

Rural Versus Metropolitan Comparison of Real-World Treatment Outcomes in Waldenström Macroglobulinemia from the WhiMSICAL Registry

Authors: Zainab Ridha¹, Ryan Low², Andrew Warden³, Peter DeNardis⁴, Judith Trotman¹, Ibrahim Tohidi-Esfahani¹

Affiliations:

¹ Department of Haematology, Concord Repatriation General Hospital, University of Sydney, Sydney, NSW, Australia.

² University College Hospital, University College London Hospitals NHS Foundation Trust, London, UK

³ WMozzies, Australian Patient Support Group For WM, Concord, AUS

⁴ International Waldenström's Macroglobulinemia Foundation, Chicago, IL

Corresponding author: Zainab Ridha, Department of Haematology, Concord Hospital, Hospital Road, Concord NSW 2139, Australia. Email: Zainab.ridha@health.nsw.gov.au

Introduction:

Rural communities worldwide are known to face healthcare challenges related to geographical isolation and limited access to specialist care, especially in rare cancers. WhiMSICAL (Waldenström Macroglobulinemia Study Investigating Clinical outcomes And quality of Life) is the first global WM registry of patient-derived-data, capturing clinical outcomes and quality of life (QoL). This study aimed to compare treatment practice, outcomes and QoL between rural and metropolitan-based patients participating in the WhiMSICAL Registry.

Method:

Patients self-consented online at rare cancer website, www.cart-wheel.org, and entered geographical, clinical (including pathology and treatment details) and QoL (EORTC-QLQ-C30) data. The data cut-off date for analysis was 1st July 2025. Analysis was limited to patients from the four most common participating countries (United Kingdom, Canada, Australia and the United States). Patients were categorized as rural or metropolitan based on zip code/postcode. Time to next treatment (TTNT) was defined as time from start of first-line therapy to start of next therapy, compared using Kaplan-Meier analysis. Patients were censored at last data edit date if they did not enter a subsequent therapy. The last entered QoL scores (EORTC-QLQ-C30 global scale, poor to excellent 0-100) post treatment initiation were used for comparison. Sub-analyses were performed in US-based and Australia, UK and Canada (AUC)-based patients.

Results:

In total, 409 patients who had received at least one line of therapy were identified from the registry with median follow-up from diagnosis of 86 months (interquartile range [IQR] 45-135). Postcode information was available for 405 patients, the majority of whom were based in metropolitan centres (344/405, 84%), while 61 (16%) resided in rural locations. Patients were predominantly from the United States (n=239, 58%), followed by Australia (n=104, 25%), the United Kingdom (n=35, 9%), and Canada (n=21, 8%). There was no significant difference in median time to first treatment between metropolitan and rural groups (125 vs 168 days, respectively, p=0.66), with similar observations in the US (metropolitan 77 vs rural 99 days, p=0.88), although there was a trend to earlier therapy for rural patients in AUC (metropolitan 325 vs rural 200 days, p=0.4). With median follow-up 64 (IQR 29-110) and 69 (IQR 32-101) months in

metropolitan and rural groups, respectively, there was no significant difference in median TTNT (metropolitan 101 months, rural not reached, $p=0.71$). Similar findings were observed in US and AUC sub-analyses. The use of Bruton Tyrosine-Kinase inhibitors (BTKi) as first-line therapy was more common in metropolitan (17.7%) than rural groups (8.2%), however this was not statistically significant ($p=0.06$). Mean global QoL scores were similar; 75.3 and 73.4 in metropolitan and rural groups, respectively ($p=0.52$), with no country differences observed.

Conclusion:

Patient-derived data from the WhiMSICAL Registry demonstrates similar TTNT and QoL scores after first-line treatment between rural and metropolitan-based patients in the US, Australia, Canada and UK. For more robust, therapy-specific comparisons, analysis of larger populations across demographics will be feasible as the WhiMSICAL Registry transitions to an accessible smart phone (iOS and Android) and web application in August 2026.

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First Name: Zainab

Last Name: Ridha

Email: zainab.ridha@health.nsw.gov.au

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