Evolution of Treatment Patterns and Survival Outcomes in European Patients With Multiple Myeloma From 2012–2023 Through the HONEUR Federated Data Network

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Introduction

- Treatment options for MM have changed significantly over the last decade, driven by the results of pivotal phase 3 clinical trials[1,2]
- Real-world demonstration of similar improvements can enhance the validity of evidence-based treatment decisions by supplementing clinical trial data[3,4]
- We assess how treatment patterns and clinical outcomes have evolved in patients with MM who started treatment between 2012 and 2023 within the HONEUR federated data network[5]

HONEUR, Haematology Outcomes Network in Europe; MM, multiple myeloma.

1. National Comprehensive Cancer Network (NCCN). *Multiple Myeloma* (Version 1.2025). 2. Palumbo A, Anderson K. *N Engl J Med* 2011;364:1046-60. 3. Chari A, et al. *Clin Lymphoma Myeloma Leuk* 2019;19:645-55. 4. Fonseca R, et al. *BMC Cancer* 2020;20:1087. 5. HONEUR. HONEUR multiple myeloma registry data. Accessed November 8, 2024. https://www.honeur.org/.

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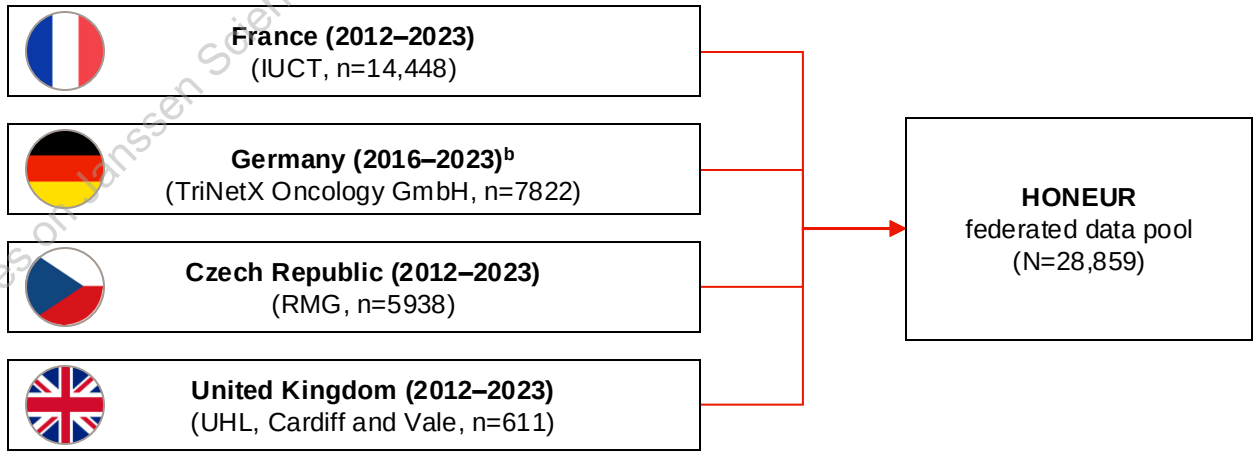
HONEUR: Study Population

- Data from patients newly diagnosed with MM who started treatment between 2012 and 2023 were collected from 5 European registries across 4 countries
- The overall study population was split into 3 cohorts based on the year of frontline treatment initiation:
  - 2012–2015
  - 2016–2019
  - 2020–2023[a]
- A total of 28,859 patients were included across all cohorts
- Overall median follow-up was 40.0 months (2012–2015, 98.8 months; 2016–2019, 54.7 months; 2020–2023, 16.5 months)



[a]The 2020–2023 cohort period included the COVID-19 pandemic. [b]TriNetX data collection began in 2016. Cardiff and Vale, Cardiff and Vale University Health Board; HONEUR, Haematology Outcomes Network in Europe; IUCT, Institut Universitaire du Cancer de Toulouse; MM, multiple myeloma; RMG, The Registry of Monoclonal Gammopathies; UHL, University Hospitals Leicester.

