

Overview of the non-traumatic headache episode of care

State of Ohio

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1. CLINICAL OVERVIEW AND RATIONALE FOR DEVELOPMENT OF THE NON-TRAUMATIC HEADACHE EPISODE

1.1 Rationale for development of the non-traumatic headache episode of care

Headache disorders are among the most prevalent neurological symptoms globally and can have significant functional and socioeconomic impact.¹ In the United States, over 90 percent of all Americans have headaches, with 47 percent of people having had at least one within the last year.² Headaches were the most common diagnosis for ED visits in the U.S. in 2008 and cost the system over \$400 million in hospitalizations.³ In addition to the direct cost of treating headaches, there is a sizable indirect cost due to lost productivity. This loss in productivity is estimated to be nearly \$20 billion dollars, the majority of which is attributed to reduced workplace performance.⁴ In Ohio there were 181,518 non-traumatic headache episodes among Medicaid beneficiaries in 2015, which represents about \$51 million in spend and a median cost of approximately \$120 per headache episode.⁵

Evidence-based clinical guidelines recommended by the International Headache Society (HIS), the American Headache Society (AHS), and the American Academy of Neurology (AAN) outline several best practices for clinician's to improve quality

¹ World Health Organization. Headache Disorders Fact Sheet. 2016. Accessed 9/15/2016 at www.who.int/mediacentre/factsheets/fs277/en.

² American Academy of Neurology. Headache: Quality measurement set. 2014; pp1-84

³ Lucado J, Paez K, Elixhauser A. Headaches in U.S. Hospitals and Emergency Departments, 2008. Agency for Healthcare Research and Quality, H-CUP Statistical Brief #111. 2011. Accessed 6/10/16 at <http://www.hcupus.ahrq.gov/reports/statbriefs/sb111.pdf>.

⁴ Stewart WF, et al. Lost productive time and cost due to common pain conditions in the US workforce. JAMA. 2003; 290(18):2443-2454.

⁵ Analysis of Ohio Medicaid claims data for dates between October 1, 2014 and September 30, 2015, Total episodes

of care and outcomes for patients.⁶ As this episode will focus on non-traumatic primary headaches (migraine and tension-type), the best practices will be discussed accordingly. Overall, guidelines indicate that the goals of primary headache treatment include reducing attack frequency and severity, limiting reliance on poorly tolerated or ineffective acute pharmacotherapies, and improving overall quality of life. More specifically, neuroimaging is generally not recommended except in rare cases (e.g., rapidly increasing headache frequency, history of lack of coordination, history of localized neurologic signs or subjective numbness/tingling, or history of headache causing awakening from sleep) and should be avoided if it will not lead to a change in the management of the patient.⁷ The management of primary headaches should consist of pharmacotherapy (e.g., NSAIDs and triptans) and lifestyle changes.

Despite these guidelines, treatment practices during the period following a headache diagnosis may vary widely from one provider to another. Unique patient needs will necessitate variation in treatment and practice; however, practice variation due to reasons not related to the patient may lead to sub-optimal patient outcomes, higher than necessary costs, or both.

Implementing the acute non-traumatic headache episode will incentivize evidence-based care through an outcomes-based payment model. As part of a concerted effort aimed at improving overall care for Ohio Medicaid patients, the non-traumatic headache episode is being deployed together with a suite of episodes (including episodes for low back pain, upper respiratory infection, urinary tract infection, asthma, and chronic obstructive pulmonary disease). Alongside these and other episodes of care and patient centered medical homes, the non-traumatic headache episode will contribute to a model of care delivery that benefits patients through improved care quality and clinical outcomes, and a lower overall cost of care.

1.2 Clinical overview and typical patient journey for a non-traumatic headache

Primary non-traumatic headaches are stand-alone illnesses caused by to overactivity or problems in pain-sensitive regions of the head such as blood vessels, muscles, and nerves.⁸ As depicted in Exhibit 1, a non-traumatic headache episode is triggered

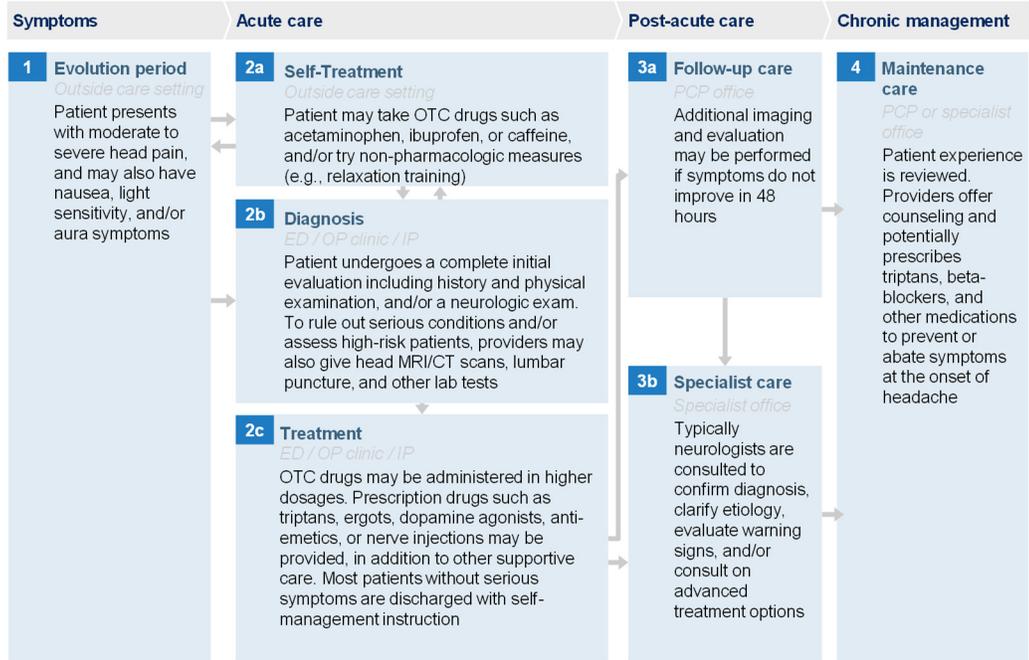
⁶ International Headache Society. The international classification of headache disorders, 2nd edition (ICHD-II). Cephalalgia. 2004; 24(1):1–160.

