsequent treatment.

Median follow-up
- Median follow-up in non-transplant patients shortened from LOT1 to LOT5 (8.5 to 5.2 months)
- Median follow-up in transplant patients shortened from LOT1 to LOT5 (15.3 to 5.5 months)

DOT by LOT (Figure 4)
- In non-transplant patients, median DOT decreased with successive LOT, from 5.7 months in LOT1 to 3.5 months in LOT5, except for LOT2 (6.3 months)
- In transplant patients, median DOT decreased from LOT1 through LOT5, from 10.8 to 3.2 months

Figure 4: Median DOT by LOT in non-transplant and transplant patients



References
1. Kumar SK, et al. *Nat Rev Dis Primers* 2017;3:17046. 2. Dimopoulos MA, et al. *Ann Oncol* 2021;32:309-22.

Multiple Myeloma

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