Headache

Quality Measurement Set

Approved by the Headache Quality Measurement Standing Work Group on January 31, 2020. Approved by the AAN Quality Measures Subcommittee on February 14, 2020. Approved by the AAN Quality Committee on March 16, 2020. Approved by the AANI Board of Directors on April 7, 2020. Approved by the American Headache Society Board of Directors on January 6, 2020.

Disclaimer

Performance measures (Measures) and related data specifications developed by the American Academy of Neurology Institute (AANI) and the American Headache Society (AHS) are intended to facilitate quality improvement activities by providers.

AANI Measures: 1) are not clinical guidelines and do not establish a standard of medical care and have not been tested for all potential applications, 2) are not continually updated and may not reflect the most recent information, and 3) are subject to review and may be revised or rescinded at any time by the AANI. The measures, while copyrighted, can be reproduced and distributed, without modification, for noncommercial purposes (e.g., use by health care providers in connection with their practices); they must not be altered without prior written approval from the AANI. Commercial use is defined as the sale, license, or distribution of the measures for commercial gain, or incorporation of the measures into a product or service that is sold, licensed, or distributed for commercial gain. Commercial uses of the measures require a license agreement between the user and the AAN. Neither the AAN nor its members are responsible for any use of the measures.

AANI Measures and related data specifications do not mandate any particular course of medical care and are not intended to substitute for the independent professional judgment of the treating provider, as the information does not account for individual variation among patients. In all cases, the selected course of action should be considered by the treating provider in the context of treating the individual patient. Use of the information is voluntary. AANI provides this information on an "as is" basis, and make no warranty, expressed or implied, regarding the information. AANI specifically disclaim warranties of merchantability or fitness for a particular use or purpose. AANI assumes no responsibility for any injury or damage to persons or property arising out of or related to any use of this information or for any errors or omissions.

Limited proprietary coding is contained in the measure specifications for convenience. Users of the proprietary coding sets should obtain all necessary licenses from the owners of these code sets. The AAN and its members disclaim all liability for use or accuracy of any Current Procedural Terminology (CPT®) or other coding contained in the specifications. ICD-10 copyright 2012 International Health Terminology Standards Development Organization.

Table of Contents

Work Group Members 4
Importance and Prevalence of Headache 6
2019 Headache Measurement Set Update 6
Documentation of Migraine Frequency 8
Modifiable Lifestyle and Chronification Factors Counseling for Migraine 14
Treatment Prescribed for Acute Migraine Attacks 20
Migraine Preventive Therapy Management 28
Acute Treatment Prescribed for Cluster Headache 34
Preventive Treatment Prescribed for Cluster Headache 39
Contact Information 44
Appendix A 45
References 46

Work Group Members

American Academy of Family Physicians
Duren Ready, MD, FAHS

American Academy of Neurology
Calli Cook, DNP, APRN, FNP-C
Nathaniel Schuster, MD
Mark Bailey, DO, PhD, FACN
Matthew Robbins, MD, FAAN, FAHS (Chair)
M. Cristina Victorio, MD, FAHS (Facilitator)
Raissa Villanueva, MD, MPH, FAAN (Facilitator)

American College of Emergency Physicians
J. Stephen Huff, MD

American College of Radiology
David Seidenwurm, MD, FACR

American Headache Society
Ivan Garza, MD

American Psychological Association
Elizabeth Seng, PhD, FAHS

Child Neurology Society
Christina Szperka, MD, MSCE, FAHS

American Academy of Neurology Staff
Amy Bennett, JD
Erin Lee
Karen Lundgren, MA
Becky Schierman, MPH