⁷ American Academy of Neurology, Quality Standards Subcommittee. Practice parameter: The utility of neuroimaging in the evaluation of headache in patients with normal neurologic examinations. Neurology. 1994; 44(7):1353–1354.

⁸ James McIntosh. Headaches: Causes, Diagnosis and Treatments. 2015.

when a physician in the emergency department, observation room, urgent care center, or office diagnoses a patient with a primary headache as their primary reason to visit.

EXHIBIT 1 - NON-TRAUMATIC HEADACHE PATIENT JOURNEY



At the time of diagnosis, the patient’s history is taken and then the patient undergoes initial evaluation and management. To rule out serious conditions and/or to assess high-risk patients, providers may also obtain tests such as MRIs or CT scans of the head, lumbar puncture, and/or other lab tests. In some cases, medications such as nonsteroidal anti-inflammatory drugs (NSAIDs), triptans, ergots, dopamine agonists, and antiemetics may be administered or prescribed. Additionally, patients are provided with counseling on self-management.

Post-acute care consists of additional evaluation and ongoing management, especially for patients whose symptoms have not improved within 48 hours. This follow-up care could be provided by primary care physicians or neurologists in order to confirm the diagnosis, clarify the etiology, evaluate for warning signs, or consult on advanced treatment options. Chronic management usually consists of counseling, self-management, and prescriptions for triptans, beta-blockers, and select other medications to prevent or abate symptoms at the onset of headache.

The non-traumatic headache episode will be complemented by a patient-centered medical home (PCMH) in Ohio to cover a broad spectrum of care delivery for Medicaid beneficiaries who require treatment for non-traumatic headaches. PCMHs will focus on chronic management of symptoms (e.g., prevention therapy and lifestyle interventions) and other patient comorbidities before and after the headache

diagnosis. Additionally, PCMHs will handle patient referrals to neurologists and other specialists as appropriate. To complement PCMHs, the non-traumatic headache episode will focus on improving outcomes directly related to the 15-day window following the diagnosis.

1.3 Potential sources of value within the non-traumatic headache patient journey

Within the non-traumatic headache episode of care, providers have several opportunities to improve quality of care and reduce unnecessary spend associated with the episode (see Exhibit 2). For example, in the absence of unique cases (e.g., rapidly increasing headache frequency, history of lack of coordination) providers may choose to avoid potentially unnecessary neuroimaging procedures such as CT scans and MRIs, thereby limiting radiation exposure and the need for additional procedures due to incidental findings. Also, providing appropriate treatment (e.g., select medications including NSAIDs or triptans) and guidance and support in headache prevention and management (e.g., self-management techniques, prevention therapies) may reduce the chance of repeat episodes, particularly in high cost facilities such as emergency departments. Providers may reduce the use of controlled substances, such as opioids, barbiturates and benzodiazepines, which may lead to other complications and higher spend. Finally, clinicians can encourage appropriate lifestyle management through exercise, diet, and smoking cessation consultations.

EXHIBIT 2 - NON-TRAUMATIC HEADACHE SOURCES OF VALUE



2. OVERVIEW OF THE NON-TRAUMATIC HEADACHE EPISODE DESIGN

2.1 Episode Trigger

The non-traumatic headache episode is triggered by an emergency department, observation room, urgent care center, or office visit during which primary headache or headache symptoms (e.g., nausea, light sensitivity, aura symptoms) are evaluated and treated. The non-traumatic headache diagnosis codes include diagnosis codes for migraine, tension, and unspecified headache. Secondary headaches (e.g., headaches attributed to head and/or neck trauma, cranial or cervical vascular disorders, substance withdrawals, or infections) and cluster headaches are not considered as episode triggers due to differences in the patient journey. A complete list of trigger diagnosis codes is included in Table 1 in the Appendix.

2.2 Principal Accountable Provider

The principal accountable provider (PAP) is the person or entity best positioned to influence the patient journey and the clinical decisions made throughout the course of the episode. For the non-traumatic headache episode the PAP is the physician entity diagnosing the headache that triggered the episode. If the episode is triggered in an ED setting, the PAP is the physician at the ED diagnosing the headache that triggered the episode.

