Real-World Characteristics and Outcomes in Patients With Multiple Myeloma Receiving Teclistamab Step-Up Doses in Academic Versus Community Settings

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Background and Objective

Background

- Teclistamab is a first-in-class BCMA x CD3 bispecific antibody targeting BCMA with weight-based dosing that delivers deep and durable responses for patients with RRMM[1]
- Current real-world studies on teclistamab have primarily focused on patients in academic health systems,[2] resulting in limited data on its utilization in community settings[3]

Objective

- To describe real-world patient profiles and outcomes of patients receiving teclistamab in academic and community settings

BCMA, B-cell maturation antigen; CD3, cluster of differentiation 3; RRMM, relapsed/refractory multiple myeloma.

1. Moreau P, et al. *N Engl J Med*. 2022;387(6):495-505; 2. Tan CR, et al. *Clin Lymphoma Myeloma and Leuk*. 2023;23(Suppl 1). 3. Derman BA, et al. *Blood*. 2023;142(Suppl 1):7249-7249.

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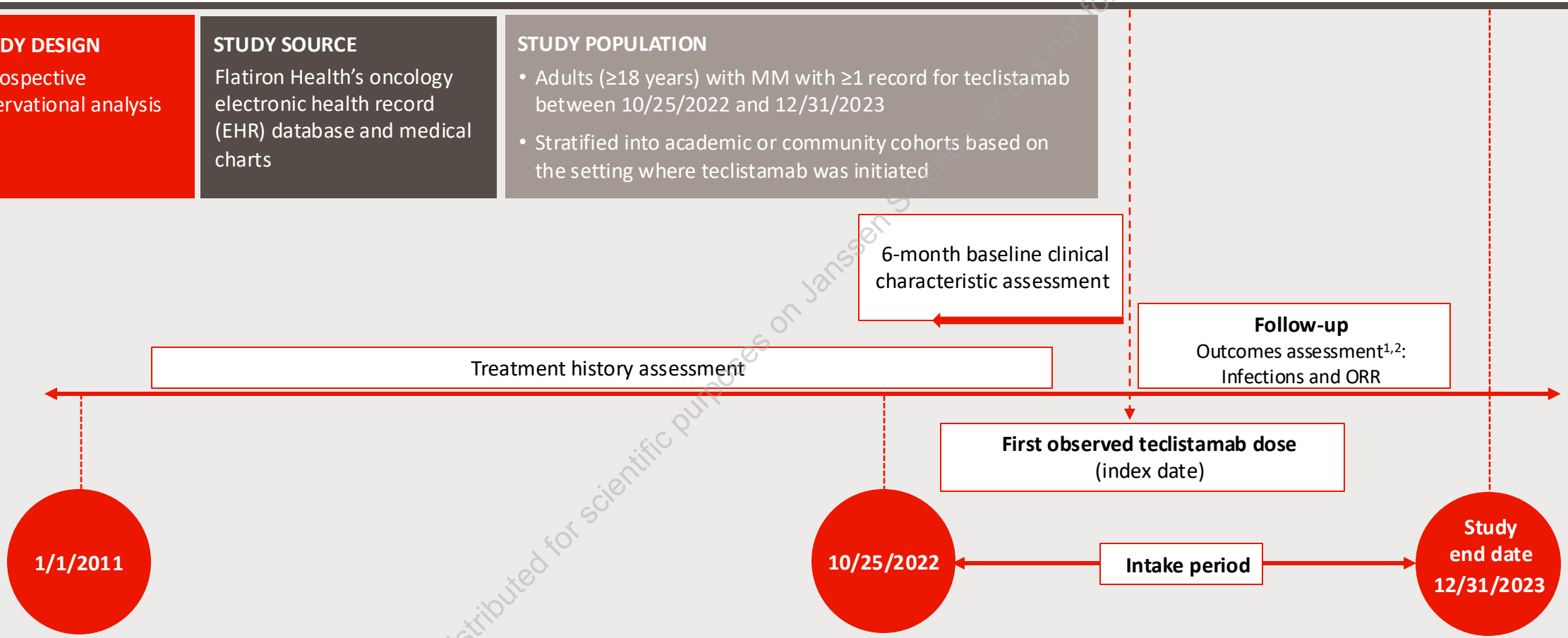
Methods