Improving Outcomes for Patients with Headache

Rationale for Measures

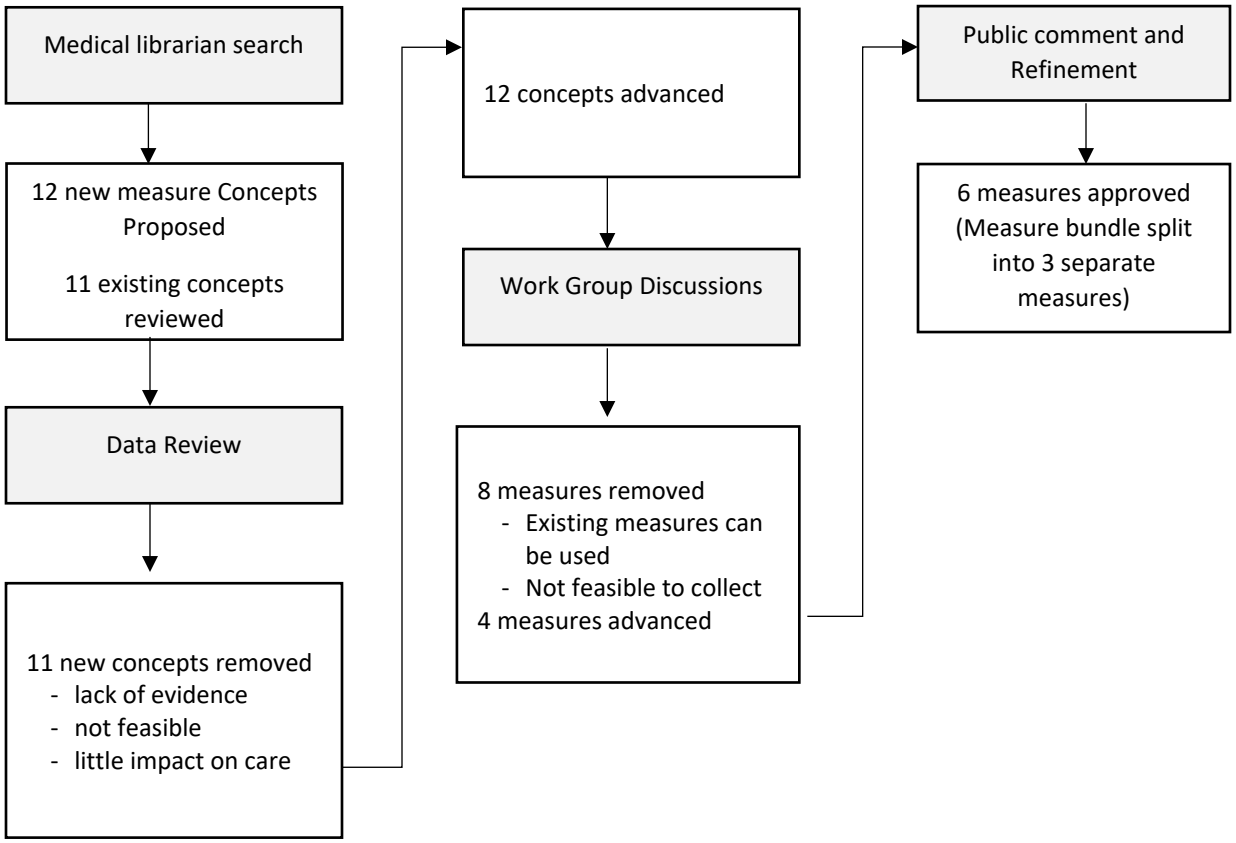
In 2017, the American Academy of Neurology (AAN) and the American Headache Society (AHS) formed the Headache Measurement Work Group (Work Group) to review existing guidelines, current evidence, and gaps in care in order to update the 2013 headache measures to drive better outcomes for patients with headache.

Measure Development Process

The Quality and Safety Subcommittee (QSS) approved an update to the Headache Quality Measurement Set. The QSS commissioned a work group comprised of care team members that care for headache patients that include neurology, APPs, and neuroimaging. Two facilitators from QSS were appointed to oversee the methodology and serve as non-voting members. This work group was tasked with reviewing literature and using that evidence to update the existing headache measures and to propose new concepts for consideration. A series of virtual meetings was held to discuss and refine the measure concepts. The Work Group voted to approve or not approve each proposed measure. Work Group members were encouraged to abstain from voting if a conflict of interest was present.

Following the virtual meetings, measures were further refined and posted for public comment. The Work Group reviewed and responded to all public comments. The Work Group refined the measures when feasible, and additional evidence was requested from respondents based upon their suggestions when not feasible. After the measures were edited, the Work Group voted to approve or not approve the whole measurement set. Once approved by the Work Group, AAN staff facilitated internal AAN and AHS approvals. The Work Group drafted a manuscript which is an executive summary of the measurement set that is submitted for potential publication in *Neurology*. These measures and headache evidence will be reviewed every six months by the Work Group for potential updates.

Below is an illustration of the measure development process from proposals, discussion, research, evaluation, to approval.