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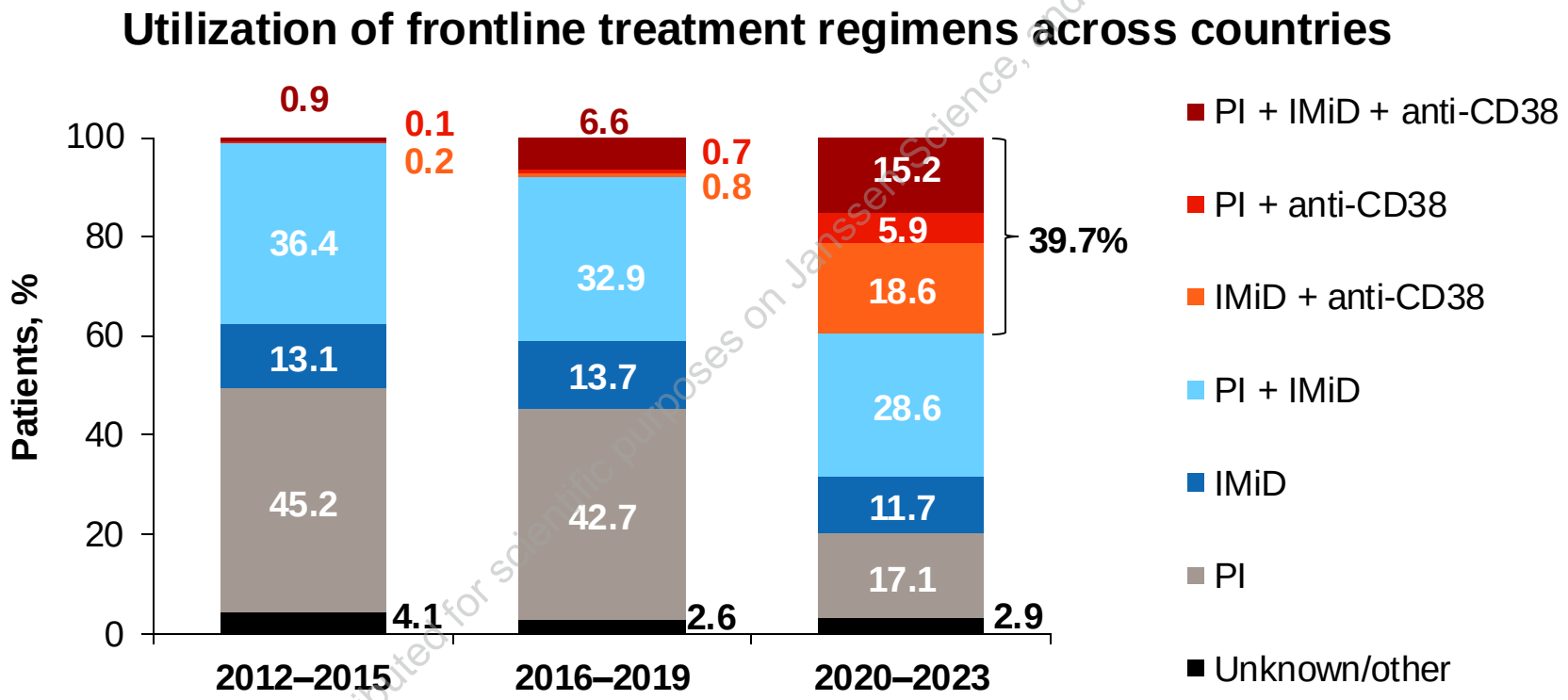
Frontline Treatment Regimens Evolved Over Time From PI- to Anti-CD38–Based Regimens



IMiD, immunomodulatory drug; PI, proteasome inhibitor.