STUDY DESIGN
Retrospective observational analysis

STUDY SOURCE
Flatiron Health's oncology electronic health record (EHR) database and medical charts

STUDY POPULATION
- Adults (≥18 years) with MM with ≥1 record for teclistamab between 10/25/2022 and 12/31/2023
- Stratified into academic or community cohorts based on the setting where teclistamab was initiated



MM, multiple myeloma; ORR, overall response rate.

1. Kristinsson SY et al. *J Clin Oncol.* 2007;25(15):1993-1999; 2. Kumar SK et al. *Leukemia*. 2014;28(5):1122-1128.

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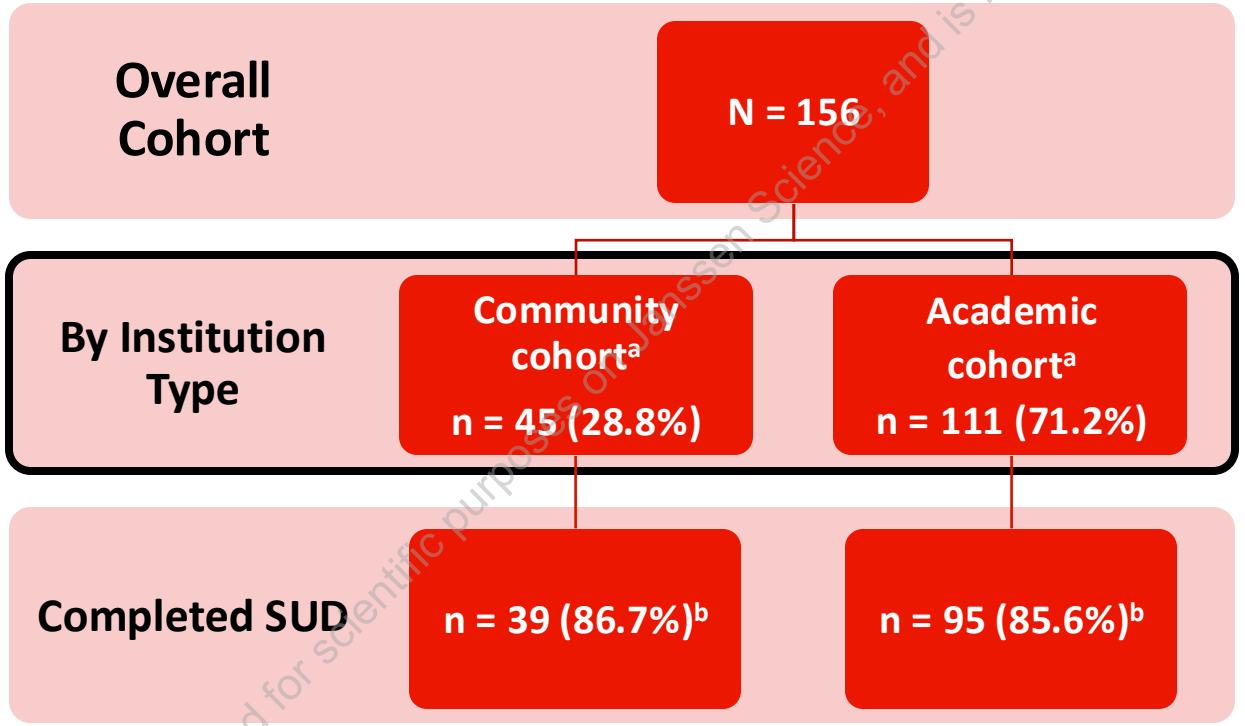
Study Sample



At the end of study follow-up, majority of patients who completed SUD were dosed weekly (78.4%), with 29 patients (21.6%) having switched to biweekly (n = 27) or monthly[c] (n = 5) dosing

SUD, step-up dosing.
[a]Teclistamab was administered in an inpatient setting.
[b]Percentage of institutional type cohort.
[c]2 patients (1.5%) switched from weekly to monthly dosing and 3 patients (2.2%) switched from biweekly to monthly dosing by end of follow-up.

