



## The 65th ASH Annual Meeting Abstracts

## POSTER ABSTRACTS

## 905. OUTCOMES RESEARCH-LYMPHOID MALIGNANCIES

**Financial Toxicity and Time Toxicity in Multiple Myeloma: Prevalence, Predictors, and Impact on QOL**

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**Introduction:** Patients with multiple myeloma (MM) are at ongoing risk of financial toxicity (FinTox) from medication costs and lost productivity (Richter CLML 2020, Fiala CLML 2023). Given MM's incurable nature with ongoing monitoring and supportive care, time toxicity (TimeTox) from frequent healthcare interactions may persist into the maintenance phase as well. The prevalence, predictors, and impact of FinTox and TimeTox on QOL have not been fully characterized in this population.

**Methods:** We surveyed (by mail and online) English-speaking MM patients who had undergone auto-transplantation at our US institution. Survey questions included financial stressors (COST inventory), frequency/convenience of in-person vs telehealth visits, and physical/mental QOL [PROMIS Global Health, with minimum clinically important difference (MCID) 5].

FinTox+ was defined as COST score <23 (25th percentile). After discussions with local patients, we defined TimeTox+ as either (a) MM-related interactions (including in-person visits, telehealth / telephone calls, infusions, and labwork)  $\geq 1x$  per week on average and/or (b) in-person MM-related interactions  $\geq 1x$  per month in far-residing patients (defined as patients who reported that interactions with their primary MM provider usually required  $\geq 4$  hours away from home). Variables were compared descriptively using Fisher's and rank-sum test. Predictors of FinTox and TimeTox were identified using adjusted multivariable logistic regression.

**Results:** Of 670 patients, 252 (38%) completed the survey as described in Table 1. 64% were on maintenance, 21% on observation, and 16% on active treatment for relapsed MM. Far-residing patients comprised 20% of respondents.

Among  $n=207$  (82%) who completed the COST inventory, the median COST score was 31 (IQR 23-37). Of these respondents, 22% ( $n=45$ ) were FinTox+. Most (59%) reported monthly MM-related out-of-pocket costs <\$100, but 15% reported MM-related expenses  $\geq$ \$500 monthly. While physical QOL scores were comparable between FinTox+ and FinTox- respondents, FinTox+ respondents had significantly worsened mental QOL (median PROMIS scores 45.8 vs 50.8,  $p < 0.01$ ).

Time toxicity was reported by 40% ( $n=101$ ) overall, including 14% of 51 respondents on observation, 37% of 155 respondents on maintenance, and 82% of 38 respondents with relapse. Unsurprisingly, TimeTox was more prevalent among far-residing respondents (73% vs 31%,  $p < 0.001$ ). Far-residing respondents were less likely to rate in-person visits as convenient (Figure 1A,  $p < 0.001$ ), with 62% (far-residing) vs 89% (near-residing) agreeing that in-person visits were easy to attend. However, near-residing and far-residing respondents had similar frequencies of in-person visits (Figure 1B,  $p=0.37$ ). Telehealth visits were rated similarly conveniently by both far-residing and near-residing respondents (Figure 1C,  $p=0.77$ ). Telehealth visits were more common in the far-residing cohort (Figure 1D,  $p=0.01$ ), with 54% vs 32% of respondents reporting  $\geq 1$  telehealth visit in the past year. Median physical QOL (44.9 vs 47.7) and mental QOL (48.3 vs 50.8) were both significantly worse in TimeTox+ respondents but within the MCID.

In adjusted multivariable analyses, predictors of FinTox were younger age (OR=1.10,  $p < 0.001$ ) and annual income <\$50K (OR=6.29,  $p < 0.001$ ). Predictors of TimeTox were disease status (reference: observation; relapsed OR=22.69, maintenance OR=3.21,  $p < 0.001$ ) and far-residing status (OR=5.72,  $p < 0.001$ ).

**Conclusion:** In our study of over 250 patients with MM, 22% reported FinTox while 40% reported TimeTox. FinTox was associated with lower income as well as a clinically meaningful decrease in mental QOL, suggesting benefit for FinTox screening and early referral to financial navigation services. TimeTox was reported by over a third of patients on maintenance, and further

research into reversible drivers of TimeTox is ongoing: for example, workflows to increase local lab monitoring and decrease in-person visit frequency for patients on oral maintenance. Limitations of our study include selection bias, recall bias, and lack of generalizability to transplantation-ineligible patients. Additionally, universal definitions for FinTox and TimeTox have not yet been standardized. However, this is the largest study of these toxicities in MM to date and serves as a starting point for larger more definitive prospective research.