Importance and Prevalence of Headache

Headache may be the most common reason for a person to seek care from a neurologist and is a frequent chief complaint across all care settings. In addition to specialty care, headache is most commonly encountered in primary care[1,2], and is also the 4th leading cause of emergency department visits[3], with 1.2 million visits in US emergency departments for migraine annually[4].

Primary headache disorders are extraordinarily common and are debilitating neurological disorders. Though most of the population experiences a primary headache disorder in their lifetime[5], migraine alone affects 12% of the population in any given year and is accompanied by substantial comorbidities[6,7]. The most severe form of migraine, chronic migraine, features a 1% population prevalence and disproportionate disability[8].

Migraine has its most severe disability during young and middle age, when people are most productive in society, adding to the disproportionate burden. According to the 2016 Global Burden of Disease study by the World Health Organization, migraine ranks second among all causes of years lost to disability (YLD)[9]. In addition, for persons aged 15–49 years, migraine is remarkably the top cause of YLD worldwide[10]. While less common, cluster headache, the most common trigeminal autonomic cephalalgia, features a lifetime prevalence of 1 in 1000 persons[11], and may be intractable.

Recent advances in the treatment of headache disorders have great potential to influence clinical practice across a variety of age groups, including acute and preventive pharmacological therapies, neuromodulation devices, and nonpharmacological treatments such as behavioral therapies.

2019 Headache Update Measurement Set

Documentation of Migraine Frequency
Modifiable Lifestyle and Chronification Factors Counseling for Migraine
Treatment Prescribed for Acute Migraine Attacks
Migraine Preventive Therapy Management
Acute Treatment Prescribed for Cluster Headache (Paired measure with Preventive Treatment Prescribed for Cluster Headache)
Preventive Treatment Prescribed for Cluster Headache (Paired measure with Acute Treatment Prescribed for Cluster Headache)

2013 Measures Retired

- Assessment of medication overuse headache in the treatment of primary headache disorders
- Plan of care or referral for possible medication overuse headache
- Overuse of neuroimaging for patients with primary headache and a normal neurological examination
- Migraine or cervicogenic headache related disability functional status
- Plan of care for migraine or cervicogenic headache developed or reviewed
- Overuse of opioid containing medications for primary headache disorders
- Overuse of barbiturate containing medications for primary headache disorders
- Preventive migraine medication prescribed
- Quality of life assessment for patients with primary headache disorders

Other Potential Measures

The measures developed are a result of a consensus process. Work Group members are given an opportunity to submit new measures in advance of virtual meetings where all measures are reviewed and edited individually. The Work Group felt the following concepts were not ready for development at this time due to their presence in other measurement sets, lack of strong evidence in a neurology population, difficulty locating data elements needed for measurement, or lack of known gaps in treatment. There are no outcome measures in this measurement set. The Work Group hopes that documentation measures will lead to outcome measures in future updates of the measurement set. The Work Group recommends these concepts be revisited at each 6-month review.

- Non-opioid medication for primary headache in all care settings
- Assessment of adherence to therapy protocol
- Addiction risk for opioid and barbiturate therapy and appropriate prescribing
- Hospital protocol for suspected diagnosis for CT procedures
- Preventive therapy for chronic tension-type headache
- Quality of life assessment for patients with migraine

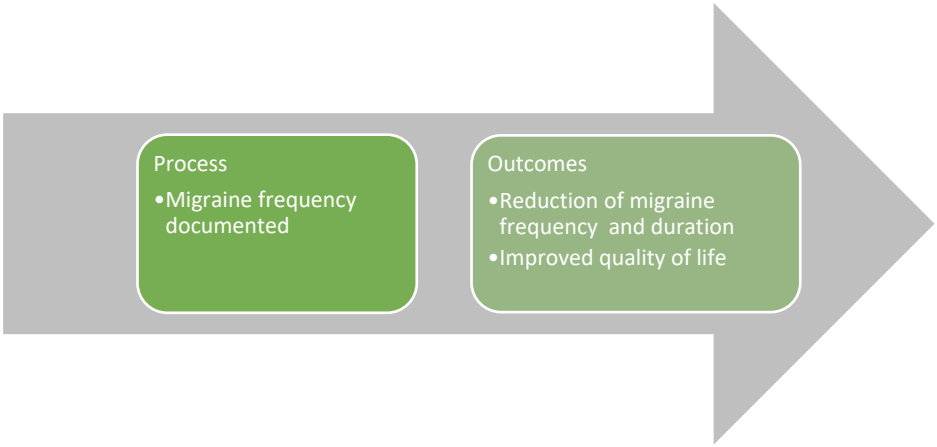
The Work Group recommends the use of these additional measures:

ICSI Guideline on the Diagnosis and treatment of headache https://www.icsi.org/wp-content/uploads/2019/01/Headache.pdf **Quality measures start on page 49
Use of opioids at high dosage in persons without cancer https://www.pqaalliance.org/opioid-core-measure-set
Documentation of signed opioid treatment agreement https://www.aan.com/policy-and-guidelines/quality/quality-measures2/quality-measures/other/documentation-of-signed-opioid-treatment-agreement/
Evaluation or interview for risk of opioid misuse https://www.aan.com/policy-and-guidelines/quality/quality-measures2/quality-measures/other/evaluation-of-interview-for-risk-of-opioid-misuse/
Opioid therapy follow-up evaluation https://www.aan.com/policy-and-guidelines/quality/quality-measures2/quality-measures/other/opioid-therapy-follow-up-evaluation/

Measure Harmonization

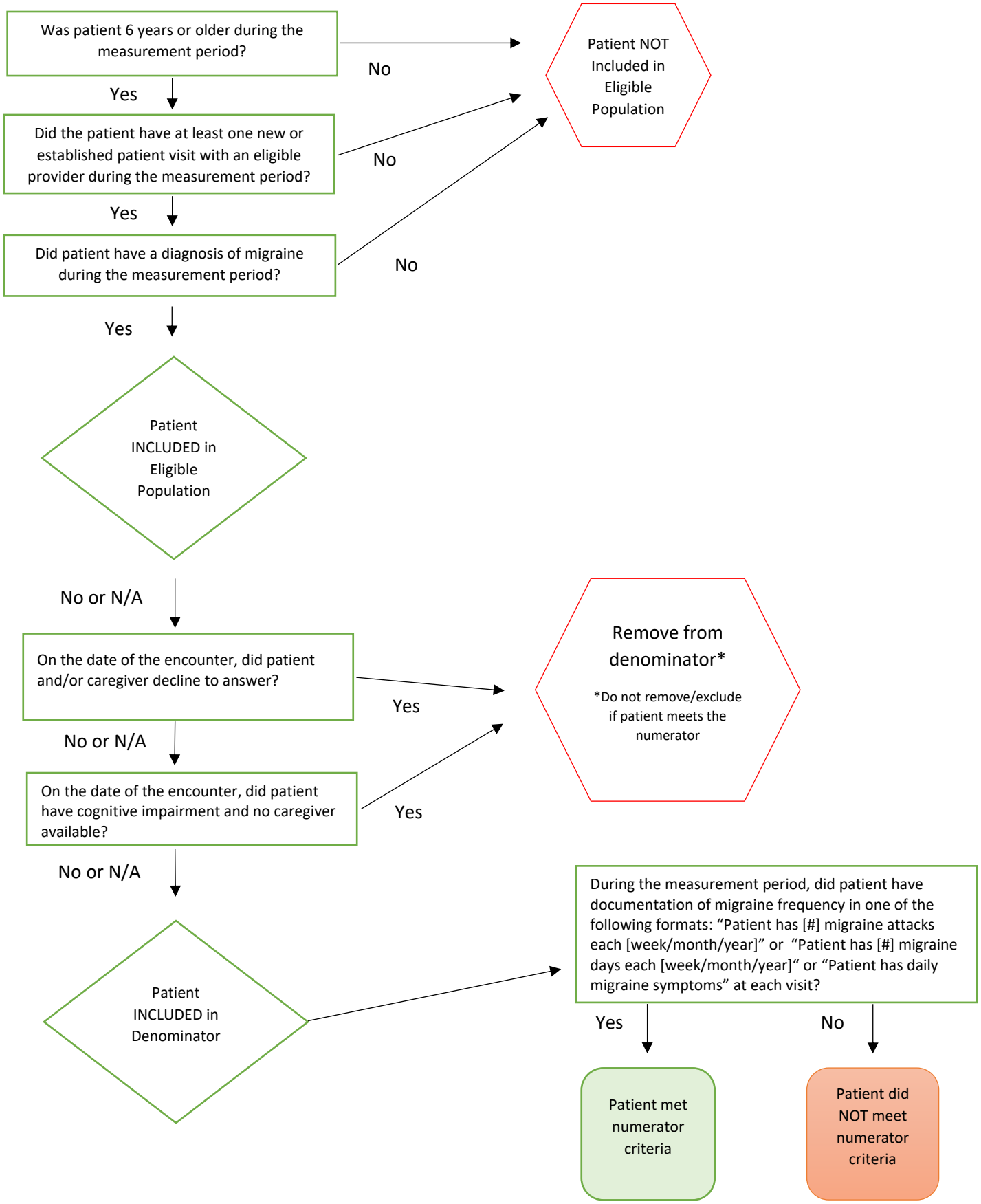
The Work Group reviewed existing measures on the topics included in this measurement set. The AAN advocates for reducing duplicative measures when possible.