Academic- and Community-Treated Patients Varied in Baseline Demographic and Clinical Characteristics

Patients with MM receiving teclistamab	Academic cohort (n = 111)	Community cohort (n = 45)
Median age, years (min, max)	68 (37, 85)	73 (43, 85)
Age ≥75 years, n (%)	30 (27.0)	21 (46.7)
Female, n (%)	57 (51.4)	24 (53.3)
Race, n (%)[a]		
White	79 (73.8)	33 (75.0)
Black or African American	20 (18.7)	6 (13.6)
Asian	0 (0)	2 (4.5)
Other	8 (7.5)	3 (6.8)
Non-Hispanic	102 (94.4)	37 (97.4)
Payer type, n (%)		
Commercial	57 (57.6)	20 (57.1)
Medicare	31 (31.3)	4 (11.4)
Patient assistance program	1 (1.0)	5 (14.3)
Other[b]	10 (10.1)	6 (17.1)

Community cohort was older and had fewer Black or African American and Medicare patients than the academic cohort

ECOG, Eastern Cooperative Oncology Group; ICD, International Classification of Diseases; ISS, International Staging System;MM, multiple myeloma.
[a]Patients with data available; [b]Medicaid, government, self-pay, and others; [c]High risk defined as having del17p, t(4;14), t(14;16), t(14;20), Gain (1q21) or Amp (1q21) present on the test date; [d]Based on ICD codes and lab results.

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Academic- and Community-Treated Patients Varied in Baseline Demographic and Clinical Characteristics

Patients with MM receiving teclistamab	Academic cohort (n = 111)	Community cohort (n = 45)
ECOG score, n (%) of patients with a documented ECOG score		
0	17 (17.0)	8 (18.2)
1	54 (54.0)	17 (38.6)
2	22 (22.0)	15 (34.1)
3	7 (7.0)	4 (9.1)
ISS stage, n (%) of patients with a documented ISS stage		
Stage I	21 (27.6)	17 (50.0)
Stage II	31 (40.8)	10 (29.4)
Stage III	24 (31.6)	7 (20.6)
Cytogenetic risk, n (%)		
High[c]	40 (36.0)	14 (31.1)
Key relevant comorbidities and conditions of interest, n (%)		
Lytic bone lesions	32 (28.8)	0 (0)
Hypercalcemia	15 (13.5)	4 (8.9)
Renal impairment[d]	38 (34.2)	8 (17.8)
Anemia	91 (82.0)	24 (53.3)
Hypertension	63 (56.8)	3 (6.7)
Extramedullary disease	43 (38.7)	12 (26.7)
Cardiovascular disease	39 (35.1)	1 (2.2)
Peripheral neuropathy	36 (32.4)	4 (8.9)

Community cohort presented with higher ECOG score but had lower disease burden in terms of ISS stage, cytogenetic risk, and key comorbidities

ECOG, Eastern Cooperative Oncology Group; ICD, International Classification of Diseases; ISS, International Staging System;MM, multiple myeloma.
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Patients Were Heavily Pretreated With High Numbers of Prior Lines of Therapy