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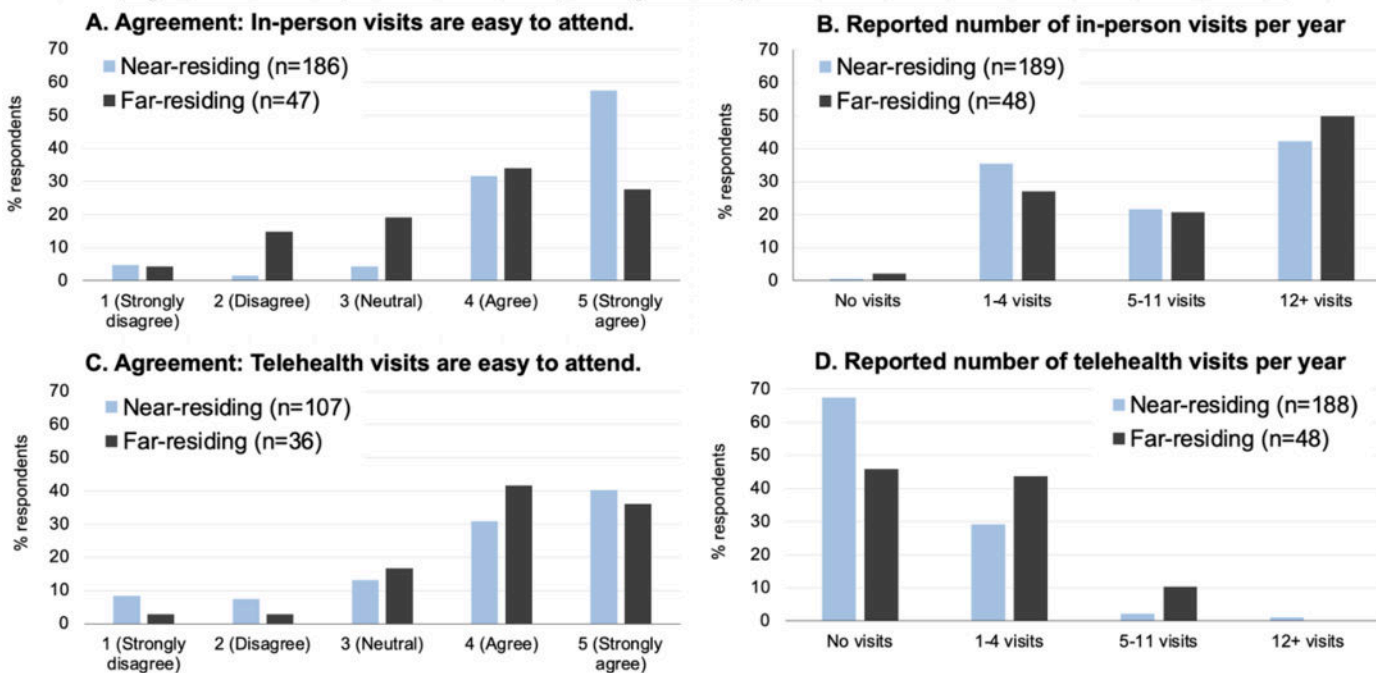
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**Table 1. Baseline demographics of respondents (n = 252)**

Feature	% (n)	Feature	% (n)
<b>Survey method</b>		<b>Current work status</b>	
Mail	40% (101)	Full-time	17% (42)
Online	60% (151)	Part-time	11% (27)
<b>Gender</b>		Retired because of health	24% (58)
Male	55% (138)	Retired for other reasons	48% (117)
Female	45% (114)	<b>Insurance</b>	
<b>Age at survey</b>		Commercial	47% (113)
≤50	4% (10)	Medicare	44% (107)
51-64	29% (74)	Other, including Medicaid	9% (23)
65-69	27% (69)	<b>Annual income</b>	
70-74	26% (65)	<\$25K	6% (13)
≥75	13% (34)	\$26K-\$50K	17% (35)
<b>Current caregiver</b>		\$51K-75K	24% (48)
Yes	56% (141)	\$76K-\$100K	20% (40)
No	44% (111)	\$101K+	33% (66)

Missing values for any given question are not shown. All values, including why respondents retired, were patient-reported with the exception of the method used to contact patients.

**Figure 1: Perceptions and frequency of in-person versus telehealth interactions**



Far-residing was defined as time away from home usually requiring  $\geq 4$  hours for MM-related healthcare interactions (as reported by respondents). Differences in total *n* between questions are due to missing responses or respondents indicating that they were unsure.

**Figure 1**