2.3 Episode Duration

The non-traumatic headache episode begins on the first documented diagnosis of a non-traumatic headache (called the “trigger window”) and ends 15 days later (called the “post-trigger window”). The 15-day post-trigger window is split into two “post-trigger windows”: a three-day post-trigger window followed by a second 12-day post-trigger window. The 15-day post-trigger window was an adequate time to capture readmissions, complications, follow-up care and other relevant included claims. The rationale for the split post-trigger window relates to which services are included and is described in greater detail in section 2.4.

2.4 Included Services

The episode model is designed to address spend for care and services directly related to the diagnosis, treatment, and immediate recovery phase of the patient journey. Each period of the patient journey, or episode “window,” has a distinct claim

inclusion logic derived from two major criteria: 1) that the type of included care and services must correspond to that window of the patient journey and 2) that the included care and services are understood to be directly or indirectly influenced by the PAP during that window.

The non-traumatic headache episode is comprised of three distinct windows for the purpose of spend inclusions: a trigger window and two post-trigger windows. During the trigger window all relevant spend is included (including imaging, medical, and drug spend). During the first post-trigger window (one through three days following the initial headache diagnosis), immediate complications (e.g. allergic reactions, nausea and vomiting, renal failure, constipation, fever, and muscle or joint pain), recurring headache symptoms (including any associated ED visits or hospitalizations), and related follow-up care (e.g., CT scans, MRIs and select medications and follow-up appointments) are included. During the second post-trigger window (four to 15 days following the diagnosis), only recurring headache symptoms (including any associated ED visits or hospitalizations) and related follow-up care (e.g., CT scans, MRIs, select medications and follow-up appointments) are included.

Throughout the episode window spend for transportation and vaccinations are excluded. Vaccination spend is excluded to prevent doctors from withholding procedures deemed beneficial for patients and transportation spend is excluded since there is variability in transportation costs among patients that falls outside the purview of the PAP.

The total episode spend is calculated by adding up the spend amounts on all of the individual claims that were included in each of the episode windows. To make episodes starting in the ED more comparable with those that do not start in the ED, the facility spend for ED episodes is excluded from the total episode spend.

2.5 Episode Exclusions and Risk Factors

To ensure that episodes are comparable across patient panels, select risk factors and exclusions are applied before assessing PAP performance. Risk factors are applied to episodes to make spend more comparable across different patient severities, while episode exclusions are applied when a clinical factor deems the patient too severe (and too high spend) for risk adjustment to be possible.

In the context of episode design, risk factors are attributes (e.g., age, gender) or underlying clinical conditions (e.g., hypertension and sleep apnea) that are likely to impact a patient's course of care and the spend associated with a given episode. Risk factors are selected via a standardized and iterative risk-adjustment process which gives due consideration to clinical relevance, statistical significance, and other

contextual factors. Based on the selected risk factors, each episode is assigned a risk score. The total episode spend and the risk score are used to arrive at an adjusted episode spend, which is the metric on which providers are compared to each other. The final list of risk factors is detailed in Table 2 of the Appendix. Other risk factors were inputted into the model because they were clinically relevant to the headache episode but did not come out of the model as statistically significant.⁹

By contrast, an episode is excluded from a patient panel when the patient has clinical factors that suggest she has experienced a distinct or different journey (e.g., trauma or concussion) and/or which drive significant increases in spend relative to the average patient (e.g., select cancers or HIV). In addition, there are several “business-related” exclusions. These exclusions are factors relating to reimbursement policy (e.g., whether a patient sought care out of state), the completeness of spend data for that patient (e.g., third party liability or dual eligibility), and other topics relating to episode design and implementation (e.g. patient lived in a long term care facility) during the comparison period. Episodes that have no exclusions are known as “valid” episodes and are the episodes that are used for provider comparisons. In contrast, episodes with one or more exclusions are “invalid” episodes.

For the headache episode, both business and clinical exclusions apply. Several of the business and clinical exclusions are standard across most episodes while others while others are specific to the headache episode. As the episode is intended to capture primary non-traumatic headaches the episode-specific clinical exclusions (which are in addition to clinical exclusions that are standard across most episodes) are: claims with procedures or diagnoses indicating 1) trauma, 2) secondary headaches, and 3) seizures. A detailed list of business and clinical exclusions is included in Table 3 in the Appendix.

2.6 Quality Metrics

To ensure the episode model incentivizes quality care, the headache episode has select quality metrics. Quality metrics are calculated for each PAP meeting the minimum threshold for valid episodes. The headache episode has seven quality metrics. Three of the quality metrics are linked to performance assessment, meaning that performance thresholds on these quality metrics must be met in order for the episodes to be eligible for positive incentive payments within the episode model. The specific threshold amount will be determined during the informational reporting period. Four of the quality metrics is for informational purposes only.

⁹ These risk factors include obesity, sleep apnea, hypoglycemia, dental problems, and depression

The metrics tied to positive incentive payments are new barbiturate prescription rate, imaging (e.g., CT scans and MRIs) rate, and average difference in morphine equivalent dose (MED) per day between the pre-trigger opioid window and the post-trigger opioid window. The informational metrics are the new opioid prescription rate 14-day emergency department visit rate, average MED per day during the pre-trigger opioid window, and the average MED per day during the post-trigger opioid window. A detailed list of quality metrics is provided in Table 4 of the Appendix.

