Characterize the economic burden of invasive meningococcal infection in France using an innovative clustering method.

Antoniali L[1], Baloche A[1], Langevin E[1],Collin C[2]

[1] *Sanofi, Lyon, France*
[2] *IQVIA, Paris, France*

Poster Number: EE612

Scan to Access Poster

INTRODUCTION

Invasive meningococcal disease (IMD) :
- rare but potentially fatal infection ;
- associated with long term disabilities ;
- ~ 500 cases / year in France[1].

Previous studies have identified people with sequelae using International Classification of Diseases (ICD) codes; however, this approach only captures a narrow range of potential outcomes

OBJECTIVE

- **Use a clustering method to identify patients who may have sequelae;**
- **Describe long-term (3-12 years after index date) healthcare resource use (HRCU);**
- **Quantify the economic burden of IMD over time (up to 12 years following the index date).**

METHODS

Database
SNDS

Study Period
2007 - 2019

Study Location
France

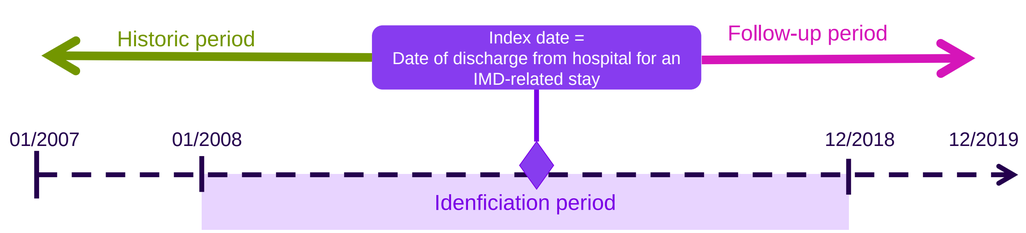
Study design

- Retrospective cohort study (exposed / unexposed)
- Unexposed patients matched with exposed on age, gender, place of residence

Clustering method (K-modes method) was applied to IMD cases, using HCRU in the 2-years post index date and sociodemographic variables (n=64), to identify groups. The analysis returns two groups:
- CARE + : patients with a care pathway suggesting sequelae
- CARE - : patients without consumption of care suggesting sequelae

Clustering analysis based on :
- sociodemographic variables (age, gender and state health aid for people on low incomes) ;
- and 64 HRCU variables (hospitalisations, consultations, medications, biology, etc.).

Figure 1: Study Design



RESULTS

- Clustering analysis identified 23% of IMD patients as CARE+.

Table 1: CARE+ and CARE- patient characteristics

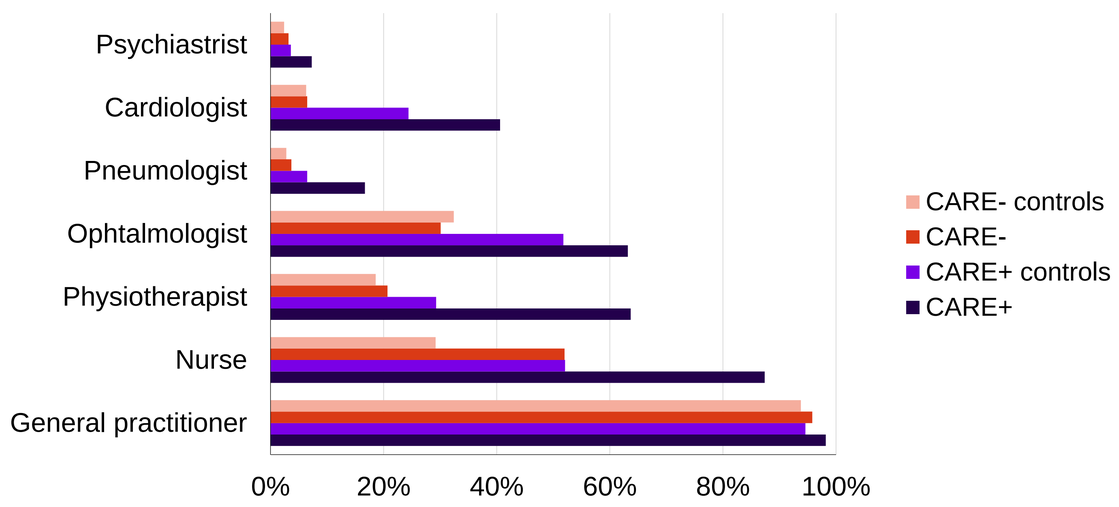
	CARE+	*CARE-*
Number of patients	1 032	3 393
Age	48.5	17.9
Men / Women	40.4 % / 59.6 %	55.3 % / 44.7 %
Long term condition	55,5 %	11.3 %

