

Identification of Migraine in Electronic Healthcare Data Sources

# A HEADACHE FOR PHARMACOEPIDEMIOLOGISTS

## A Systematic Literature Review

Joan Forn, MPH, PhD; Alicia Abellan, MPH, PhD; Nuria Riera, PharmD, PhD; Andrea Margulis, MD, ScD, FISPE; Elena Rivero-Ferrer, MD, MPH, FISPE  
Pharmacoepidemiology and Risk Management, RTI Health Solutions, Barcelona, Spain

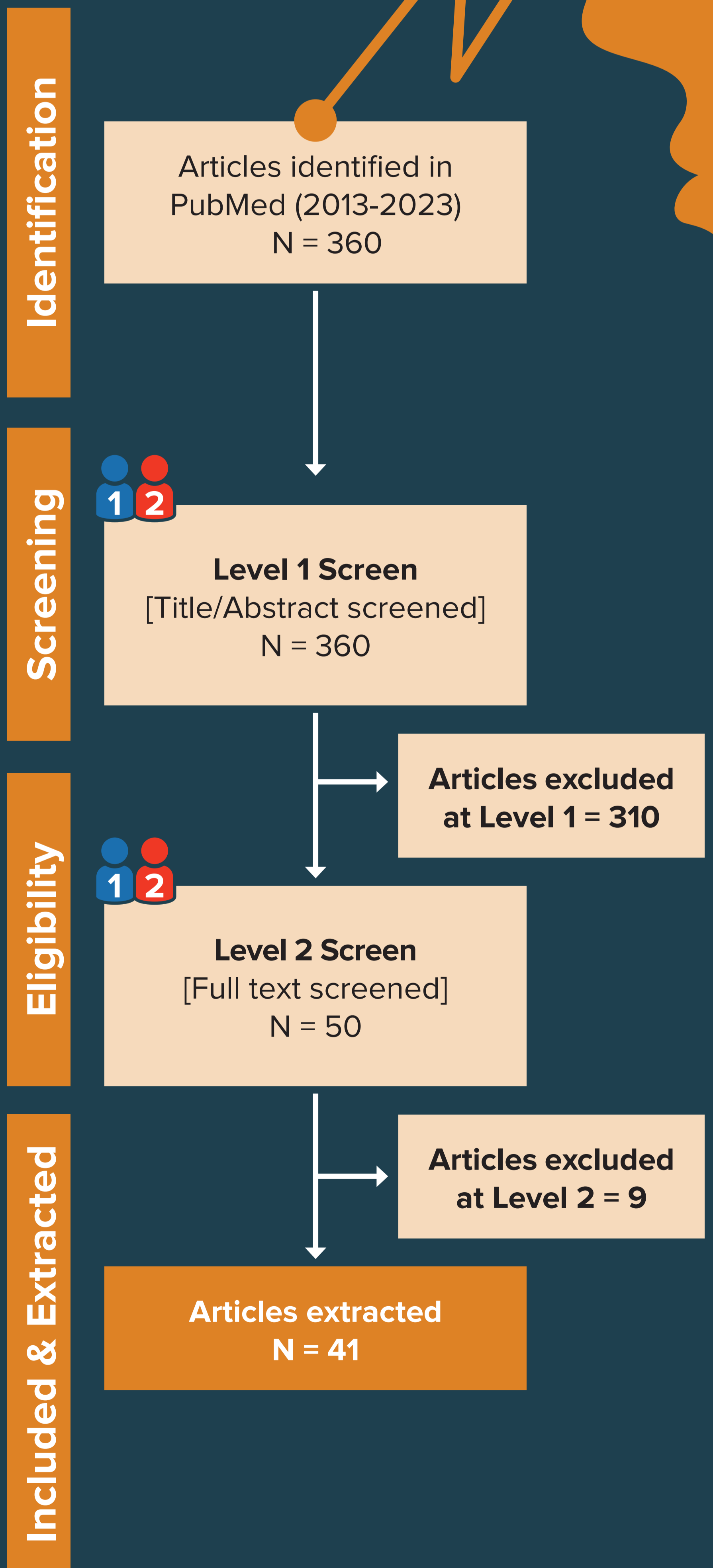
**Disclosures:** JF, AA, NR, AM, and ER are full-time employees of RTI Health Solutions, a unit of RTI International, a nonprofit organisation that conducts work for government, public, and private organisations, including pharmaceutical companies.

- Ascertaining migraine in electronic healthcare data is challenging
- Migraine prevalence will depend on the characteristics of the migraine-identifying strategy and data source

### Objective

To describe migraine-identifying algorithms implemented in observational studies using healthcare administrative claims, electronic medical records, or other data sources and any related validation efforts; and to summarise the prevalence of migraine reported in each study

### Methods



### Results

- 16 studies used only diagnosis codes.
- Most common: ICD-9 346.xx or ICD-10 G43.xx.
- Prevalence of migraine (unspecified whether acute or chronic) range: 4.0% to 4.8%.
- 5 studies used only migraine treatments.
- Most common: triptans (ATC: N02CC), followed by ergotamines. Only 1 study used prophylactic drugs.
- 3 studies required only 1 prescription, whilst 2 studies required > 1 prescription.
- No prevalence reported.
- 9 studies used a combination of diagnosis codes and/or treatments.
- Most common: a single diagnosis code (ICD-9 346.xx or ICD-10 G43.xx) or a treatment code (mostly triptans).
- Prevalence of migraine range: 7.7% (acute migraine) to 17% (acute or chronic migraine).
- 11 studies used a combination of diagnosis codes, treatments, and settings.
- 2 studies reported validation results (PPVs ranging between 68% and 97%), depending on the diagnostic threshold and the gold standard used.
- 2 studies reported acute migraine prevalences of 4% to 5% (up to 11.9% using a broader definition); 1 study reported chronic migraine prevalence as < 1%.

## CONCLUSION

Most studies included in this systematic review identified migraine using diagnosis codes. Only studies that included a combination of diagnosis codes and treatments in different settings identified specific migraine types and reported results on validation.