



# Impact of cancer on multiple sclerosis-related healthcare and disease-modifying drug use a multi-national cohort study

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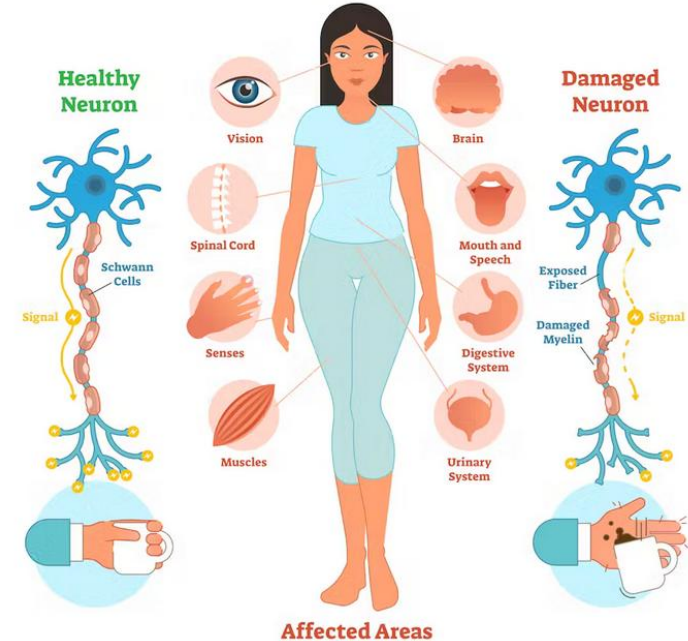
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# INTRODUCTION

- Multiple sclerosis is a neuro-degenerative autoimmune disease of the brain and central nervous system
- It is usually diagnosed between the ages of 25 and 40 and mostly affects women (Leray, 2016)
- In 2021, >130,000 individuals had MS in France (~200/100,000) (Pierret, 2024)
  - +30% increase in 10 years
- Age-related comorbidity in MS, such as cancer, are increasing (Melamed 2020)

## MULTIPLE SCLEROSIS



# INTRODUCTION

- There is no curative treatment for MS
  - But handicap progression can be slowed
- Since 1993, MS can be treated by disease-modifying therapies (DMT)
  - DMTs act on the immune system to reduce MS activity
- MS is associated with heightened healthcare use and higher comorbidity (Ng 2022, Marrie 2023)

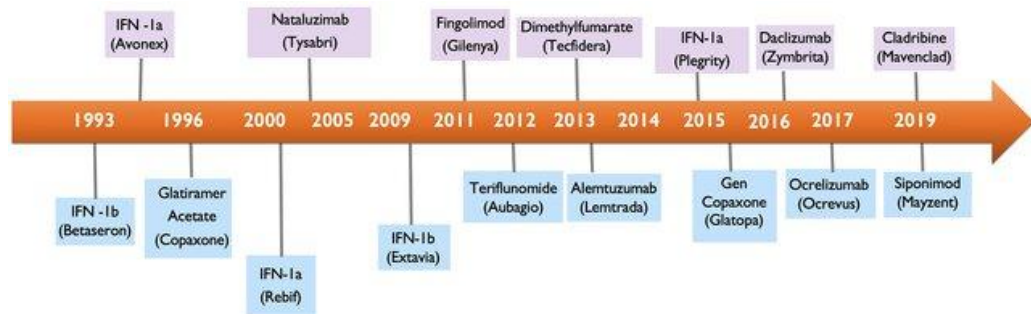


Fig. 1 Multiple sclerosis DMT approval timeline (1990-2020).  
(Melamed, 2020, Front Imm)

# INTRODUCTION

- “The presence of coexisting disease constitutes a challenge for the provision of optimal cancer care, particularly in elderly patients” (Nilsson 2017)
- The association between MS and cancer has been extensively studied but remains controversial (Marrie 2015, Pierret 2024, Handel 2010)
- However, literature is sparse re. what happens **after** cancer among PwMS (Castaño-Amores 2024, Nesbitt 2024)