Healthcare resource use

HCRU higher for CARE+ patients than their controls :
- hospitalisation (78,2% vs 20,9%)
- nursing care (87% vs 52%),
- kinesitherapy (64% vs 29%),

CARE+ patients have a high medicine consumption : for nervous system disorders (98%), for disorders of the digestive and metabolic systems (95%), and anti-infectives (92%).

Figure 2: Proportion of HRCU in CARE + and CARE -

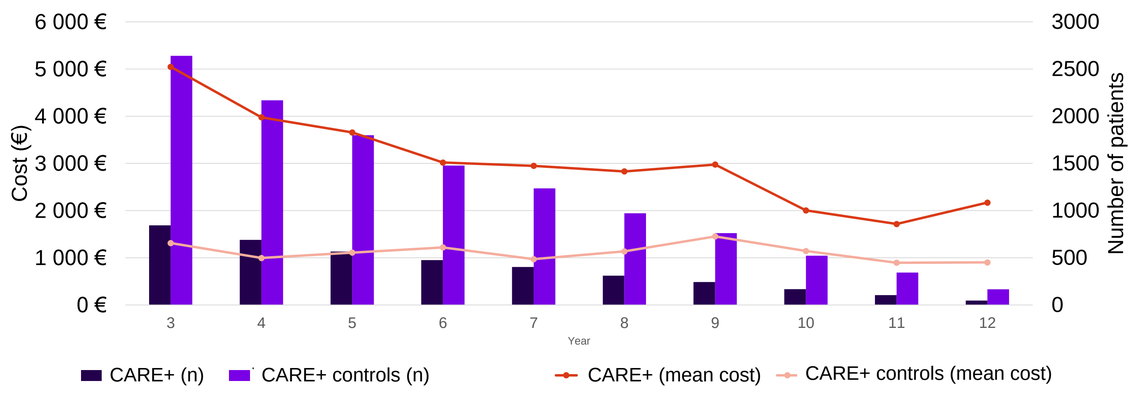


Average cost

The average long-term cost per capita for CARE+ patient, was higher than these of their controls:
- 21,186 € vs 6,583 € for out-of-hospital costs
- 16,532 € vs 5,260 € for hospital costs

CARE+ costs decreased among the study period, while their controls costs are stables. However, CARE+ costs remains higher than their controls.

Figure 3: Evolution of hospital costs for CARE+ and their controls



CONCLUSIONS

- **This is the first study to use a clustering method to identify patients with higher HRCU, suggesting sequelae. These results are consistent with those reported in the literature, highlighting the correlation between long-term sequelae of IMD and higher healthcare costs, with costs of patients with sequalae more than twice higher than for patients without sequalae [2,3].**

REFERENCES

1) Sante Publique France. Infections invasives à méningocoque. 2019. Infections invasives à méningocoque. Disponible sur: https://www.santepubliquefrance.fr/maladies-et-traumatismes/maladies-a-prevention-vaccinale/infections-invasives-a-meningocoque
2) Weil-Olivier C, Taha MK, Emery C, Bouée S, Beck E, Aris E, et al. Healthcare Resource Consumption and Cost of Invasive Meningococcal Disease in France: A Study of the National Health Insurance Database. Infect Dis Ther. sept 2021;10(3):1607-23
3) Huang L, Fievez S, Goguillot M, Marié L, Bénard S, Elkaïm A, et al. A database study of clinical and economic burden of invasive meningococcal disease in France. PloS One. 2022;17(4):e0267786

CONFLICTS OF INTEREST

This study was sponsored by Sanofi

LA, AB and EL are Sanofi employees and may hold shares and/or stock options.