3. APPENDIX: SUPPORTING INFORMATION AND ANALYSES

Table 1 – Headache episode triggers

Trigger group	Trigger codes (ICD-9 Dx)	Description
Headache NOS	7840	Headache
	33989	Other specified headache syndromes
Migraine general	34690	Migraine unspecified without mention of intractable migraine without mention of status migrainosus
	3469	Migraine unspecified
	34680	Other forms of migraine without intractable migraine without mention of status migrainosus
	34640	Menstrual migraine without intractable migraine without mention of status migrainosus
Tension headache	33911	Episodic tension type headache
	33910	Tension type headache unspecified
	30781	Tension headache
Migraine without aura	34610	Migraine without aura without mention of intractable migraine without mention of status migrainosus
Migraine with aura	34650	Persistent migraine aura without cerebral infarction without mention of intractable migraine without mention of status migrainosus
	34600	Migraine with aura without mention of intractable migraine without mention of status migrainosus
Intractable migraine	34691	Migraine unspecified with intractable migraine so stated without mention of status migrainosus
	34681	Other forms of migraine with intractable migraine so stated without mention of status migrainosus
	34651	Persistent migraine aura without cerebral infarction with intractable migraine so stated without status migrainosus
	34641	Menstrual migraine with intractable migraine so stated without mention of status migrainosus
	34621	Variants of migraine not elsewhere classified with intractable migraine so stated without mention of status migrainosus

Trigger group	Trigger codes (ICD-9 Dx)	Description
Intractable migraine	34620	Variants of migraine not elsewhere classified without mention of intractable migraine without mention of status migrainosus
	34611	Migraine without aura with intractable migraine so stated without mention of status migrainosus
	34601	Migraine with aura with intractable migraine so stated without mention of status migrainosus
Migraine chronic	34673	Chronic migraine without aura with intractable migraine so stated with status migrainosus
	34672	Chronic migraine without aura without mention of intractable migraine with status migrainosus
	34671	Chronic migraine without aura with intractable migraine so stated without mention of status migrainosus
	34670	Chronic migraine without aura without mention of intractable migraine without mention of status migrainosus
	33912	Chronic tension type headache
Status migrainosus	34693	Migraine unspecified with intractable migraine so stated with status migrainosus
	34692	Migraine unspecified without mention of intractable migraine with status migrainosus
	34683	Other forms of migraine with intractable migraine so stated with status migrainosus
	34682	Other forms of migraine without mention of intractable migraine with status migrainosus
	34653	Persistent migraine aura without cerebral infarction with intractable migraine so stated with status migrainosus
	34652	Persistent migraine aura without cerebral infarction without mention of intractable migraine with status migrainosus
	34643	Menstrual migraine with intractable migraine so stated with status migrainosus
	34642	Menstrual migraine without mention of intractable migraine with status migrainosus
	34623	Variants of migraine not elsewhere classified with intractable migraine so stated with status migrainosus

Trigger group	Trigger codes (ICD-9 Dx)	Description
Status migrainosus	34622	Variants of migraine not elsewhere classified without mention of intractable migraine with status migrainosus
	34613	Migraine without aura with intractable migraine so stated with status migrainosus
	34612	Migraine without aura without mention of intractable migraine with status migrainosus
	34603	Migraine with aura with intractable migraine so stated with status migrainosus
	34602	Migraine with aura without mention of intractable migraine with status migrainosus

Table 2 – Headache episode risk factors

Risk factor	Description	Relevant time period
Acute cerebrovascular disease	Patient has diagnosis of acute cerebrovascular disease	During the episode window and 365 days before the episode window
Age 14 to 18 years	Patient age is 14 to 18 years	During the episode window
Allergic reactions	Patient has diagnosis of allergic reactions	During the 90 days before the episode window
Aortic and Peripheral Arterial Embolism or Thrombosis	Patient has diagnosis of Aortic and Peripheral Arterial Embolism or Thrombosis	During the 365 days before the episode window
Bacterial Infection	Patient has diagnosis of bacterial infection	During the 365 days before the episode window
Cervical disorders	Patient has diagnosis of cervical disorders	During the episode window and 365 days before the episode window
Chronic pain	Patient has diagnosis of chronic pain	During the episode window and 365 days before the episode window
Conditions Associated With Dizziness or Vertigo	Patient has diagnosis of conditions associated with dizziness or vertigo	During the episode window and 365 days before the episode window
Diabetes	Patient has diagnosis of diabetes	During the episode window and 365 days before the episode window
Meningitis	Patient has diagnosis of meningitis	During the 365 days before the episode window

Risk factor	Description	Relevant time period
Obesity	Patient has diagnosis of obesity	During the episode window and 365 days before the episode window
Other Hereditary and Degenerative NSC	Patient has diagnosis of other hereditary and degenerative NSC	During the episode window and 365 days before the episode window
Other Nervous system disorders	Patient has diagnosis of nervous system disorders	During the episode window and 365 days before the episode window
Sex female	Patient is female	N/A
Substance use	Patient has diagnosis of substance use	During the episode window and 365 days before the episode window
Thyroid disorders	Patient has diagnosis of thyroid disorders	During the episode window and 365 days before the episode window
Viral infection	Patient has diagnosis of viral infection	During the 90 days before the episode window
Visual abnormalities	Patient has diagnosis of visual abnormalities	During the episode window and 365 days before the episode window