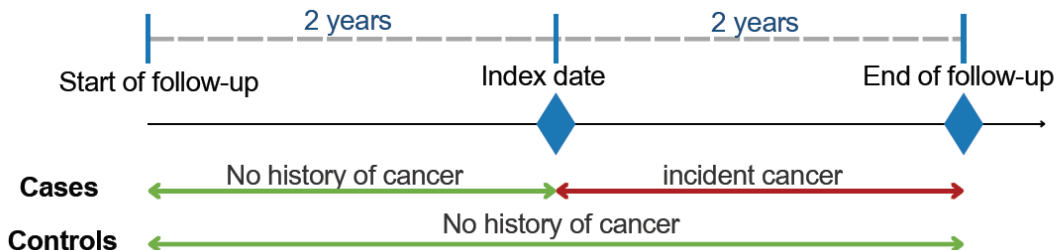
*How is MS-management impacted by this dual diagnosis ?*

*How do patients and physicians navigate it (incl. re. MS treatment) ?*

# OBJECTIVE

**ASSESS THE IMPACT OF CANCER ON MS-RELATED HEALTHCARE  
CONSUMPTION AND DMT-USE AMONG INDIVIDUALS WITH MS**

# METHODS



## DATASETS

British Columbia population-based  
medico-administrative database  
(1991-2020)



Système national des données de  
Santé (2009-2021)

## STUDY DESIGN

Retrospective matched cohort study

**CASES** Person with MS (PwMS) with a  
cancer, alive 2 years post-cancer

**CONTROLS** PwMS without cancer  
– Matched 2:1 on index date (cancer  
diagnosis) , age, sex, residence, DMT-  
use, ecological deprivation level

# METHODS

## OUTCOMES OF INTEREST

Neurologist visits rate  
MS-hospitalisation rate  
DMT-users proportion

## STATISTICAL ANALYSIS

Mixed-effect models with a piecewise linear spline, knot at cancer diagnosis.

Neurologist and MS hospitalisation rates ~ Poisson regression  
DMT-users proportion ~ Logistic regression

Post-cancer vs. Pre-cancer estimates were compared to assess impact of cancer



# RESULTS



Cases : n= 2,347  
Controls : n = 4,694

75.9%  
women

55.9 ± 11.5 years at  
index date

9.6% received DMT  
24-12m prior to index  
date

(23.9%) Breast (1)  
(19.8%) Prostate (2)  
(10.9%) Colorectal (3)



Cases : n= 4,555  
Controls : n = 9,110

71.6%  
women

58.6 ± 12.5 years at  
index date

38.3% received DMT  
24-12m prior to index  
date

(1) Breast (36.4%)  
(2) Prostate (26.1%)  
(3) Colorectal (10.3%)



## CANCER TREATMENT



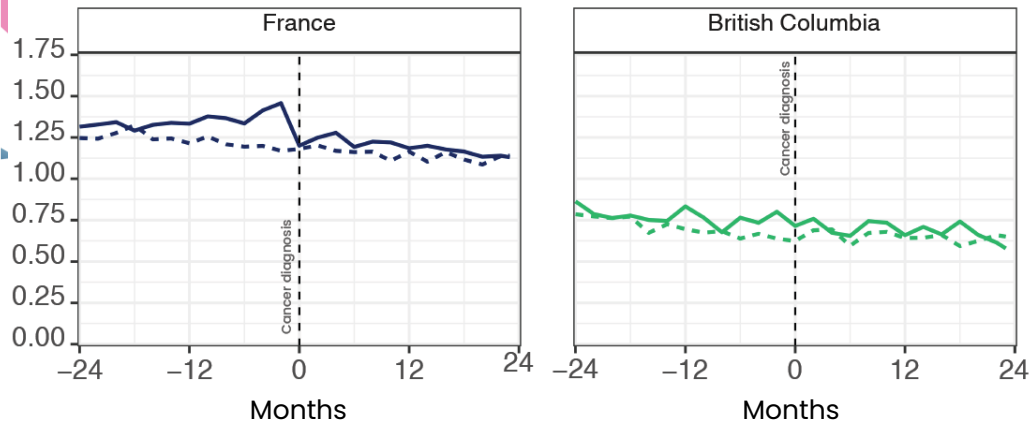
61.3% received chemo  
or radiotherapy  
in France