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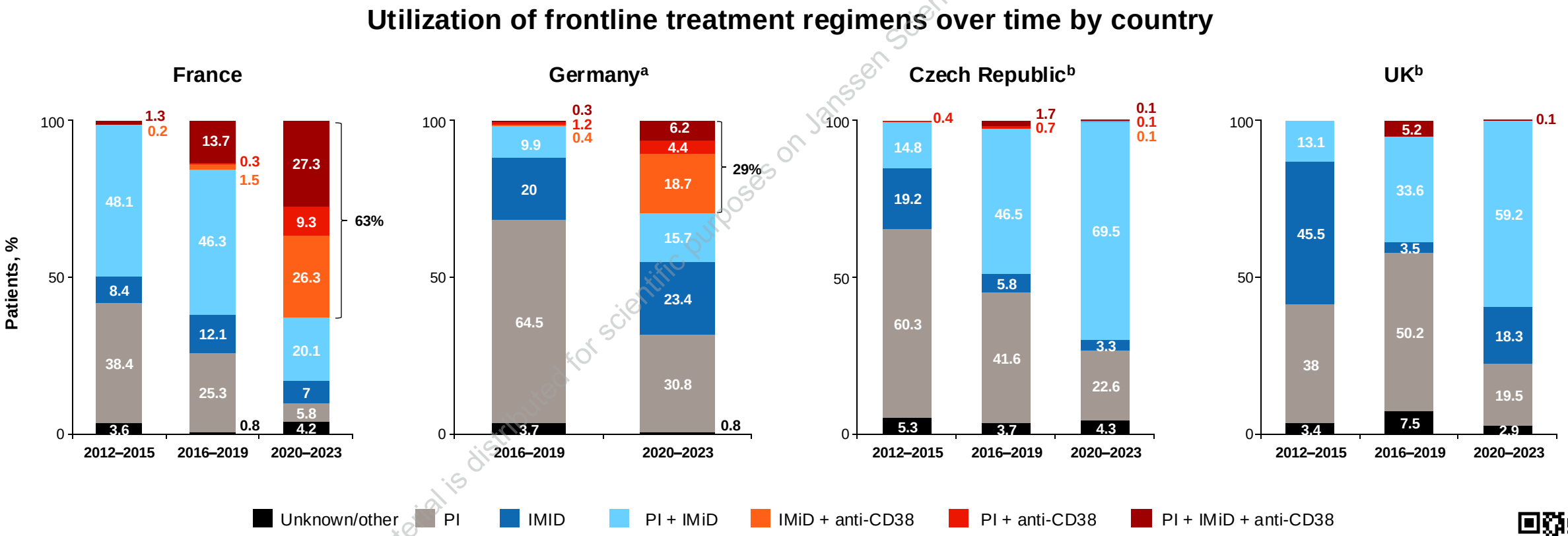
Treatment Patterns Across Countries

- Treatment patterns varied across countries; variations were related to when anti-CD38–based regimens became available for frontline treatment



[a]Data in Germany were not available for 2012–2015; TriNetX data collection began in 2016. [b]Frontline anti-CD38 treatment was not available in Czech Republic and UK and were provided through investigational means in clinical trials.
IMiD, immunomodulatory drug; PI, proteasome inhibitor.

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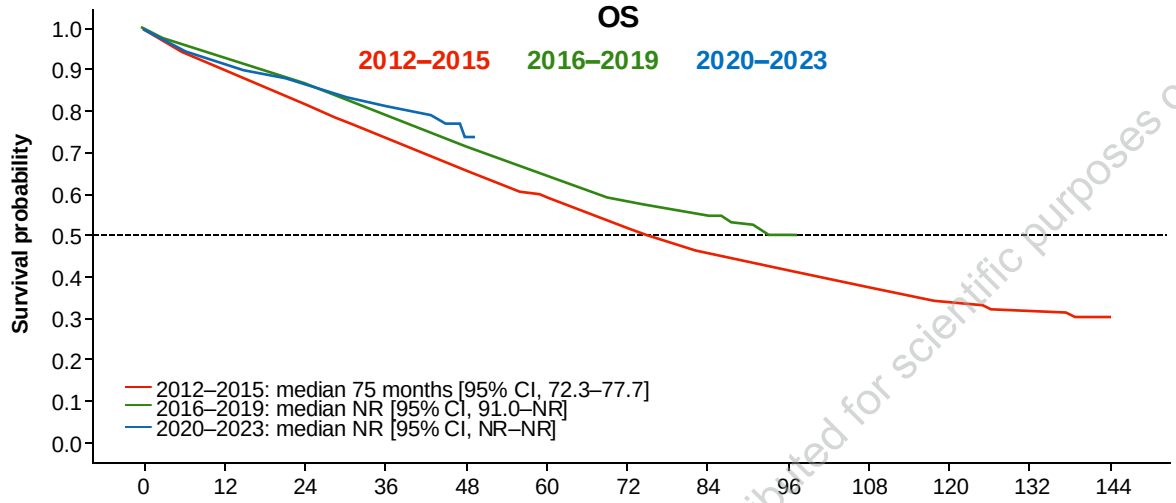
Survival Outcomes Improved Over Time

