

# Migraine-related healthcare resource use and costs associated with migraine chronification: A panel-based chart review



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Pamela Vo<sup>1</sup>, Elyse Swallow<sup>2</sup>, Eric Wu<sup>2</sup>, Miriam L. Zichlin<sup>2</sup>, Noah Katcher<sup>2</sup>, Monika Maier-Peuschel<sup>3</sup>, Mariantonietta Naclerio<sup>4</sup>, Daniela Ritrovato<sup>4</sup>, Santosh Tiwari<sup>5</sup>, Parth Joshi<sup>5</sup>, Matias Ferraris<sup>1</sup>

<sup>1</sup>Novartis Pharma AG, Basel, Switzerland; <sup>2</sup>Analysis Group, Inc., Boston, USA; <sup>3</sup>Novartis Pharma GmbH, Nuremberg, Germany; <sup>4</sup>Novartis Farma S.p.A., Origgio/VA, Italy; <sup>5</sup>Novartis Healthcare Pvt Ltd., Hyderabad, India

2021 EAN Annual Meeting, June 19-22 | virtual

This study is supported by Novartis Pharma AG, Basel, Switzerland.

**Disclosures:** Pamela Vo and Matias Ferraris are employees and own stock in Novartis. Elyse Swallow, Eric Wu, Miriam L. Zichlin, and Noah Katcher are employees of Analysis Group, Inc., Boston, USA. Monika Maier-Peuschel, Mariantonietta Naclerio, Daniela Ritrovato, Santosh Tiwari and Parth Joshi are employees of Novartis.





## Objective

- The aim of the present study was to estimate the migraine-related healthcare resource utilisation (HRU) and costs associated with migraine chronification among patients in France, Germany, Italy, and Spain who had  $\geq 4$  monthly migraine days (MMDs)

## Methods

- This was a follow-on to a retrospective, online panel-based chart review conducted among neurologists and headache/pain specialists who treated at least 10 patients with migraine in France, Germany, Italy, and Spain in 2017<sup>1</sup>
- **Study Population**
  - Adults ( $\geq 18$  years) with  $\geq 4$  MMDs who had initiated a preventive treatment on or after January 1, 2013, and received physician care for at least 6 months after the index date (i.e., the date of the most recent preventive treatment initiation), were included
  - Based on the trajectory of migraine severity from the 1-month pre-index period to the 6-month post-index period, cohorts were classified as improved (converting from chronic<sup>a</sup> to episodic<sup>b</sup> or from chronic/episodic to  $< 4$  MMDs) or stable/worsened (remaining chronic/episodic or transforming from episodic to chronic) migraine
- **Study Measures**
  - Migraine-related HRU (physician's office visits, emergency room/accident & emergency visits, and hospitalisations) and costs (2017 €) during the 6-month post-index period were compared between patients with improved versus stable/worsened migraine using generalised estimating equations (GEEs)
  - Results were adjusted for the country, sex, and the presence of comorbidities before the index date

1. Vo P, et al. *J Med Econ.* 2019;22(9):953-959

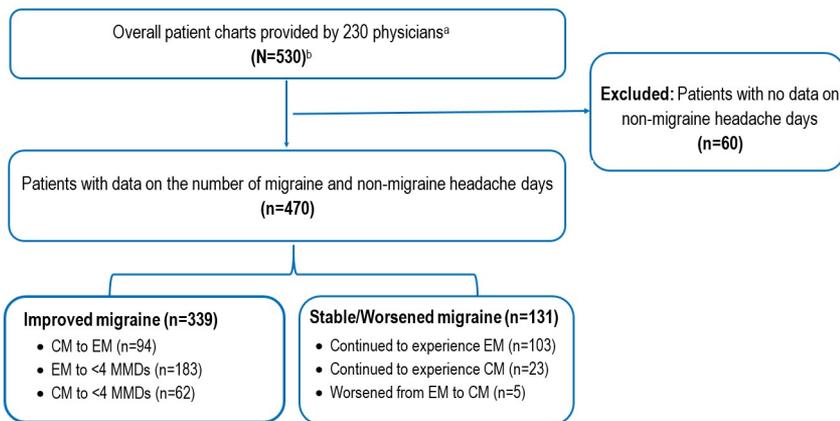
**Notes:** <sup>a</sup> patients with  $\geq 15$  headache days, of which  $\geq 8$  were migraine days; <sup>b</sup> patients not meeting the criteria for chronic migraine

## Results



- Overall, 470 patient charts with data on the number of migraine and non-migraine headache days were analysed. The disposition of patients that constituted the improved and stable/worsened migraine cohorts is summarised in [Figure 1](#)

**Figure 1.** Patient selection



<sup>a</sup> Included 58 physicians from France, 35 from Germany, 84 from Italy, and 53 from Spain.

<sup>b</sup> Included 160 patients from France, 80 from Germany, 141 from Italy, and 149 from Spain.