Table 3 – Headache episode exclusions

Exclusion type	Episode exclusion	Description	Relevant time period
Business Exclusions	Dual	Patient had dual coverage by Medicare and Medicaid	During the episode window
	FQHC/RHC	PAP is classified as a federally qualified health center (FQHC) or a rural health clinic (RHC)	During the episode window
	Incomplete episode	Non-risk-adjusted episode spend is less than the incomplete episode threshold	During the episode window
	Inconsistent enrollment	Patient has gaps in full Medicaid coverage	During the episode window
	Long hospitalization	Hospitalization is longer than (>) 30 days	During the episode window
	Long-term care	Patient has one or more long-term care claim detail lines	During the episode window
	Missing APR-DRG	A DRG-paid inpatient claim is missing the APR-DRG and severity of illness	During the episode window
	Multiple payers	Patient changes enrollment between FFS and an MCP or between MCPs	During the episode window
	PAP out of state	The principle accountable provider operates out of state	During the episode window
	No PAP	An episode's billing provider number is not available	During the episode window
	Third-party liability	Third-party liability charges are present on any claim or claim detail line, or the patient has relevant third-party coverage at any time	During the episode window
	Cancer diagnoses and treatment	Patient is diagnosed with or received treatment for active cancer	During the episode or up to 90 days before the start of the episode

Exclusion type	Episode exclusion	Description	Relevant time period
Standard clinical exclusion	Coma	Patient is diagnosed with coma	During the episode or up to 365 days before the start of the episode
	Cystic fibrosis	Patient is diagnosed with cystic fibrosis	During the episode or up to 365 days before the start of the episode
	Death	Patient had a discharge status of “expired” on any inpatient or outpatient claim during the episode window or has a date of death before the end of the episode window	During the episode window
	End stage renal disease	Patient has diagnosis or procedure for end stage renal disease	During the episode or up to 365 days before the start of the episode
	HIV	Patient is diagnosed with HIV	During the episode or up to 365 days before the start of the episode
	Left against medical advice	Patient has a discharge status of “left against medical advice or discontinued care”	During the episode window
	Multiple other comorbidities	Patient has too many risk factors to reliably risk adjust the episode spend	During the episode window
	Multiple sclerosis	Patient is diagnosed with multiple sclerosis	During the episode window or during the 365 days
	Paralysis	Patient has diagnosis of paralysis	During the episode or up to 365 days before the start of the episode
	Transplant	Patient has an organ transplant	During the episode or up to 365 days before

Exclusion type	Episode exclusion	Description	Relevant time period
			the start of the episode
	Tuberculosis	Patient has diagnosis of tuberculosis	During the episode window and 90 days before the episode window
Episode-specific clinical exclusion	Acute and chronic tonsillitis	Patient has diagnosis of chronic tonsillitis	During the episode window and 365 days before the episode window
	Age	Patient is younger than eighteen (<14) or older than sixty-four (>64) years of age	During the episode window
	Arteritis	Patient has diagnosis of arteritis	During the episode window and 365 days before the episode window
	Bleeding disorders	Patient has diagnosis of bleeding disorders	During the episode window and 90 days before the episode window
	Cerebral or cerebrovascular disease	Patient has diagnosis of cerebral or cerebrovascular disease	During the episode window and 365 days before the episode window
	CNS infections	Patient has diagnosis of CNS infection	During the episode window and 365 days before the episode window
	Complex headache syndromes	Patient has diagnosis of complex headache syndromes	During the episode window
	Head or neck trauma	Patient has diagnosis of head or neck trauma	During the episode window and 90 days before the episode window