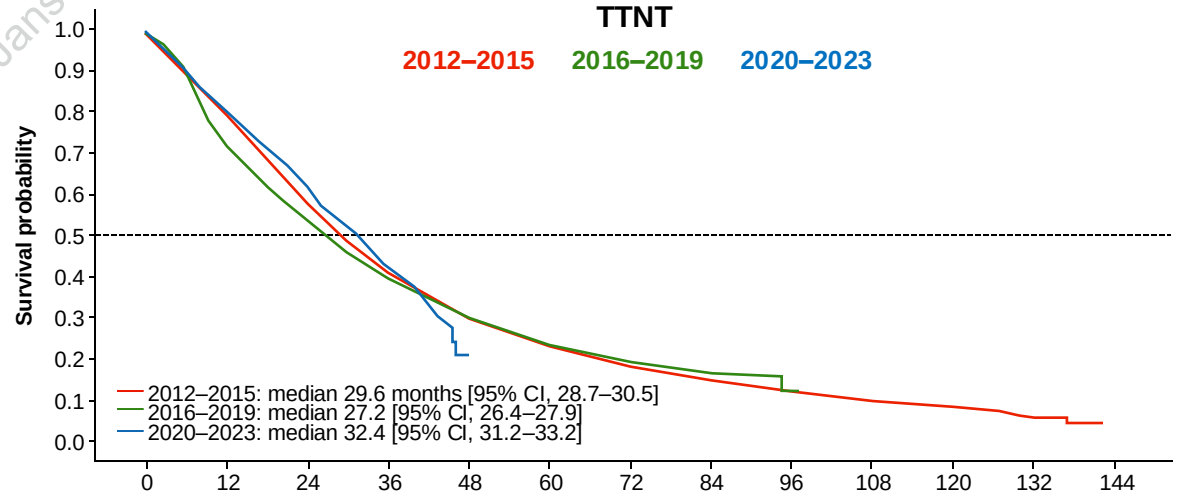
- Overall, median OS and frontline TTNT were 85.7 months and 29.3 months, respectively
  - Median OS statistically significantly improved from 75.0 months for the 2012–2015 cohort to NR for the 2020–2023 cohort (HR, 0.75; *P*<0.001)
  - Median frontline TTNT statistically improved from 29.6 for the 2012–2015 cohort vs 32.4 months for the 2020–2023 cohort (HR, 0.87; *P*<0.001)

OS and TTNT by time period (2012–2023)



No. at risk

2012–2015	5852	4826	4194	3602	3098	2672	2214	1787	1316	771	373	147	0
2016–2019	11,981	10,178	8859	7286	5430	3102	1615	515	3	0	0	0	0
2020–2023	11,026	6079	3360	1218	6	0	0	0	0	0	0	0	0



No. at risk

2012–2015	5852	4274	3021	2024	1413	1037	748	567	331	180	90	28	0
2016–2019	11,981	7945	5532	3758	2384	1259	708	224	1	0	0	0	0
2020–2023	11,026	5362	2409	594	2	0	0	0	0	0	0	0	0

HR, hazard ratio; NR, not reached; OS, overall survival; TTNT, time to next treatment.

