Economic and Organizational Impact of Subcutaneous Ocrelizumab in French Daily Hospitals

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Objectives

The aim of this evaluation is to estimate the expected organizational impact of ocrelizumab in its subcutaneous form (SC) compared to an intravenous (IV) form.

The primary objective is to highlight the **potential time savings generated** by the SC formulation and to estimate the subsequent increases in patient throughput and daily unit profitability.

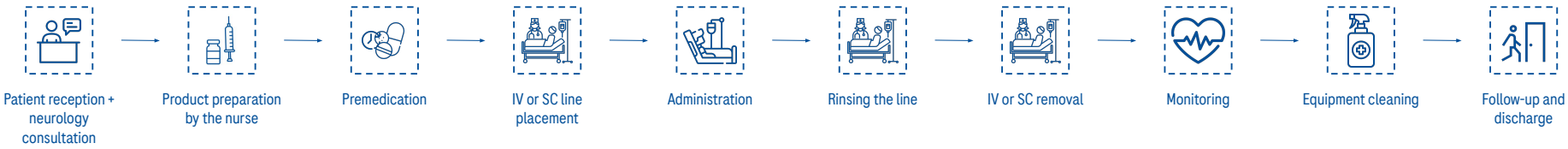
This study models the theoretical organisational impact of implementing the SC formulation within the neurology daily units of three French hospitals (University Hospitals Pitié Salpêtrière, University Hospital of Rouen and University Hospital of Strasbourg). The analysis compares the two treatment options by quantifying key differences in their administration protocols. The model's parameters are based on the treatments' respective Summaries of Product Characteristics (SmPC)[1], which were then discussed and refined by expert healthcare professionals to reflect real-world clinical practice.

Essential specifications for ocrelizumab administration, based on the SmPC[1]:

- Ocrelizumab IV: Requires a 210-minute (1st dose) or 180-min (subsequent doses) infusion, mandatory in-hospital premedication, and a mandatory 1-hour post-infusion observation period.
- Ocrelizumab SC: Requires a 10-minute administration, permits home-based premedication, and mandates the 1-hour observation period only for the first injection.

Methodology

An Excel tool was used to measure the **expected organizational impact** of ocrelizumab in subcutaneous (SC) form compared to its intravenous (IV) form from a French day-hospital (HDJ) perspective. This tool measures the differences between both treatments in terms of time savings for key hospital resources, specifically focusing on nurse time and chair occupancy.



To determine the actual resource utilization time per administration, the patient pathway was mapped into ten key steps described below. The resource time inputs for each administration step, respective to both the IV and SC formulations, were provided by a scientific committee of four experts from three different hospitals to ensure the model reflects real-world practices. For the IV formulation, the analysis focused on follow-up administrations, excluding the more time-consuming treatment initiation phase. Data on available resources for MS infusion (e.g., number of nurses, chairs, and new patients per year) were also provided by experts from each of the three hospitals. These capacity constraints were accounted for in the scenarios modelled.

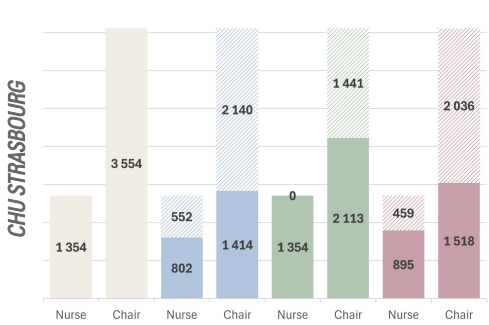
The model simulated a scenario where **80% of existing patients switch from the IV to the SC formulation**, with the same 80/20 ratio applied to new patients.

The primary outcomes of the organizational impact were the **annual nurse time savings** and the **annual chair occupancy time savings**. Based on these projected time savings, two scenarios were then modelled for each hospital to assess the potential use of the freed-up capacity:

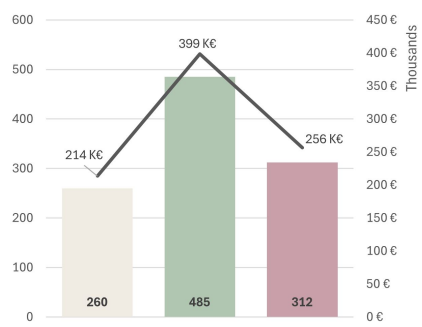
- **Maximising patient cohort**: Reinvest all nurse time and chair occupancy time gains to treat the maximum number of additional patients with ocrelizumab SC.
- **Balanced growth and reallocation**: Increase the patient cohort by 20% and calculate the remaining time that could be reallocated to other activities.

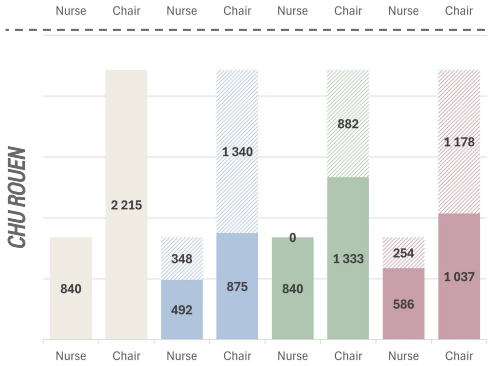
The potential financial impact of the increased patient throughput was estimated using the 2025 national reimbursement tariff for a public day-hospital session (GHM 28Z17Z = 410,94 €). For modelling purposes, it was assumed that all administrations were reimbursed at this uniform rate. Results were calculated for each hospital, then averaged and reported to a cohort of 100 patients.

