Organizational Impact Model Associated with Switching from Intravenous (IV) to Subcutaneous (SC)

Hadj-Rabia H.[1], Avot D.[1], Latreche L[1], Doutriaux A[1]

[1] BIOGEN France, Paris, France

OBJECTIVE

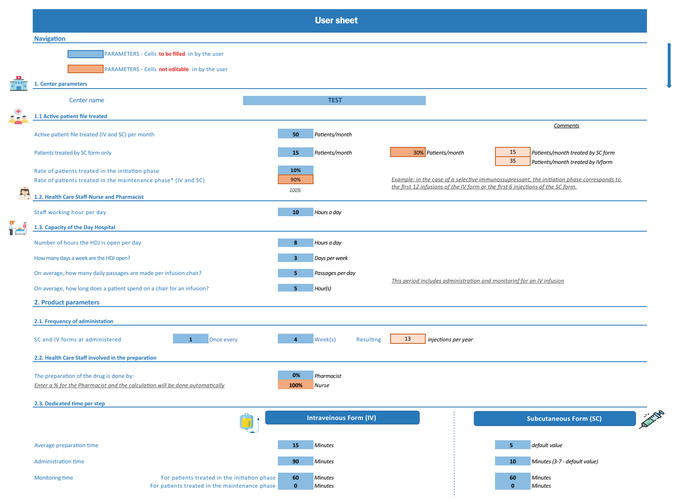
The objective of this model is to quantify the organizational impact in hospital settings of switching from intravenous (IV) to subcutaneous (SC) administration. In this poster, impact is measured for natalizumab in terms of human resources saved, infusion chair freed up and patient time saved.

INTRODUCTION

- Multiple sclerosis is an inflammatory, demyelinating, and neurodegenerative disease of the central nervous system with an estimated prevalence of 150/100,000 inhabitants[1] in France.
- The new formulation of natalizumab subcutaneous has been recently authorized in highly active relapsing remitting multiple sclerosis (RRMS) offering a much shorter administration time in 5 minutes and no preparation by HCP. This new presentation might enhance convenience to patients and HCP's by saving hospital resources and patient time.

METHODS

- We designed a model to quantify the organizational impact of SC vs IV administration at hospital level in term of human resources saved, infusion chair freed up and patient time saved. We simulate outcomes for a cohort of patients treated monthly (= active patient file) over a three-year time horizon.
- The model simulates two scenarii : current and alternative. **Current scenario** matches hospital current split between SC and IV, and **alternative scenario** simulates an incremental SC adoption rate.



- The model is populated by default with data from product label, literature and can be self-adjusted to each hospital's characteristics. No patient or cost data were collected.
- We assume that all IV administrations and SC administrations were performed in hospital-day (infusion suite facilities) at reference-hospital with a posology of 13 doses/year (1 dose every 4 weeks).

RESULTS

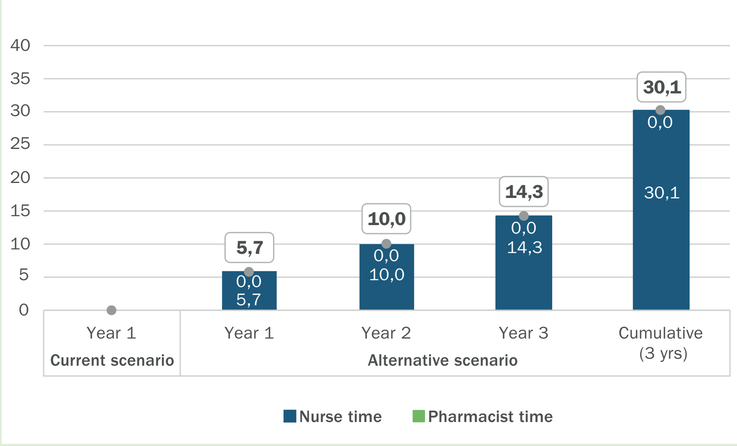
Considering 50 Monthly patients treated by natalizumab with SC adoption rate at 30%

Figure 1. Scenario comparison

	CURRENT SCENARIO			versus	ALTERNATIVE SCENARIO			
	Year 1	Year 2	Year 3		Year 1	Year 2	Year 3	
Patients treated by SC form only	30%	30%	30%		50%	65%	80%	% patients
Active patient file treated per year	600	600	600		600	600	600	*Patients/year*
By SC form	180	180	180		300	390	480	*Patients/year*
By IV form	420	420	420		300	210	120	*Patients/year*