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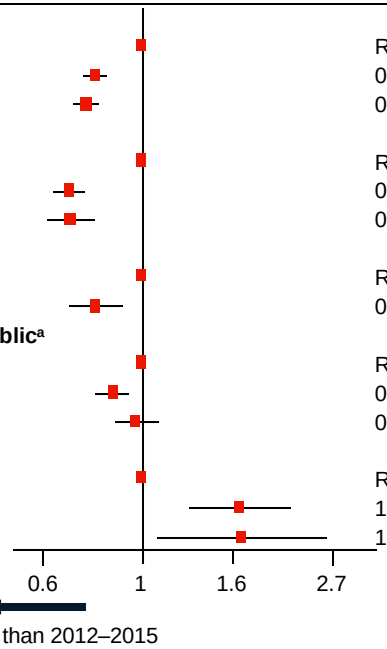
Country-Specific Trends in Survival Outcomes

- Improvements in OS and TTNT were seen in the 2020–2023 vs the 2012–2015 cohort in France and vs the 2016–2019 cohort in Germany
- No improvements were seen in the 2020–2023 vs 2012–2015 cohorts in Czech Republic and UK where anti-CD38-based regimens became available for transplant-ineligible patients in 2024 in Czech Republic and 2023 in UK

Comparisons of OS and TTNT by time periods

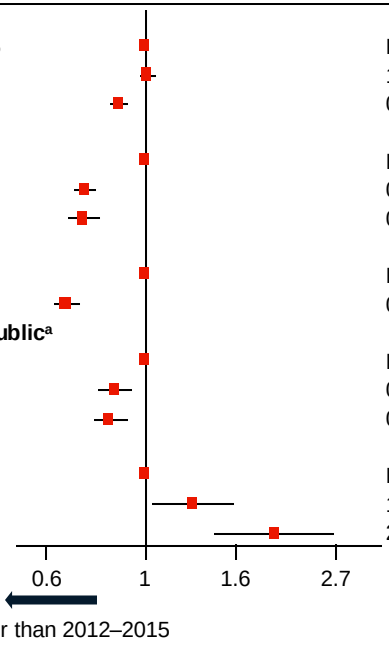
OS

Variables	Hazard ratio (95% CI)	*P*-value	No. of observations (%)	No. of events (%)
Pooled[a]				
2012–2015	Reference		5852 (20.3)	3012 (51.5)
2016–2019	0.79 (0.75–0.83)	<0.001	11981 (41.5)	3611 (30.1)
2020–2023	0.75 (0.70–0.80)	<0.001	11026 (38.2)	1180 (10.7)
France[a]				
2012–2015	Reference		3812 (26.3)	1500 (39.3)
2016–2019	0.69 (0.63–0.74)	<0.001	5368 (37.1)	1070 (19.9)
2020–2023	0.69 (0.61–0.78)	<0.001	5308 (36.6)	358 (6.7)
Germany[b]				
2016–2019	Reference		4339 (55.5)	1337 (30.8)
2020–2023	0.79 (0.69–0.90)	<0.001	3483 (44.5)	283 (8.1)
Czech Republic[a]				
2012–2015	Reference		1827 (30.8)	1362 (74.5)
2016–2019	0.86 (0.79–0.93)	<0.001	2045 (34.4)	1083 (53)
2020–2023	0.97 (0.87–1.09)	0.65	2066 (34.8)	511 (24.7)
UK[a]				
2012–2015	Reference		213 (34.9)	150 (70.4)
2016–2019	1.67 (1.28–2.17)	<0.001	229 (37.5)	121 (52.8)
2020–2023	1.69 (1.08–2.63)	0.02	169 (27.7)	28 (16.6)



TTNT

Variables	Hazard ratio (95% CI)	*P*-value	No. of observations (%)	No. of events (%)
Pooled[a]				
2012–2015	Reference		5852 (20.3)	4490 (76.7)
2016–2019	1.02 (0.98–1.06)	0.34	11981 (41.5)	7897 (65.9)
2020–2023	0.87 (0.83–0.92)	<0.001	11026 (38.2)	3155 (28.6)
France[a]				
2012–2015	Reference		3812 (26.3)	2648 (69.5)
2016–2019	0.73 (0.69–0.77)	<0.001	5368 (37.1)	2642 (49.2)
2020–2023	0.72 (0.67–0.78)	<0.001	5308 (36.6)	933 (17.6)
Germany[b]				
2016–2019	Reference		4339 (55.5)	3487 (80.4)
2020–2023	0.66 (0.62–0.71)	<0.001	3483 (44.5)	1340 (38.5)
Czech Republic[a]				
2012–2015	Reference		1827 (30.8)	1664 (91.1)
2016–2019	0.86 (0.80–0.92)	<0.001	2045 (34.4)	1599 (78.2)
2020–2023	0.83 (0.76–0.91)	<0.001	2066 (34.8)	821 (39.7)
UK[a]				
2012–2015	Reference		213 (34.9)	178 (83.6)
2016–2019	1.30 (1.05–1.61)	0.017	229 (37.5)	169 (73.8)
2020–2023	2.00 (1.47–2.73)	<0.001	169 (27.7)	61 (36.1)

