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Daisy Ng-Mak, PhD

*Global Health Outcomes, Merck Sharp & Dohme Corp., West Point, PA, USA*

Valerie P. Pracilio, MPH

*Jefferson School of Population Health, valerie.pracilio@jefferson.edu*


Stephen Silberstein, MD

*Jefferson Headache Center, Stephen.Silberstein@jefferson.edu*

Joseph Couto, PharmD, MBA

*Jefferson School of Population Health, joseph.couto@jefferson.edu*

Cary Sennett, MD, PhD

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**Authors**

Daisy Ng-Mak, PhD; Valerie P. Pracilio, MPH; Stephen Silberstein, MD; Joseph Couto, PharmD, MBA; Cary Sennett, MD, PhD; Mary Hopkins, RN; Jon Bumbaugh; and Neil I. Goldfarb

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Daisy Ng-Mak, PhD<sup>1</sup>, Valerie P. Pracilio, MPH<sup>2</sup>, Stephen Silberstein, MD<sup>3</sup>, Joseph Couto, PharmD, MBA<sup>2</sup>, Cary Sennett, MD, PhD<sup>4</sup>, Mary Hopkins, RN<sup>3</sup>, Jon Bumbaugh<sup>4</sup>, and Neil I. Goldfarb<sup>2</sup>

<sup>1</sup>Global Health Outcomes, Merck Sharp & Dohme Corp., West Point, PA, USA

<sup>2</sup>Jefferson School of Population Health, Philadelphia, PA, USA

<sup>3</sup>Jefferson Headache Center, Philadelphia, PA, USA

<sup>4</sup>MedAssurant, Inc., Bowie, MD, USA



## Background

- Safety concerns exist when using triptans to treat patients with cardiac contraindications.
  - Triptans cause vasoconstriction, a safety concern for migraineurs with cardiovascular (CV) disease or other cardiac risk factors.
  - All triptans contain contraindications in their package inserts to avoid use in patients with cardiac conditions.
    - Previous research indicates that clinicians are less likely to prescribe triptans in patients with CV disease or CV risk factors.<sup>1</sup>
- Limited research has examined the proportion of migraine patients with cardiovascular disease or those individuals who were concurrently treated with triptans.<sup>1,2</sup>

## Migraine Quality of Care Measurement Set

- A set of measures were originally developed in 2007, by the Jefferson School of Population Health and the Jefferson Headache Center, with input from a national panel of advisors with clinical expertise in migraine.<sup>3,4</sup>
- The Migraine Quality of Care Measurement Set was developed to examine utilization of services within a health plan to identify potential quality and safety concerns associated with care for the population identified with migraine.
- The measures and measurement specifications were updated in 2010 to align with current evidence.
- A pilot test of the 2010 measures was then conducted, using data from 10 health plans.
- The measurement set covers five areas of migraine diagnosis and treatment:
  - Establishment of Diagnosis
  - Utilization of Radiologic Services
  - Utilization of Physician Services
  - Utilization of Urgent and Emergent Services
  - Utilization of Migraine Medications
- The intent of the measures is to allow plans to examine their utilization over time, and in relation to national benchmarks.

## Study Aims

- The aims of this study were:
  - To examine the prevalence of cardiovascular disease in the migraine population.
  - To assess the relationships between 5-HT<sub>1B,1D</sub> receptor agonist (“triptan”) utilization and the presence of cardiac contraindications in the migraine population.

## Methods: Study Population

- Ten representative commercial and/or Medicaid health plans in the MedAssurant Medical Outcomes Research for Effectiveness and Economics Registry (MORE<sup>2</sup> Registry™) were included in the study.
- The reporting year (the year of claims data on which measurement was based) was 2009.
- Only adult members between ages 18 and 64, with both medical and pharmacy benefits, were eligible for inclusion (N ≈ 2.5 million, across the 10 plans).
- The Migraine Population was identified through claims and pharmacy data as patients having at least one of the following criteria:
  - 1 or more claim(s)/encounter(s) for migraine, or
  - 2 or more “episodes” of headache reflected by multiple claims/encounters (“recurrent headache”) ≥7 days apart, or
  - 1 or more prescription(s) for a triptan or migraine analgesic
- Individuals with a diagnosis of subarachnoid hemorrhage, brain tumor, and/or intracranial bleed were excluded.

Triptans were identified through pharmacy claims based on at least one prescription for any 5-HT<sub>1B,1D</sub> receptor agonist (triptan).

| 5-HT <sub>1B,1D</sub> Receptor Agonists |                         |
|---|-------------------------|
| Sumatriptan                             | Frovatriptan            |
| Sumatriptan / Naproxen                  | Eletriptan              |
| Zolmitriptan                            | Sumatriptan (nasal)     |
| Naratriptan                             | Zolmitriptan (nasal)    |
| Rizatriptan                             | Sumatriptan (injection) |
| Almotriptan                             |                         |

Cardiac contraindications were identified by condition using ICD-9 codes, visit codes and pharmacy claims.

| Condition  | Identification   |
|--|--|
| Ischemic Cardiac Syndromes<br>Angina<br>Myocardial Infarction<br>Myocardial Ischemia | ICD-9: 410.0 – 413.9<br>Medications: nitroglycerin, clopidogrel                  |
| Coronary Artery Disease (CAD)  | ICD-9: 414.0-414.9   |
| Peripheral Vascular Syndromes<br>Ischemic Bowel Disease                              | ICD-9: 443.1-443.9, 557.9  |
| Uncontrolled Hypertension  | ICD-9: 402.0 – 405.99  |
| Cerebrovascular Syndromes<br>Stroke<br>TIA<br>Carotid vascular disease               | ICD-9 430 – 437.2, 437.4 – 438.9<br>Medications: platelet aggregation inhibitors |

