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A Cross-Sectional Analysis of the Patient Cohort Monitored by the FLOW Blood-Monitoring Tool in a Large Irish Multiple Sclerosis Centre

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OBJECTIVE

- **To provide a cross-sectional summary of the patient cohort managed via the FLOW tool in our centre and to share our experience.**

CONCLUSIONS

- **With implementation of FLOW at our centre we have increased the ease of safety monitoring of blood results for people treated with disease-modifying therapies (DMTs), especially for those whose blood tests are performed in other hospitals or primary care centres.**
- **The "traffic light system" allows for rapid identification of those due or overdue for blood tests, therefore allowing better regulation of safety monitoring and governance over prescription renewal. Although the nuances of the recommendations within the summary of product characteristics (SmPC) of each DMT and patient-specific factors such as the length of time on DMT make it difficult to achieve full compliance in the real world, our audit highlighted the benefit of and the need for continued monitoring of blood tests via the FLOW tool.**
- **Because many of the DMTs have considerable monitoring requirements, the tool provides an additional assurance that our large cohort of patients are being monitored appropriately.**

Introduction

- St. Vincent's University Hospital, Dublin's multiple sclerosis (MS) centre, is one of the largest treating centres in Ireland, attending to approximately 2000 people diagnosed with MS, with >70% of those currently receiving a DMT.
- Safety monitoring of patients with MS includes management and interpretation of blood tests carried out in primary care. FLOW is a Microsoft® Excel–based workbook/database with a "traffic light system" to assist with monitoring and scheduling of blood tests and prescriptions for patients receiving a DMT.

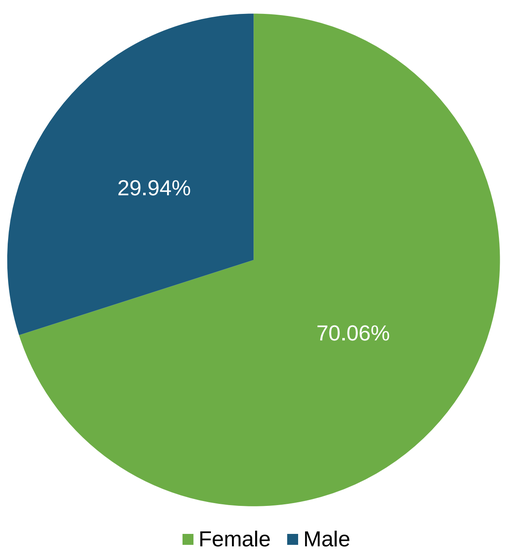
Methods

- FLOW was implemented and customised to be used primarily for management of blood tests and prescription schedules at our centre.
- In December 2021, we conducted a cross-sectional descriptive analysis of our patient cohort acquired from FLOW.
- An audit was carried out to determine compliance with locally determined blood test windows for each DMT, based on the SmPC recommendations, allowing where necessary the practicalities of managing the care of a large cohort of people with MS. Only patients receiving injectable or oral DMTs were included in this analysis because of separate pathways in the care of infused patients.

Results

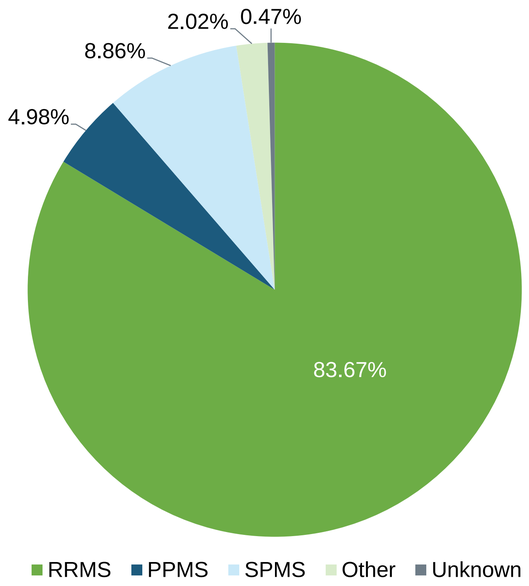
- Of our DMT-treated cohort, 70.1% were female (Figure 1), 83.7% had relapsing-remitting MS (Figure 2) and 80.4% had an Expanded Disability Status Scale score <3.5.
- The majority (42.8%) received an oral DMT, with 36.1% and 21.1% receiving infusion or injectable therapies, respectively (Figure 3).

Figure 1. Proportion of MS Patients in SVUH Cohort by Sex



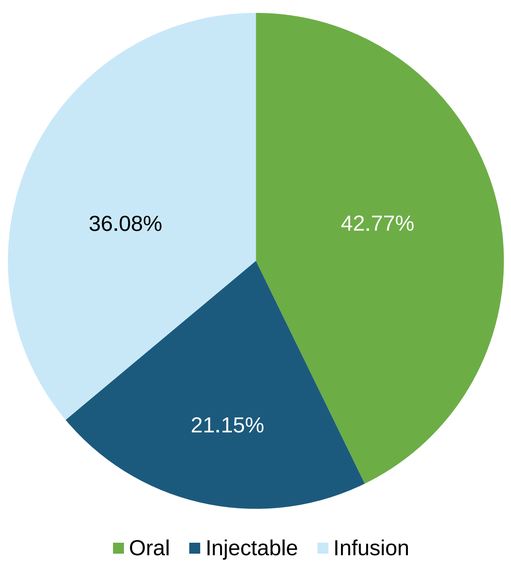
SVUH= St. Vincent's University Hospital, Dublin.

Figure 2. Distribution of MS Patients in SVUH Cohort by MS Diagnosis



Other includes clinically isolated syndrome and relapsing progressive multiple sclerosis.
PPMS=primary progressive multiple sclerosis; RRMS=relapsing-remitting multiple sclerosis; SPMS=secondary progressive multiple sclerosis.

