

# One-Year Healthcare Utilisation in People With Multiple Sclerosis and Controls in Wales

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## Introduction

Using Multiple Sclerosis (MS) as an exemplar of chronic disease we compared healthcare utilisation in people with MS patients and the general population of Wales. We compared the rate of primary (General Practice (GP)) and secondary care (hospital inpatient and outpatient) contacts, and the length of stay for inpatients, between the two groups using the Secure Anonymised Information Linkage (SAIL) databank [1,2,3].

## Methods

The SAIL Multiple Sclerosis Algorithm cohort [3] was used to identify people with MS from the Welsh Longitudinal General Practice dataset (WLGP – primary care) and Welsh Demographics Service Dataset (WDS). The SAIL MS Algorithm has been shown to have a case-finding sensitivity and specificity of 96.8% and 99.9% respectively for a clinically validated population-based cohort, and a sensitivity of 96.7% for a self-declared registry population [4] as part of the UK MS Register.

### Study period:

- 01 January 2019 to 31 December 2019

Hospital admissions were extracted from the Patient Episode Dataset for Wales (PEDW), along with Outpatient Database for Wales (OPDW) contacts.

Rate ratios (RR) ( $\pm 95\%$  confidence intervals (CI)) of contact with PEDW, OPDW, and WLGP were compared between:

- the people with MS cohort (pwMS)
- age and sex-matched controls from the general population (case-control ratio 1:9)

### What is the UK MS Register?

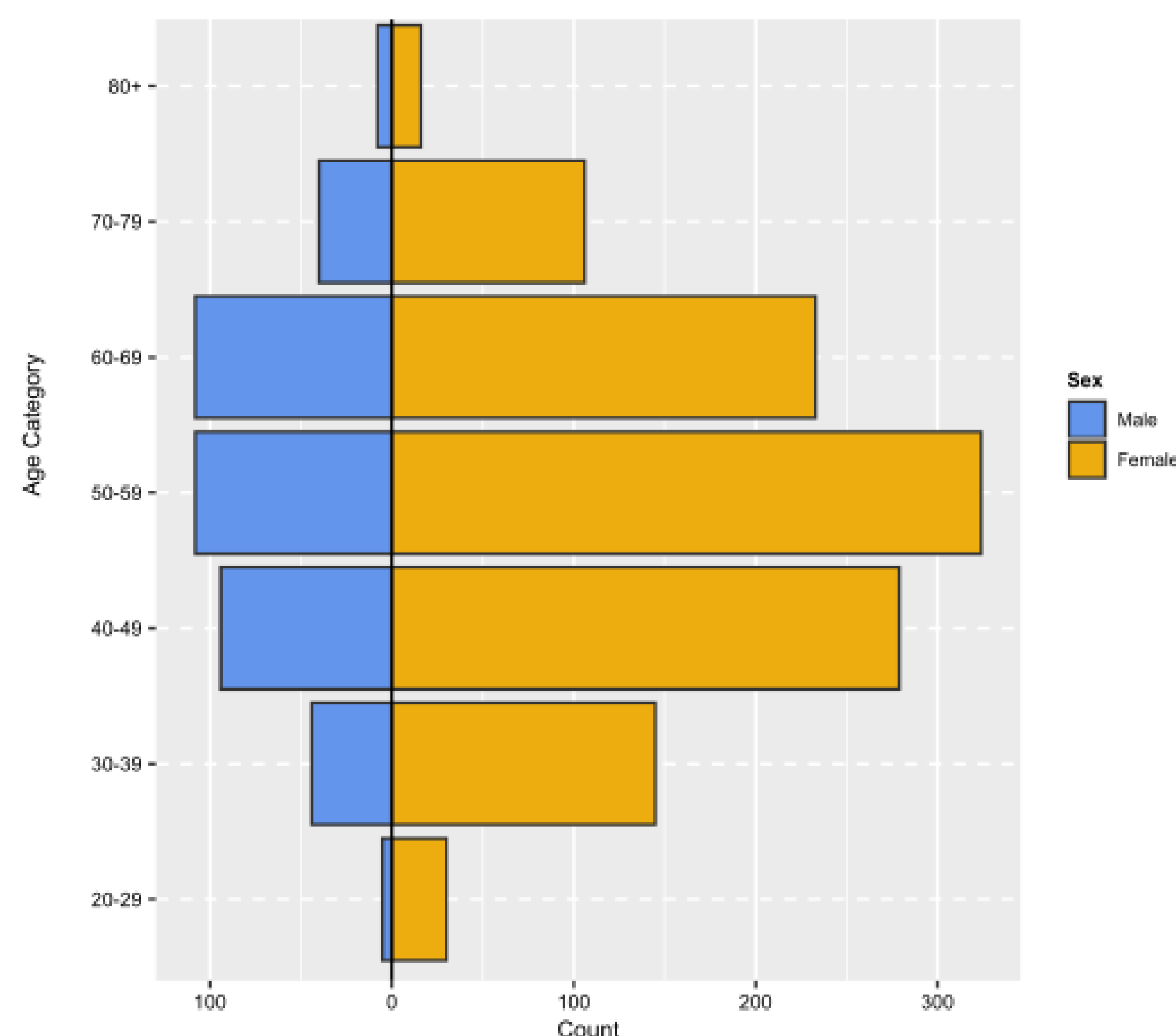
- Information is collected directly via digital questionnaires
- Hospitals link consented participants' medical records with their questionnaires