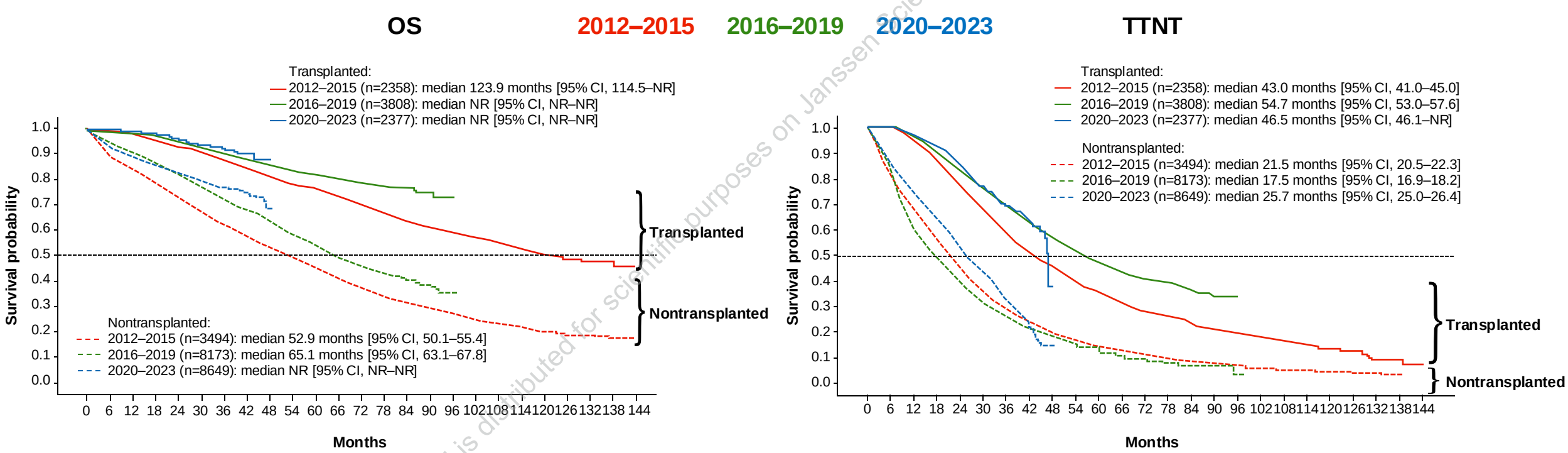


[a]2012–2015 period served as the reference for comparisons. [b]2016–2019 period served as the reference for comparisons. HR, hazard ratio; OS, overall survival; TTNT, time to next treatment.

Outcomes by Transplant Status and Time Period

- Across time periods, OS and TTNT were longer in patients who received stem cell transplant vs those without transplant

Outcomes by treatment in transplanted vs nontransplanted patients stratified by time period



HR, hazard ratio; OS, overall survival; TTNT, time to next treatment.

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Conclusions

- Across all countries, increased OS and TTNT were observed from 2012 to 2023, coinciding with a shift in treatment patterns
- Improved OS and TTNT were primarily observed in France and Germany, likely reflecting the increased use of anti-CD38–based combinations instead of PI- and IMiD-based regimens in frontline treatments
- Outcomes during the 2020–2023 period in Czech Republic and UK did not show improvement due to delayed or no access to innovative frontline treatments

Real-world data indicate that survival rates for patients with MM have improved over time, likely due to the emergence of anti-CD38 therapies in frontline treatment

IMiD, immunomodulatory drug; MM, multiple myeloma; OS, overall survival; PI, proteasome inhibitor; TTNT, time to next treatment.

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