Measure Title	Documentation of migraine frequency	
Description	Percentage of patients aged 6 years and older with a diagnosis of migraine who had their migraine frequency documented at each visit	
Measurement Period	January 1, 20xx to December 31, 20xx	
Eligible Population	**Eligible Providers**	Medical Doctor (MD), Doctor of Osteopathy (DO), Advanced Practice Provider (APP), Advanced Practice Registered Nurse (APRN)
	Care Setting(s)	Outpatient
	Ages	≥ 6 years of age
	Event	Office visit
	Diagnosis	Migraine
Denominator	Patients ≥ 6 years of age diagnosed with migraine	
Numerator	Patients who had their migraine frequency documented in one of the following formats at each visit: • "Patient has [#] migraine attacks each [week/month/year]", or • "Patient has [#] migraine days each [week/month/year], or • "Patient has [#] bad/severe headache days each [week/month/year], or • "Patient has daily migraine symptoms"	
Required Exclusions	None	
Allowable Exclusions	• Patient and/or caregiver decline to answer • Patient has cognitive impairment and no caregiver is available For data collection via a clinical registry, we suggest using the following key phrases for capturing exclusions. These key phrases should be recorded on the encounter date: • "Patient declines to answer" • "Caregiver declines to answer" • "Patient and/or caregiver declines counseling" • "Caregiver declines counseling" • "Patient declines therapies" • "Caregiver declines therapies" • "Patient has cognitive impairment" • "No caregiver available"	
Exclusion Rationale	Patients and their caregivers have the right to refuse a service. A patient with cognitive impairment may not have the ability to answer a question when a caregiver is not present.	
Measure Scoring	Percentage	
Interpretation of Score	Higher score indicates better quality	
Measure Type	Process	
Level of Measurement	Provider	
Risk Adjustment	Not applicable	
For Process Measures Relationship to	The ultimate outcome when treating headache and migraine is to reduce the frequency of headache. Headache frequency is not always recorded in the patient visit note or not recorded in a standard way. This makes analysis of frequency and subsequent treatment of the patient difficult, particularly if the patient switches providers during their care. Reduction of headaches is associated with improved health-related quality of life.	

Desired Outcome	
Opportunity to Improve Gap in Care	The reduction of headache frequency and duration are desired outcomes for headache treatment. However, changes in headache cannot be evaluated without asking the patient and documenting frequency in a standard format in the electronic health record. Patients can be instructed to use headache diaries or other electronic-based recording tools such as apps on a cellphone to reliable relate headache frequency to their clinician. Headache frequency and duration are paramount in diagnosing and treating the headache appropriate. Becker et al, state that "comprehensive migraine therapy includes management of lifestyle factors and triggers, acute and prophylactic medications, and migraine self-management strategies."[1] By modifying certain lifestyle factors, a patient is able to influence their migraine frequency and severity. Epidemiologic studies suggest approximately 38% of people with headache need preventive therapy, but only 3%–13% currently use it.[1] Preventive therapies can decrease the occurrence of migraine attacks and reduce the severity and duration of migraine attacks that do occur. The American Migraine Prevalence and Prevention (AMPP) study found that approximately 12% of Americans have migraine and approximately 40% could benefit from preventative therapies.[1]
Harmonization with Existing Measures	No similar measures known.
References	1. Lipton RB, Bigal ME, Diamond M, et al. The American Migraine Prevalence and Prevention Advisory Group. Migraine Prevalence, disease burden, and the need for preventive therapy. *Neurology* 2017; 68:343-349. <u>Supporting evidence</u> • Becker W, Findlay T, Moga C, et al. Guideline for primary care management of headache in adults. Canadian Family Physicians 2015; 61:670-679. • Pellegrino A, Davis-Martin R, Houle T, et al. Perceived triggers of primary headache disorders: A meta-analysis. Cephalalgia 2018; 38:1188-1198. • Silberstein SD, Holland S, Freitag F, et al. Evidence-based guideline update: pharmacologic treatment for episodic migraine prevention in adults: report of the Quality Standards Subcommittee of the American Academy of Neurology and the American Headache Society. Neurology 2012; 78: 1337-1345. • Holland S, Silberstein SD, Freitag F, et al. Evidence-based guideline update: pharmacologic treatment for episodic migraine prevention in adults: report of the