### Why?

- To capture more real world data about living with MS
- Researchers can find patterns and answer research questions
- A community for researchers to ask questionnaires to, or involve in clinical trials
- A tool for people with MS to log and communicate with the NHS
- Questions include experiences of strength, mobility, fatigue, and mental health

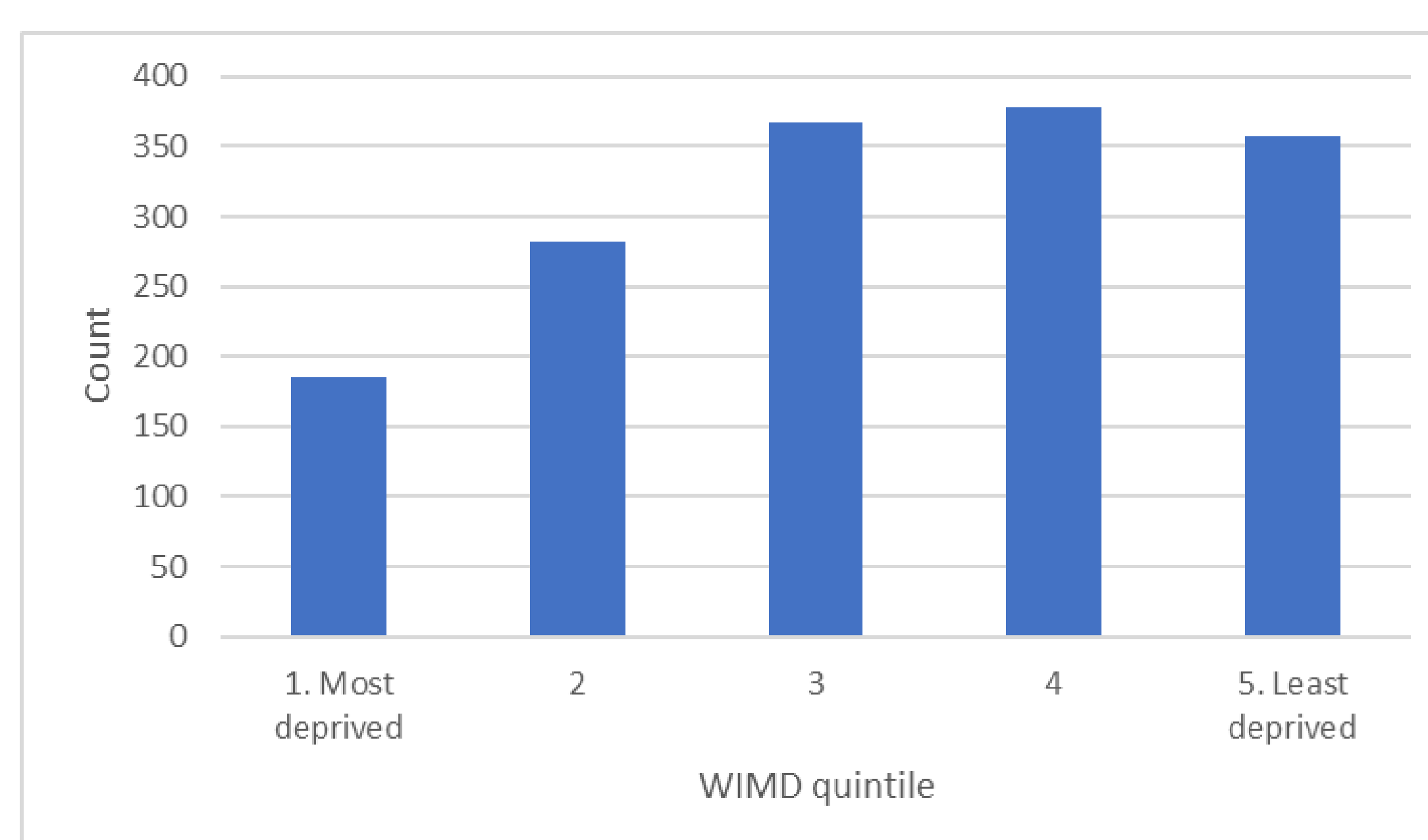
## Results

Data were linked between the WDS, WLGP, PEDW, and OPDW datasets. 1579 people with MS were identified, where 1160 were female (73%) and 419 were male (27%). The age and sex stratified population distribution is shown in figure 1.



**Figure 1: Age-sex population pyramid of the people with MS in Wales.**

The Welsh Index of Multiple Deprivation (WIMD) 2019 quintile, which is an area-based measure of relative deprivation, is shown for the people with MS in figure 2, where the most deprived quintile was shown to be underrepresented.



**Figure 2: Count of people with MS in each Welsh Index of Multiple Deprivation (WIMD) 2019 quintile.**

### Hospital inpatients (PEDW)

Statistically significant higher rates of hospital utilisation were found among the pwMS cohort (vs. general population).

- pwMS: 0.85 (CI: 0.81 – 0.90) events per person
- General population: 0.28 (0.27 – 0.29)
- Rate ratio = 2.98 (CI: 2.80–3.18)**, as shown in figure 3.

pwMS also had longer hospital inpatient stays:

- pwMS: mean 9.2 days (IQR: 2–10)
- General population: mean 7.1 days (IQR: 1–5)