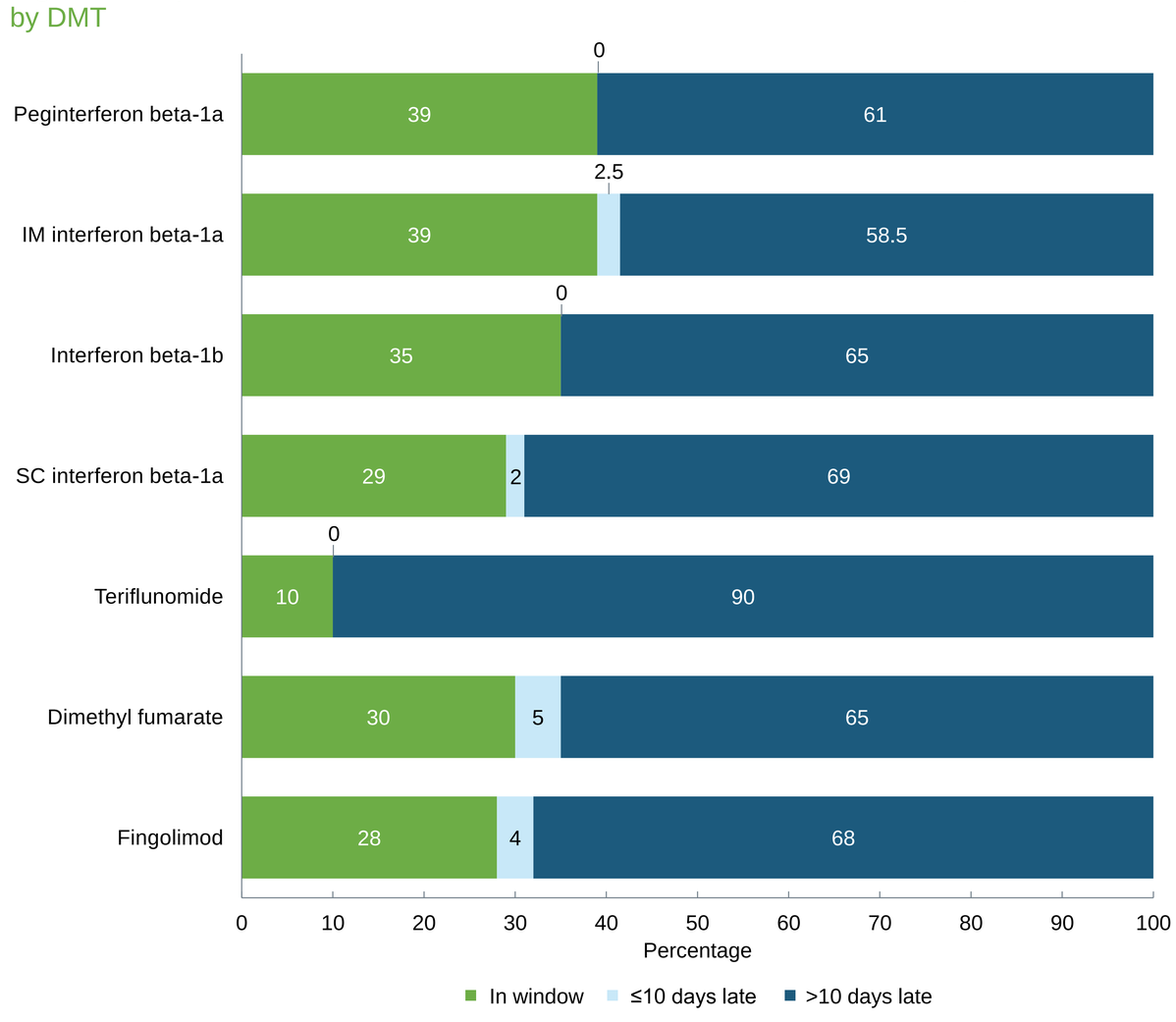
Figure 3. DMT Usage Pattern in Overall SVUH Cohort



Injectable DMTs include interferons and glatiramer acetate. Infused DMTs include natalizumab, alemtuzumab, ocrelizumab and rituximab. Oral DMTs include dimethyl fumarate, teriflunomide, cladribine, fingolimod and siponimod.

- Patients currently receiving injectables were on average 5.3 years older than the overall DMT-treated cohort and had an average of 2.6 more years since MS diagnosis than did the overall cohort.
- As part of the overall compliance audit, 66.09% of patients were overdue for their blood tests by >10 days, 3.61% were overdue by 0–10 days and 30.3% were within the locally acceptable time frame.
- In general, a higher proportion of patients receiving injectable therapies had blood test results available within the appropriate time frame (in-window range, 29–39%) in comparison with those on oral therapies (range, 10–30%)
  - Although patients receiving teriflunomide had the lowest compliance with respect to blood test results available within the appropriate time frame (10%) (Figure 4), these data refer to those patients after the initial 6-month monitoring period because their blood is assessed twice-weekly as facilitated by the marketing authorisation holder.

Figure 4. Proportion of Patients with Available Blood Test Results Within Acceptable Window,[a] by DMT



[a]Acceptable window of time is based on SmPC recommendations for each drug at time of analysis; where SmPC recommendation is not available, the window is based on local clinical guidance. Acceptable windows used to calculate blood test compliance are as follows: peginterferon beta-1a, interferon beta-1a[a,b] and interferon beta-1b: 6 months; teriflunomide: 2 months; dimethyl fumarate and fingolimod: 3 months.
IM, intramuscular. SC, subcutaneous.

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