## Migraine Quality of Care Measurement Definitions

| Measure   | Numerator   | Denominator   |
|---|---|---|
| RX.2 Prescription for a Triptan                                 | Dispensed at least one prescription for any 5-HT <sub>1B,1D</sub> receptor agonist (triptan).   | All patients in the Migraine Population.  |
| RX.8 Prescription for a Triptan and Cardiac Contraindication(s) | A prescription for at least one drug associated with a cardiac contraindication OR with an outpatient, ED or urgent care center visit with a cardiac contraindication listed as a diagnosis.* | All patients in the Migraine Population with a prescription for a triptan during the measurement year.* |

\*Analysis conducted at the patient-level  
\*The numerator of RX.2 is the denominator for RX.8

## Results

Migraine Quality of Care Measurement Set (RX.2 and RX.8) by Age Group

| Measure                         | Mean* | Median* | Range*    |
|---------------------------------|-------|---------|-----------|
| RX.2 Prescription for a Triptan | 37.7  | 36.5    | 22.2-44.9 |
| 18-49 years of age              | 36.8  | 36.3    | 23.3-43.7 |
| 50-64 years of age              | 40.0  | 37.7    | 13.7-47.1 |

| Measure   | Mean* | Median* | Range*   |
|---|-------|---------|----------|
| RX.8 Prescription for Triptan AND Cardiac Contraindication(s) | 4.5   | 5.0     | 3.2-7.8  |
| 18-49 years of age  | 3.2   | 3.4     | 2.0-6.0  |
| 50-64 years of age  | 7.3   | 8.0     | 5.1-28.3 |

\*Across all 10 health plans  
**KEY FINDINGS:**  
RX.2  
• About 38% of the Migraine Population used at least one triptan  
• 37% for 18-49 years of age  
• 40% for 50-64 years of age  
• Both age groups showed considerable variation between plans  
RX.8  
• About 5% of the Migraine Population using triptans had at least one cardiac contraindication  
• 3% for 18-49 years of age  
• 7% for 50-64 years of age  
• Both age groups showed considerable variation between plans

Distribution of Triptan Prescriptions AND Cardiac Contraindications

|                             | Triptan Prescriptions<br>N (column percent), (row percent) |                        |                   |
|-----------------------------|--|------------------------|-------------------|
|                             | Triptan  | No Triptan             |                   |
| Cardiac Contraindication    | 2,067<br>(4.5)(22.0)                                       | 7,327<br>(9.7)(78.0)   | 9,394<br>(7.7)    |
| No Cardiac Contraindication | 43,710<br>(95.5)(39.1)                                     | 68,182<br>(60.9)(90.3) | 111,892<br>(95.0) |
|                             | 45,777<br>(37.7)   | 75,509<br>(62.3)       | 121,286           |

Distribution of Triptan Prescriptions AND Cardiac Contraindication(s) by Age Group

|                             | Migraine Population ages 18-49<br>Triptan prescriptions<br>N (column percent), (row percent) |                        |                  |
|-----------------------------|--|------------------------|------------------|
|                             | Triptan  | No Triptan             |                  |
| Cardiac Contraindication    | 996<br>(3.2)(23.6)   | 3,233<br>(6.0)(76.4)   | 4,229<br>(5.0)   |
| No Cardiac Contraindication | 30,102<br>(96.8)(37.5)   | 50,265<br>(94.0)(62.5) | 80,367<br>(95.0) |
|                             | 31,098<br>(36.8)   | 53,498<br>(63.2)       | 84,596           |

|                             | Migraine Population ages 50-64<br>Triptan prescriptions<br>N (column percent), (row percent) |                        |                  |
|-----------------------------|--|------------------------|------------------|
|                             | Triptan  | No Triptan             |                  |
| Cardiac Contraindication    | 1,071<br>(7.3)(20.7)   | 4,094<br>(18.6)(79.3)  | 5,165<br>(14.1)  |
| No Cardiac Contraindication | 13,608<br>(92.7)(43.2)   | 17,917<br>(81.4)(56.8) | 31,525<br>(85.9) |
|                             | 14,679<br>(40.0)   | 22,011<br>(60.0)       | 36,690           |

## Key Findings

- 7.7% of the Migraine Population were identified as having a cardiac contraindication to a triptan.
- 37.7% of the Migraine Population had at least one triptan prescription filled during the measurement year (RX.2).
- 22.0% of the Migraine Population with a cardiac contraindication for triptans had at least one triptan prescription filled during the year.
- 4.5% of the Migraine Population having at least one triptan prescription filled during the year had a cardiac contraindication noted (RX.8). This rate ranged from 3.2% to 7.8% across the 10 plans.
- More than twice as many individuals in the 50-64 age group who were using triptans had cardiac contraindications compared to those aged 18-49.

## Discussion

### Triptans and Cardiac Contraindications

- Our data show that almost 8% of the Migraine Population had a cardiac contraindication as determined by at least one medical or pharmacy claim during the measurement year.
- Twenty-two percent of the Migraine Population identified as having a cardiac contraindication used a triptan during the measurement year. Highly varied rates of use between health plans is of particular interest.
- Our study demonstrates an unmet medical need for migraine patients who have cardiovascular disease/risks.

### The Migraine Quality Measurement Set

- This examination of two measures included in the Migraine Quality Measurement Set demonstrates the potential value of the measures to identify pharmacy utilization trends.
- In addition to identifying a general concern about the widespread use of triptans in the at-risk population with cardiac contraindications, the pilot test demonstrates significant variation across health plans.
- The measures can be of value to health plans in identifying potential quality and safety issues and comparing their performance with national benchmarks.

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