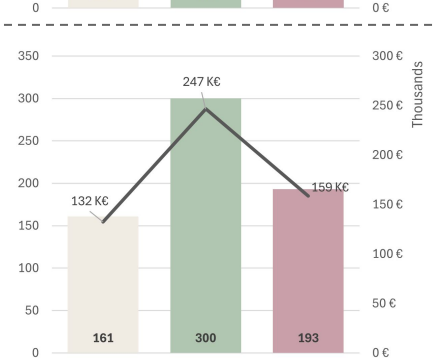
Results *Resource utilization* *(hours per year)*

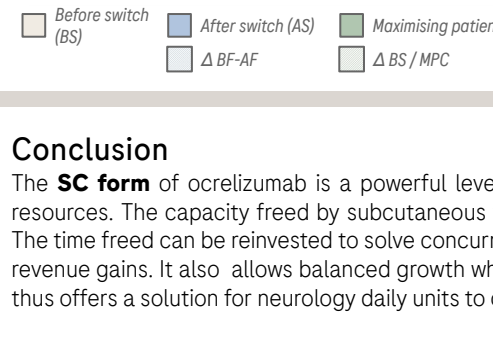


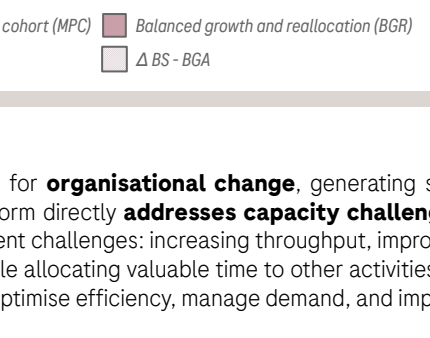
Number of patients and reimbursement











Time savings and capacity gains :

The modelled scenario of an 80% patient switch from ocrelizumab IV to SC projected significant and consistent annual resource savings across the three participating hospitals.

- **Annual nurse time**: Savings ranged **from 41% to 43%**. This represented an annual reduction of 4 633 hours at Pitié-Salpêtrière, 348 hours at Rouen, and 552 hours at Strasbourg.
- **Annual chair occupancy**: Savings were more pronounced, **around 60%**. This represented an annual reduction of 17 920 chair hours at Pitié-Salpêtrière, 1 340 hours at Rouen, and 2 140 hours at Strasbourg.

Two scenarios for the reinvestment of this freed-up capacity were modelled to assess the impact on patient throughput and potential annual revenue.

Scenario 1: Maximising patient cohort

Reinvesting the freed capacity to maximise patient throughput resulted in a **substantial increase in the ocrelizumab patient cohort** at Pitié-Salpêtrière (+1 853 patients), Rouen (+139 patients), and Strasbourg (+225 patients). This increased throughput translated into a potential annual revenue increase of **+1 522 944 €** at Pitié-Salpêtrière, **+114 241 €** at Rouen, and **+184 923 €** at Strasbourg. In this scenario, nurse time was the primary limiting factor.

Scenario 2: Balanced growth & reallocation

Modelling a 20% increase in the ocrelizumab **patient cohort** demonstrated that substantial annual resources could still be reallocated. This **20% growth** corresponded to a **potential annual revenue** increase of +355 052 € at Pitié-Salpêtrière, +26 300 € at Rouen, and +42 738 € at Strasbourg, while still freeing significant capacity. 3,332 nurse hours and 15,669 chair hours at Pitié-Salpêtrière, 254 nurse hours and 1,178 chair hours at Rouen, and 459 nurse hours and 2,036 chair hours at Strasbourg – which could then **be reallocated to other activities**.

Pooled and results

Averaging the results across hospitals the results **per 100 patients** suggest that the switch of 80% of ocrelizumab IV to SC could lead to an average annual savings of 214 nurse hours and 829 chair occupancy hours. Assuming a 9-hour working day, this equates to **24 nurse working days** and nearly **92 chair working days**. This freed capacity could theoretically support an average of **86 additional patients** with ocrelizumab SC, corresponding to an average potential annual revenue increase of **70 597 €**.

Conclusion

The **SC form** of ocrelizumab is a powerful lever for **organisational change**, generating substantial **annual time savings** for critical hospital resources. The capacity freed by subcutaneous form directly **addresses capacity challenges** and provides significant **operational flexibility**. The time freed can be reinvested to solve concurrent challenges: increasing throughput, improving access and reducing economic pressures through revenue gains. It also allows balanced growth while allocating valuable time to other activities or improving nurses' quality-of-work. Ocrelizumab SC thus offers a solution for neurology daily units to optimise efficiency, manage demand, and improve financial health and the patient experience.

References

[1]Summaries of Product Characteristics - ocrelizumab: https://www.ema.europa.eu/en/documents/product-information/ocrevus-epar-product-information_en.pdf