Quality Standards Subcommittee of the American Academy of Neurology and the American Headache Society. Neurology 2012; 78:1346-1353.
- Pringsheim T, Davenport W, Mackie G, et al. Canadian Headache Society guideline for migraine prophylaxis. Can J Neurol Sci 2012; 39:S1-59.
- Carville S, Padhi S. Rason T, et al. Diagnosis and management of headaches in young people and adults: summary of NICE guidance. BMJ 2012; 345:e5765.
- Loder E, Burch R, Rizzoli P. The 2012 AHS/AAN guidelines for prevention of episodic migraine: a summary and comparison with other recent clinical practice guidelines. Headache 2012; 52:930-45.
- EFNS guideline on the treatment of migraine – revised report of an EFNS task force. Evers S, Afra J, Frese A, et al. Eur J Neurol 2009; 16:968-981.
- Ramadan N, Silberstein S, Freitag F, et al. Evidence-based guidelines for migraine headache in the primary care setting: Pharmacological management for prevention of migraine.
- Scottish Intercollegiate Guidelines Network (SIGN). Diagnosis and management of headache in adults Guideline 107. 2008.
- NICE Headache: Diagnosis and management of headaches in young people and adults. National Clinical Guideline Centre on behalf of the National Institute for Health and Clinical Excellent (NICE). September 2012; NICE clinical guideline 150.
- Harris P, Loveman E, Clegg A, et al. Systematic review of cognitive behavioral therapy for the management of headaches and migraines in adults. British Journal of Pain 2015; 9:213-224.
- Hepp Z, Bloudek L, Varon S. Systematic review of migraine prophylaxis adherence and persistence. JMCP 2014; 20:22-33.
- Oskoui M, Pringsheim T, Holler-Managan Y, et al. Practice guideline update summary: Acute treatment of migraine in children and adolescents: Report of the Guideline Development, Dissemination, and Implementation Subcommittee of the American Academy of Neurology and the American Headache Society. Neurology 2019; Epub ahead of print.
- Oskoui M, Pringsheim T, Billinghurst L, et al. Practice guideline update summary: Pharmacologic treatment for pediatric migraine prevention. Report of the Guideline Development, Dissemination, and Implementation Subcommittee of the American Academy of Neurology and the American Headache Society. Neurology 2019; Epub ahead of print.
- Becker W, Findlay T, Moga C, et al. Guideline for primary care management of headache in adults. Canadian Family Physicians 2015; 61:670-679.
- Robberstad L, Dyb G, Hagen K, Stovner LJ, Holmen TL, Zwart JA. An unfavorable lifestyle and recurrent headaches among adolescents: the HUNT study. Neurology 2010; 75.
- Pellegrino A, Davis-Martin R, Houle T, et al. Perceived triggers of primary headache disorders: A meta-analysis. Cephalalgia 2018; 38:1188-1198.
- Lipton RB, Diamond M, Freitag F, et al. Migraine prevention patterns in a community sample: results from the American migraine prevalence and prevention (AMPP) study. Headache 2005; 45:792-793.