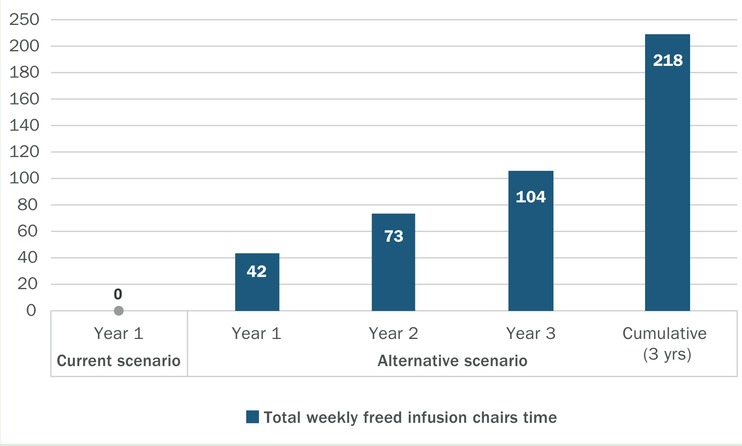
Total weekly released staff time is 5.7 hours, for year 1 ; 10 hours for year 2 and 14.3 hours year 3. **(Figure 2)**
Outcomes saved monthly are 2.2 (year 1); 3.8 (year 2) and 5.4 (year 3) full staff days.

Figure 2. Total weekly released staff time



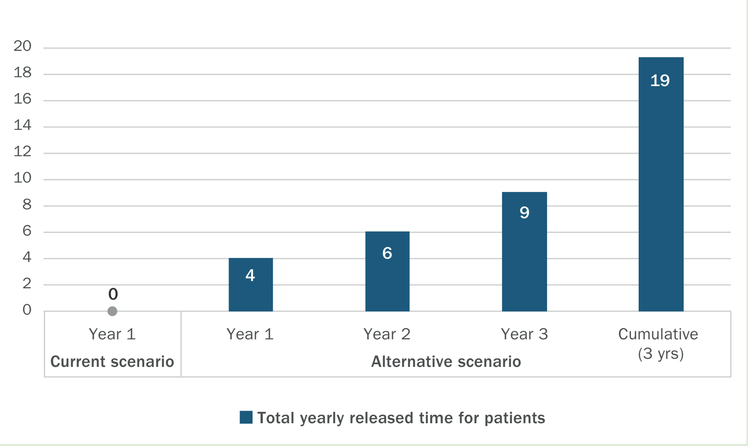
Total weekly freed infusion chairs time resulted 42 hours year 1 ; 73 hours year 2 and 104 hours year 3. **(Figure 3)**
Outcomes saved monthly are 180 hours year 1 ; 316 year 2 and 451 year 3.

Figure 3. Total weekly freed infusion chairs time



Total monthly released time for the patient resulted 4 hours year 1 ; 6 hours year 2 and 9 hours year 3. **(Figure 4)**

Figure 4. Total yearly released time per patient



CONCLUSION

➜ Besides the potential benefits of convenient administration, improving work-life balance and quality of life for patients, increasing adoption rate of Natalizumab SC consistently showed positive outcomes by reducing treatment administration time for patients and freed up infusion chairs and time for HCP.

➜ SC adoption has a positive impact on hospital organization by saving resources in a context of budgetary constrain and tight hospital capacity.

Références : 1. Assurance Maladie. Effectif, prévalence et caractéristiques des bénéficiaires d'une ALD en 2019. Disponible sur : https://assurance-maladie.ameli.fr/etudes-et-donnees/prevalence-beneficiaires-ald-2019 (consulté en ligne le 29/06/2022). 2. https://www.ema.europa.eu/en/documents/product-information/tysabri-epar-product-information_fr.pdf.https://www.ema.europa.eu/en/documents/product-information/herceptin-epar-product-information_fr.pdf. 3. Stewart D, et al. Current oncology. 2020;27(2):113-6. 4. Dent S, et al. Current oncology. 2019;26(l):e70-e80. 5. Simon Rule, Graham P. Collins & Kunal Samanta (2014) .Subcutaneous vs intravenous rituximab in patients with non-Hodgkin lymphoma: a time and motion study in the United Kingdom, Journal of Medical Economics, 17:7, 459-468, DOI:

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