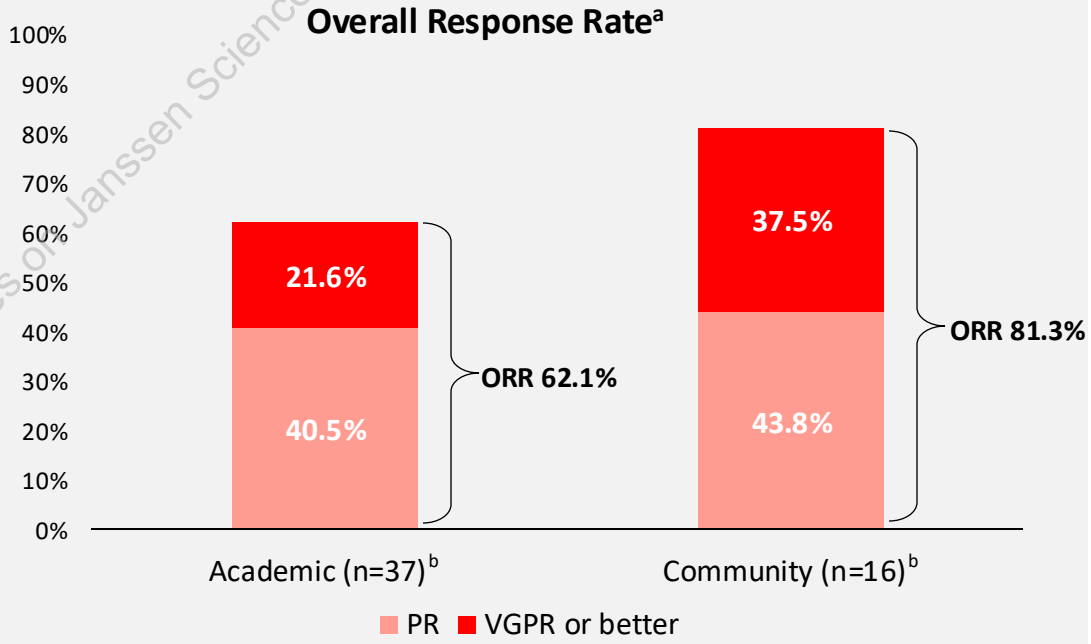
Patients with MM receiving teclistamab	Academic cohort (n = 111)	Community cohort (n = 45)
Prior LOT		
Median (min, max)	6 (1–15)	5 (1–18)
Prior BCMA-directed therapies, n (%)	38 (34.2)	10 (22.2)
CAR-T therapy	28 (25.2)	4 (8.9)
Idecabtagene vicleucel	26 (23.4)	3 (6.7)
Ciltacabtagene autoleucel	2 (1.8)	1 (2.2)
Belantamab mafodotin	18 (16.2)	7 (15.6)
Prior GPRC5D-targeted therapy, n (%)	1 (<1.0)	0 (0)
Triple-class exposed[a]	94 (84.7)	41 (91.1)
Quad-class exposed[b]	65 (58.6)	28 (62.2)
Penta-class exposed[c]	65 (58.6)	28 (62.2)
Stem cell transplantation, n (%)	66 (59.5)	22 (48.9)
Time from the end date of the most recent LOT[d] to the index date, days		
Median (Q1–Q3)	16 (4–54)	7 (1–29)

- Median prior LOTs were high in both academic and community cohorts
- More patients in the academic cohort had a history of prior CAR-T therapy

BCMA, B-cell maturation antigen; CAR-T, chimeric antigen receptor; GPRC5D, G protein–coupled receptor, class C, group 5, member D; LOT, line of therapy; MM, multiple myeloma; SD, standard deviation.
[a]Received at least 1 proteasome inhibitor (PI), 1 immunomodulatory drug (IMiD), and 1 anti-CD38 antibody; [b]Received at least 2 PIs and 2 IMiDs; [c]Received at least 2 PIs, 2 IMiDs, and 1 anti-CD38 antibody.
[d]Calculated from the end date of the last episode in the most recent LOT prior to index date.