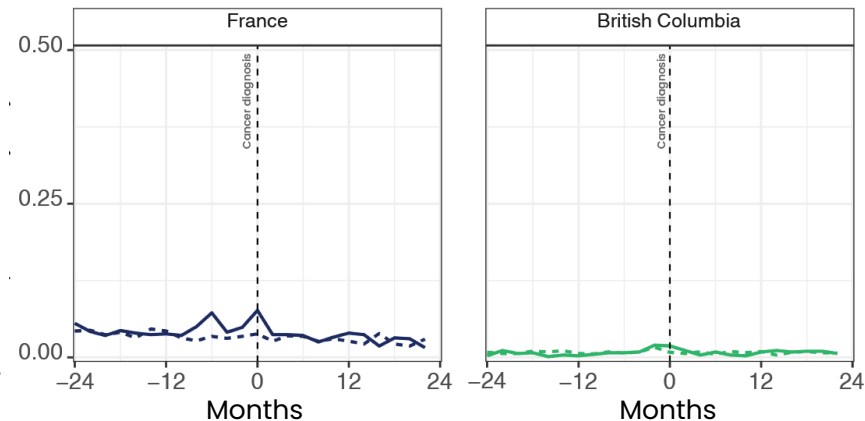
54.6% received  
surgery  
in France

# RESULTS

## Neurologist visit rates



## MS-hospitalisation rates

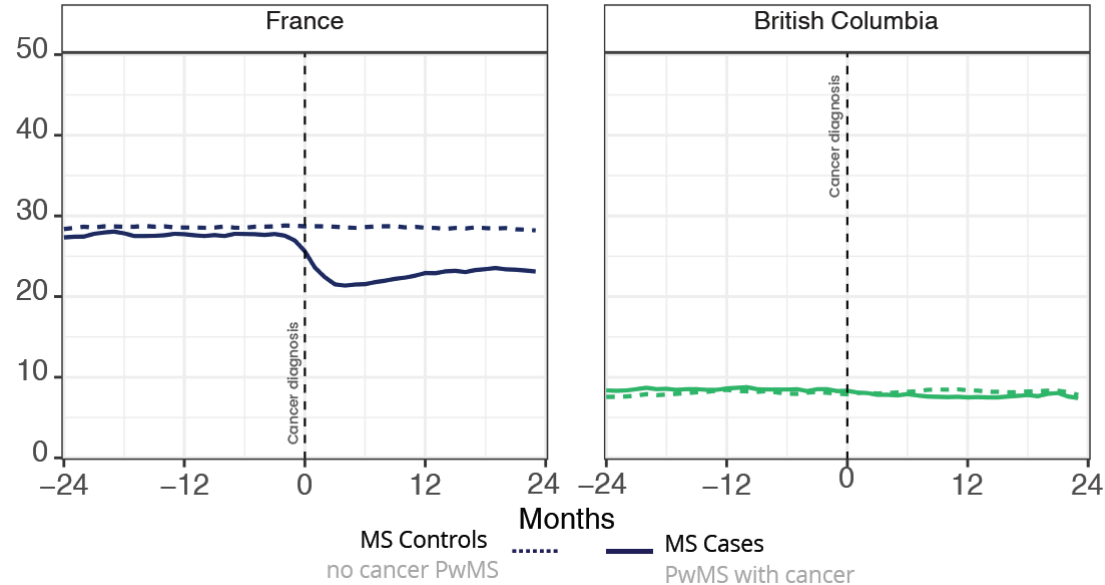


MS Controls ..... MS Cases  
no cancer PwMS PwMS with cancer

Mixed effect models showed no effect of cancer on neurologist visit rates and MS hospitalizations

# RESULTS

## DMT-users proportions (%)



Mixed effect models showed a **negative** effect of cancer on % of DMT-users in both countries

➤ Mostly in France

# DISCUSSION

- **No evidence of neurological care decrease** post cancer diagnosis
  - (cases vs controls) for both regions
- **Decrease in DMT use following cancer**, especially in France
  - Suggests a shared decision to withhold DMT between neurologist and patient, rather than an abandonment of all neurological care by the patient.

# THANK YOU

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