### Hospital outpatients (OPDW)

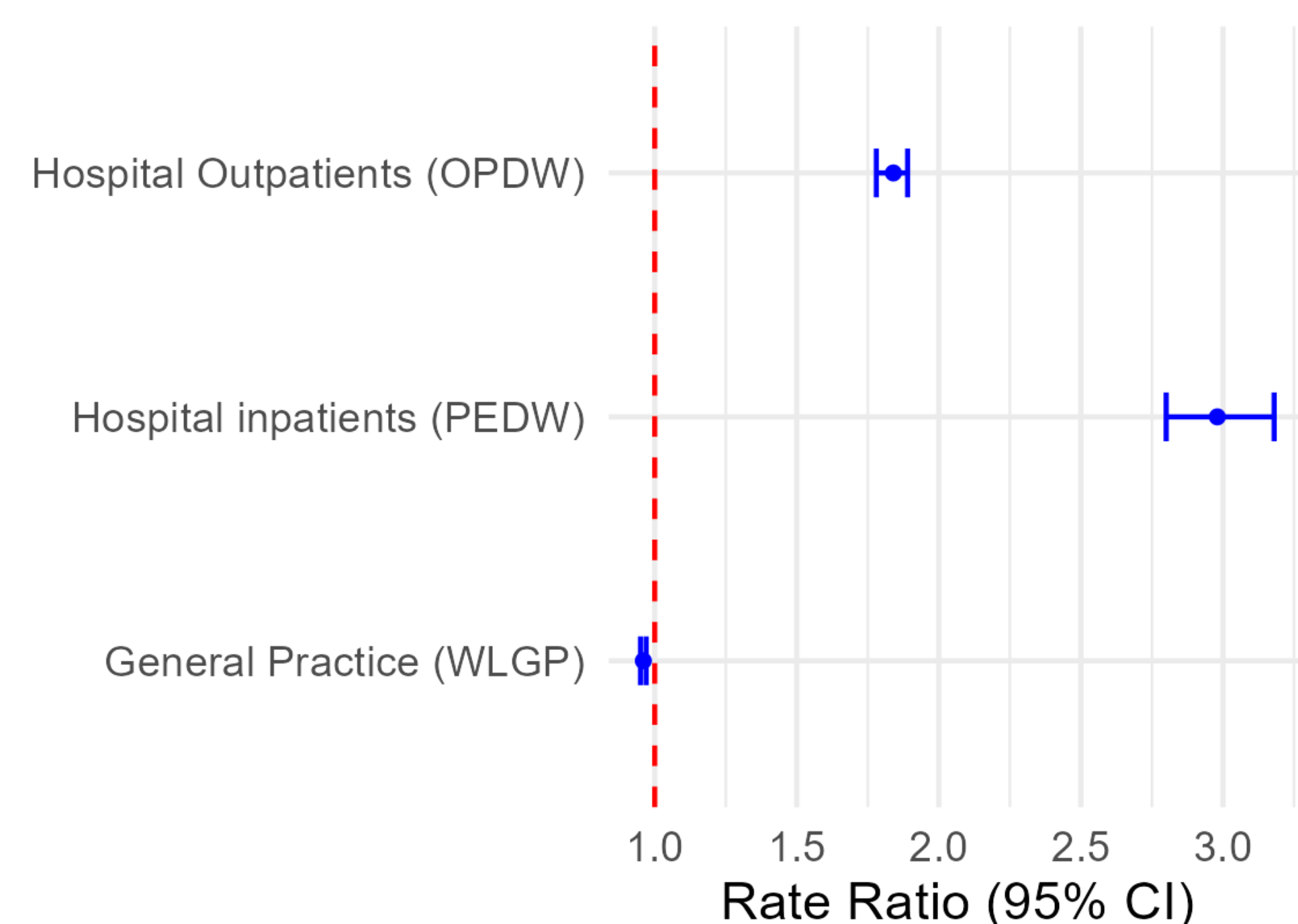
pwMS had more outpatient records than the general population:

- pwMS: 3.1 (CI: 3.0 – 3.2) records per person
- General population: 1.70 (CI: 1.68 – 1.72)
- Rate ratio = 1.84 (CI: 1.78 – 1.89)**, shown in figure 3.

### Primary care (WLGP)

In contrast, pwMS had a lower utilisation of GP resources:

- pwMS: 31.8 (CI: 31.5 – 32.1) records per person
- General population: 32.9 (CI: 32.8 – 33.0)
- Rate ratio = 0.96 (CI: 0.95 – 0.97)**, shown in figure 3.



**Figure 3: Healthcare utilisation rate ratios for people with MS compared with the general population.**

## Conclusion

People with MS had a 3-fold increase in inpatient attendances at Welsh hospitals and were admitted for an average of 2 days longer than a case-matched cohort in 2019. Additionally, they had more visits to hospital outpatient departments, but less attendance at GPs. This highlights the shift in care for complex medical patients to specialist services and the resultant lesser impact on GP services.

## References

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## Data Availability

Data are available via an application to the SAIL Databank: [saildatabank.com/contact](https://saildatabank.com/contact)



### Acknowledgements:

This study makes use of anonymised data in the SAIL Databank and was completed under the permission and approval of the SAIL independent Information Governance Review Panel (IGRP) under project number 1398, with previous work from project 0945. We would like to acknowledge all the data providers who make anonymised data available for research.

### Disclosure statement:

HTE conducted this independent academic research at Swansea University as part of a project funded by Merck KGaA to investigate multiple sclerosis phenotypes and outcomes.