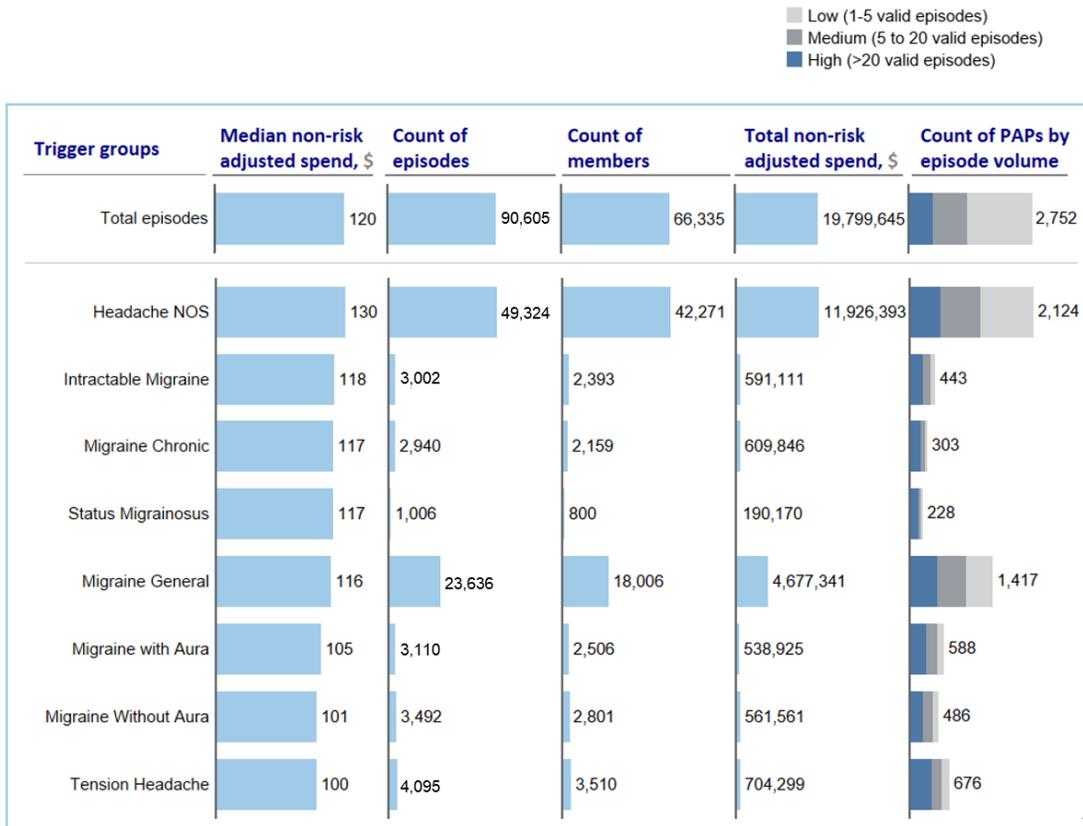
Exclusion type	Episode exclusion	Description	Relevant time period
Episode-specific clinical exclusion	High outlier	Risk-adjusted episode spend is greater than the high outlier threshold	During the episode window
	Immunocompromised patient	Patient has diagnosis of immunocompromised	During the episode window and 365 days before the episode window
	Low outlier	Non-risk adjusted episode spend is lower than the low outlier threshold	During the episode window
	Malignant hypertension	Patient has diagnosis of malignant hypertension	During the episode window and 90 days before the episode window
	Neoplasm of head or neck	Patient has diagnosis of neoplasm of head or neck	During the episode window and 365 days before the episode window
	Toxins	Patient has diagnosis indicating presence of nutritional, alcohol-related, or drug-related toxins	During the episode window

Table 4 – Headache episode quality metrics (PAP level)

Metric type	Field name	Description	Relevant time period
Tied to incentive payments	New barbiturate prescription (fill) rate	Number of valid episodes with a new barbiturate prescriptions divided by the total number of valid episodes (tied to positive incentive payments)	90 days before the trigger for old prescriptions and during the episode for new prescriptions
	Imaging rate (CT scans and MRIs)	Number of valid episodes with an imaging procedure (CT scans or MRIs) of the head divided by the total number of valid episodes	During the episode
	Difference between average MED/day in the pre-trigger opioid window and the post-trigger opioid window ⁹	Difference between average MED/day in the pre-trigger opioid window and the post-trigger opioid window	During the pre-trigger opioid window and post-trigger opioid window
Informational	New opioid prescription (fill) rate	Number of valid episodes with a new opioid prescription divided by the total number of valid episodes (tied to positive incentive payments)	90 days before the trigger for old prescriptions and during the episode for new prescriptions
	ED follow-up rate	Number of valid episodes with a ED visits in the post-trigger window divided by the total number of valid episodes	During the episode
	Average MED/day during the pre-trigger opioid window	Average MED per day during the pre-trigger opioid window among patients with an opioid prescription	During the pre-trigger opioid window
	Average MED/day during the post-trigger window	Average MED per day during the post-trigger opioid window among patients with an opioid prescription	During the post-trigger opioid window

⁹ The pre-trigger opioid window and post-trigger opioid window are specific time periods that are defined in the detailed business requirements

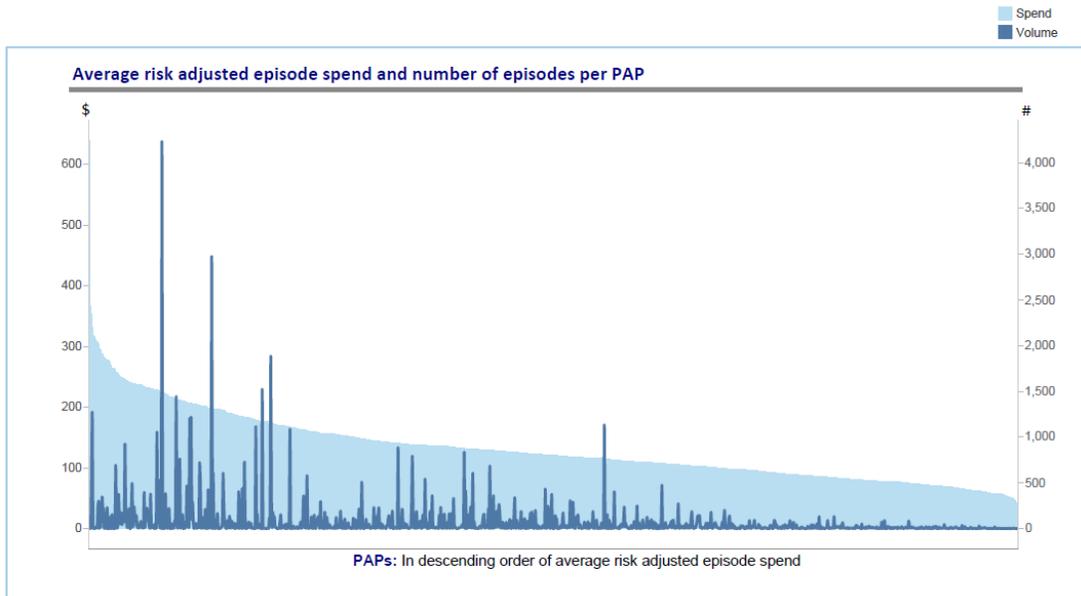
EXHIBIT 3 - HEADACHE EPISODE TRIGGER GROUPS^{1,2}