- Barring subtle exceptions, patients across the improved and stable/worsened migraine cohorts had similar patient characteristics ([Table 1](#))

**Table 1.** Patient and disease characteristics by cohorts

	Improved Migraine (n=339)	Stable/Worsened Migraine (n=131)
Mean (SD) age at index date <sup>a</sup> (years)	37.1 (11.0)	36.9 (10.8)
Female, %	66.1%	64.9%
BMI score (kg/m <sup>2</sup> ), mean (SD)	23.9 (3.6)	23.8 (3.4)
Anxiety	25.7%	16.8%
Depression	16.2%	19.8%
Hypertension	13.9%	12.2%
Time since initiation of first preventive treatment (years), mean (SD)	2.3 (2.8)	2.2 (3.3)
Mean (SD) number of migraine days in the month before the index date	9.8 (5.4)	8.7 (4.3)*
Mean (SD) number of non-migraine headache days in the month before the index date	6.0 (5.4)	5.0 (5.2)

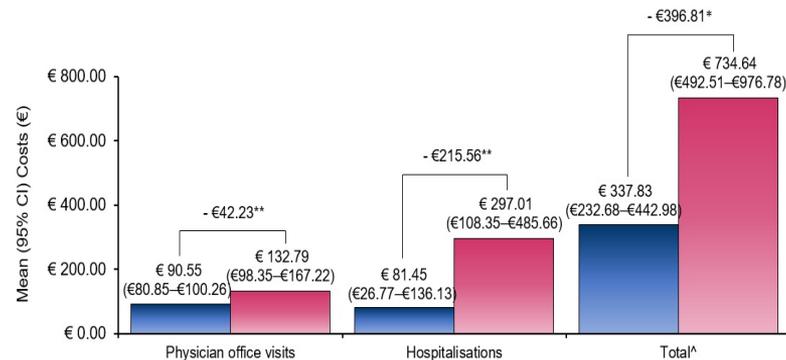
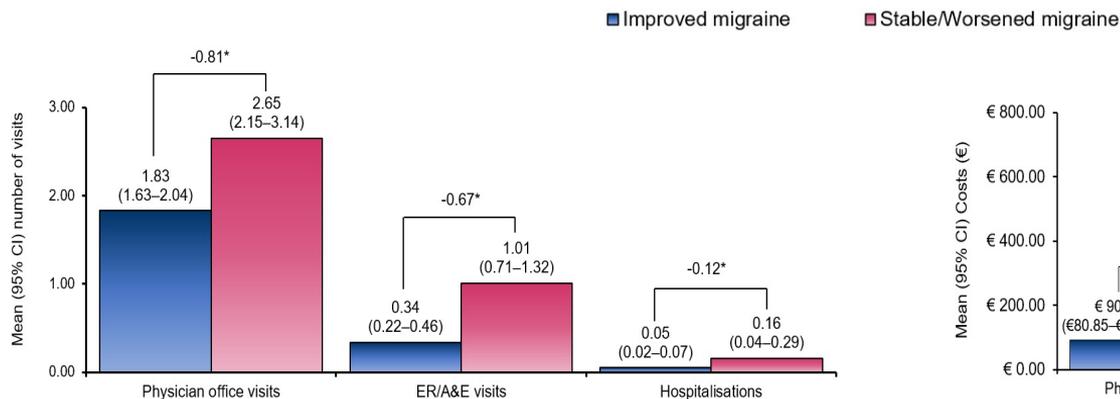
<sup>a</sup> Index date = the date of the most recent preventive treatment initiation; \*p<0.05



- After adjusting for within-physician correlation, country, sex and presence of comorbidities, patients in the improved migraine cohort had significantly fewer office visits, ER/A&E visits, hospitalisations, and total costs during the 6-month period following the initiation of migraine preventive treatment compared with patients in the stable/worsened migraine cohort (Figure 1 and 2)

Figure 1. Migraine-related HRU<sup>a</sup> during 6 months post-index period

Figure 2. Migraine-related costs<sup>b</sup> during 6 months post-index period



Values reported are mean and 95% CI; <sup>a</sup> Predicted means were estimated using GEEs with a Poisson distribution and a log link function, accounting for within-physician correlation; <sup>b</sup> Predicted means were estimated using GEEs with a Gaussian distribution and an identity link function, accounting for within-physician correlation; <sup>a</sup>Total costs include costs for outpatient visits; ER/A&E visits; hospitalisations; nurse practitioner, psychologist, psychiatrist, physiotherapy, or other specialist visits; cranial CT scans; cranial and cranio-cervical MRI scans; blood tests; nerve stimulator procedures; occipital nerve block procedures; EEGs; and ECGs. If a physician selected 'unknown/not sure' for any healthcare resource item, €0 was assumed. If HRU costs were not available, costs were not included; \*p<0.05; \*\*p<0.001; †p<0.01

**Abbreviations:** ER/A&E, emergency room/accident & emergency; HRU, healthcare resource utilisation; SD, standard deviation

Conclusion

- Over a 6-month period following initiation of preventive migraine treatment, patients with improved migraine had significantly lower migraine-related HRU and costs than those with stable/worsened migraine