Deep Response Rates Were Observed in Both Academic and Community Cohorts

- **Median follow-up 3.7 months (range: 0.1–12.5)** for the academic cohort and **2.8 months (range: 0.1–12.3)** for the community cohort
- Despite high prior BCMA-directed treatment and short follow-up**, high ORRs were observed across both cohorts**
  - Median time to CR or better was 4.6 months (range 1.6–18.5) in MajesTEC-1 trial[1]



BCMA, B-cell maturation antigen; MM, multiple myeloma; ORR, overall response rate; PR, partial response; VGPR, very good partial response.
[a]ORR was captured using Flatiron's biochemical definition of PR or VGPR, including changes in serum M-protein, urine M-protein, and free light chain ratio.
[b]A total of 53 patients had assessable response, because they had a baseline laboratory value, and a subsequent non-null laboratory value associated with specimen type.
[1]Van de Donk N et al. Long-Term Follow-Up From MajesTEC-1 of Teclistamab, a BCMA×CD3 Bispecific Antibody, in Patients With Relapsed/Refractory Multiple Myeloma. 2023 ASCO Annual Meeting – American Society of Clinical Oncology. June 2023.

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Infections Resulting in Hospital Admissions Observed in <10% of Patients in Both Cohorts

Patients with MM receiving teclistamab	Academic cohort (n = 111)	Community cohort (n = 45)
Infections, n (%)[a]		
Any infection[b]	44 (39.6)	16 (35.6)
Upper respiratory	12 (10.8)	2 (4.4)
Viral[c]	9 (8.1)	0 (0)
Urinary tract	4 (3.6)	4 (8.9)
Bacterial	5 (4.5)	6 (13.3)
Lower respiratory	7 (6.3)	2 (4.4)
COVID-19	6 (5.4)	1 (2.2)
Fungal	1 (<1.0)	1 (2.2)
Infections leading to hospital admission[d]	11 (9.9)	3 (6.7)

COVID-19, coronavirus disease of 2019; MM, multiple myeloma.
[a]Limited follow-up time in this study warrants caution when interpreting data on infections.
[b]Includes upper respiratory infection, viral, non–COVID-19– related infection, acute, reactivation, or chronic infections, urinary tract infection, bacterial infection, lower respiratory infection, and COVID-19, fungal infection.
[c]Includes non–COVID-19–related infections, acute, reactive, or chronic infections.
[d]The number of grade 3 or 4 events, the incidence of hypogammaglobulinemia, and the number of patients who received prophylaxis are not available.

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Study Strengths and Limitations

Strengths

- The Flatiron database has data from both US community oncology practices and academic health systems
- It combines structured and unstructured data, providing insights into real-world clinical practice and outcomes
- It is representative of the US population in terms of patient demographics

Limitations

- Short follow-up in this analysis may underestimate patient outcomes
- The Flatiron EHR is generated from real-world clinical practice and subject to miscoding/errors and under-capture of comorbidities
- CRS/ICANS were not assessed in this study due to limited data availability
- Hospitalization due to infections was used as a proxy for severity of infections

EHR, electronic health record.

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Conclusions

- More than a quarter of patients who received teclistamab within the first year of its approval, initiated teclistamab in community practice, suggesting feasibility and increasing comfort of managing these patients among community oncologists
- While community clinic-based patients presented with lower disease burden relative to academic health system–based patients, both cohorts were heavily pre-treated (e.g., prior BCMA, penta-exposure, etc.)
- Despite the short follow-up period, response rates were high in both the community and academic cohorts

Medical adoption of teclistamab in the community setting is feasible as observed by low rates of severe infections and high ORRs consistent with literature[1,2]

BCMA, B-cell maturation antigen; ORR, overall response rate.

1. Dima D et al. *Transplant Cell Ther.* 2024;30(3):308.e1-308.e13; 2. Mohan M et al. *Blood Cancer J.* 2024;14(1):35.

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Thank You

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