1. For valid episodes (90,605 episodes) across 2,752 PAPs; valid episodes do not include episodes with business (e.g., third-party liability, dual eligibility) or clinical exclusions (e.g., stroke, head trauma); count of PAPs includes valid PAPs (e.g. ≥ 5 valid episodes) and invalid PAPs (e.g. < 5 valid episodes)
2. Low volume is defined as PAPs with less than five valid episodes, Medium volume as PAPs with five to 20 valid episodes and High volume as PAPs with more than 20 valid episodes

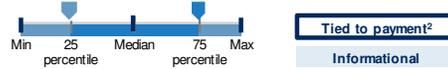
SOURCE: OH claims data, episodes ending between 10/1/2014 and 9/30/2015

EXHIBIT 4 - DISTRIBUTION OF AVERAGE RISK-ADJUSTED AVERAGE EPISODE SPEND AND COUNT BY PAP¹

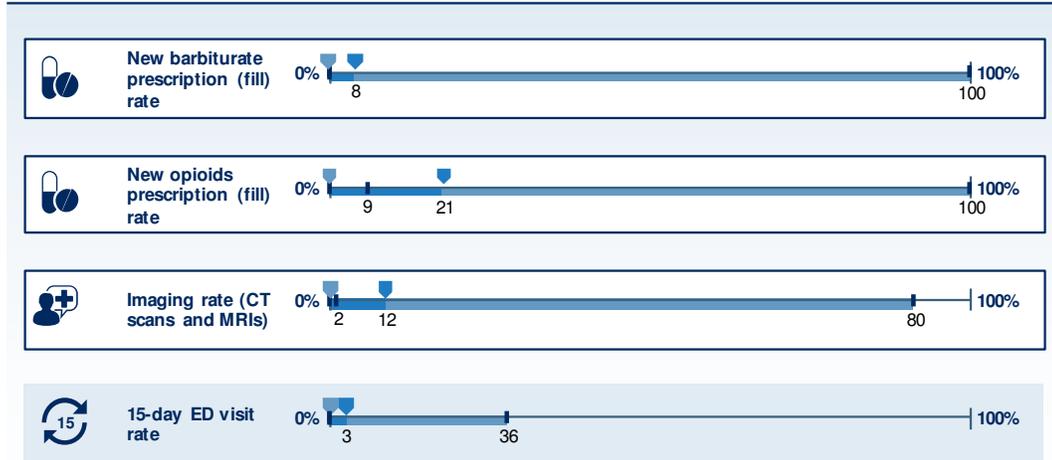


1. For valid episodes (87,959) across valid PAPs (1,307); valid episodes do not include episodes with business (e.g., third-party liability, dual eligibility) or clinical exclusions (e.g., stroke, head trauma); valid PAPs are physicians with five or more episodes.
SOURCE: OH claims data, episodes ending between 10/1/2014 and 9/30/2015

EXHIBIT 5 - PAP PERFORMANCE ON EPISODE QUALITY METRICS¹

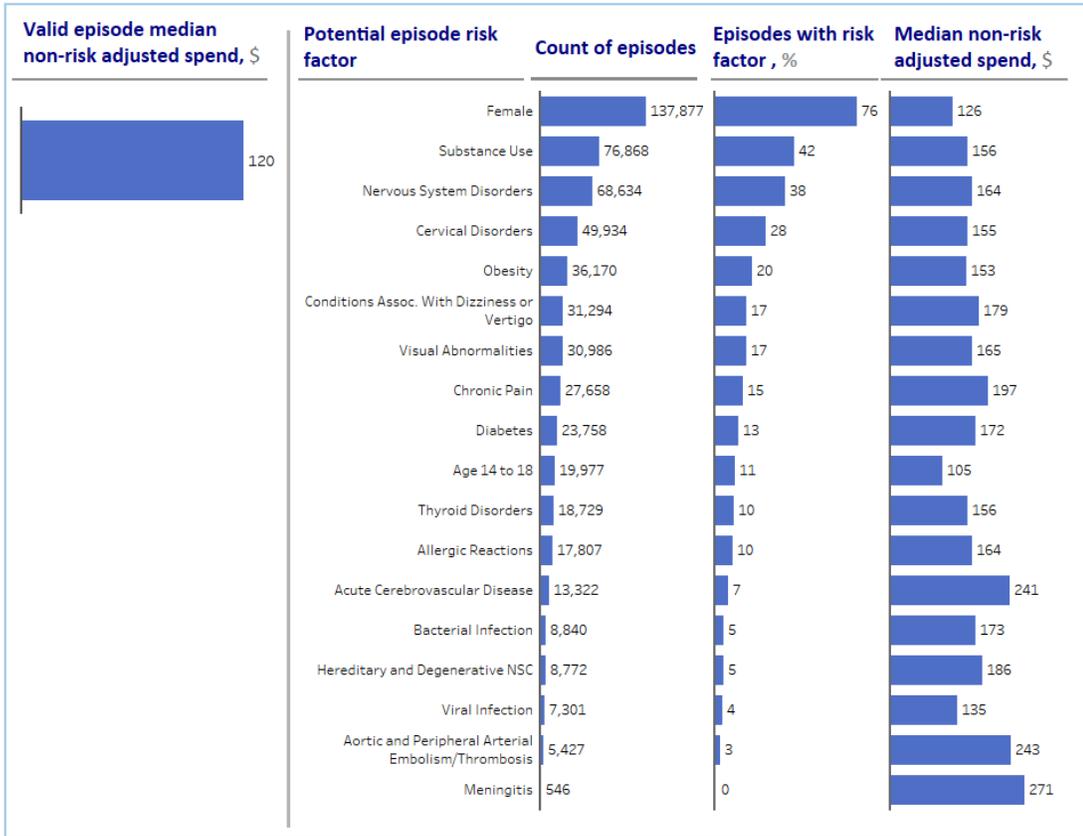


Quality metrics



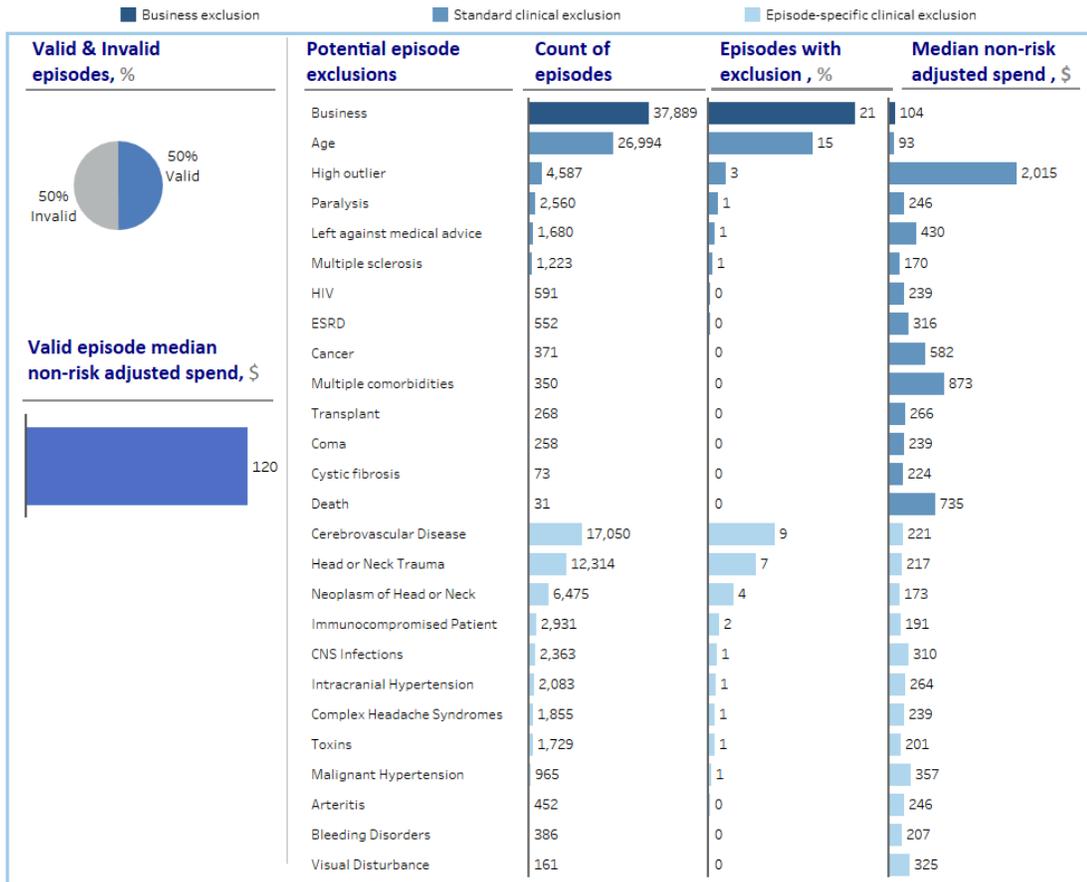
1. For valid episodes (87,959) across valid PAPs (1,307); valid episodes do not include episodes with business (e.g., third-party liability, dual eligibility) or clinical exclusions (e.g., stroke, head trauma); valid PAPs are physicians with five or more episodes
 2. Metric is tied to positive incentive payments
- SOURCE: OH claims data, episodes ending between 10/1/2014 and 9/30/2015

EXHIBIT 6 - EPISODE COUNT AND SPEND BY RISK FACTORS¹



1. For episodes with this risk factor; one episode can have multiple risk factors
 SOURCE: OH claims data, episodes ending between 10/1/2014 and 9/30/2015

EXHIBIT 7 - EPISODE COUNT AND SPEND BY EXCLUSIONS^{1,2}



1. For episodes with these exclusions; one episode can have multiple exclusions
 2. Age exclusion excludes patients younger than fourteen or older than sixty-four
 SOURCE: OH claims data, episodes ending between 10/1/2014 and 9/30/2015