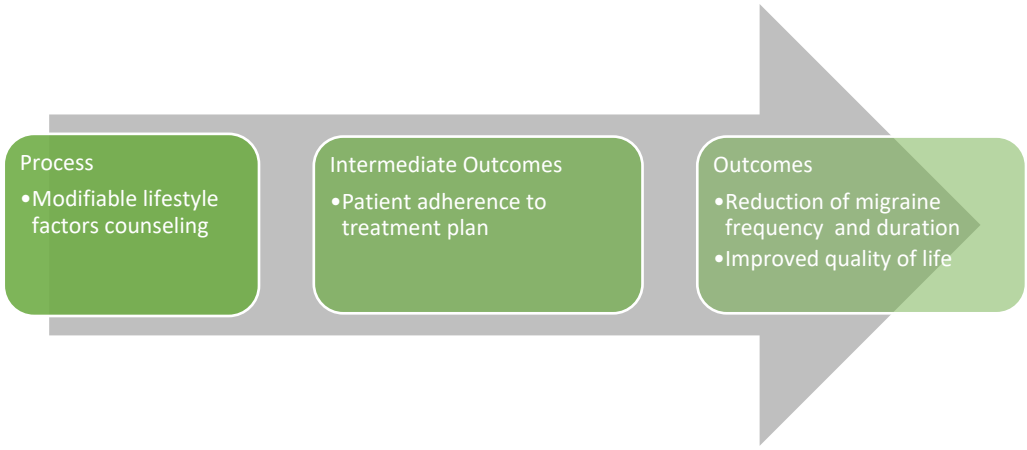
Flow Chart Diagram: Migraine Frequency Documentation



Code System	Code	Code Description
ICD-10	G43	Migraine
ICD-10	G43.1	Migraine with aura
ICD-10	G43.109	Migraine with aura, not intractable, without status migrainosus
ICD-10	G43.119	Migraine with aura, intractable, without status migrainosus
ICD-10	G43.101	Migraine with aura, not intractable with status migrainosus
ICD-10	G43.111	Migraine with aura, intractable with status migrainosus
ICD-10	G43.0	Migraine without aura
ICD-10	G43.009	Migraine without aura, not intractable without status migrainosus
ICD-10	G43.019	Migraine without aura, intractable without status migrainosus
ICD-10	G43.001	Migraine without aura, not intractable with status migrainosus
ICD-10	G43.011	Migraine without aura, intractable with status migrainosus
ICD-10	G43.9	Migraine, unspecified
ICD-10	G43.909	Migraine, unspecified, not intractable without status migrainosus
ICD-10	G43.919	Migraine, unspecified, intractable without status migrainosus
ICD-10	G43.901	Migraine, unspecified, not intractable with status migrainosus
ICD-10	G43.911	Migraine, unspecified, intractable with status migrainosus
ICD-10	G43.4	Hemiplegic migraine
ICD-10	G43.409	Hemiplegic migraine, not intractable without status migrainosus
ICD-10	G43.419	Hemiplegic migraine, intractable without status migrainosus
ICD-10	G43.401	Hemiplegic migraine, not intractable with status migrainosus
ICD-10	G43.411	Hemiplegic migraine, intractable with status migrainosus
ICD-10	G43.8	Other migraine
ICD-10	G43.829	Menstrual migraine, not intractable without status migrainosus
ICD-10	G43.839	Menstrual migraine, intractable without status migrainosus
ICD-10	G43.821	Menstrual migraine, not intractable with status migrainosus
ICD-10	G43.831	Menstrual migraine, intractable with status migrainosus
ICD-10	G43.5	Persistent migraine aura without cerebral infarction
ICD-10	G43.509	Persistent migraine aura without cerebral infarction, not intractable without status migrainosus
ICD-10	G43.519	Persistent migraine aura without cerebral infarction, intractable without status migrainosus
ICD-10	G43.501	Persistent migraine aura without cerebral infarction, not intractable with status migrainosus
ICD-10	G43.511	Persistent migraine aura without cerebral infarction, intractable with status migrainosus
ICD-10	G43.7	Chronic migraine without aura
ICD-10	G43.709	Chronic migraine without aura, not intractable without status migrainosus
ICD-10	G43.719	Chronic migraine without aura, intractable without status migrainosus
ICD-10	G43.701	Chronic migraine without aura, not intractable with status migrainosus
ICD-10	G43.711	Chronic migraine without aura, intractable with status migrainosus
ICD-10	G43.8	Other migraine
ICD-10	G43.809	Other migraine, not intractable without status migrainosus
ICD-10	G43.819	Other migraine, intractable without status migrainosus
ICD-10	G43.801	Other migraine, not intractable with status migrainosus
ICD-10	G43.811	Other migraine, intractable with status migrainosus
ICD-10	G43.9	Migraine, unspecified
ICD-10	G43.909	Migraine unspecified, not intractable without status migrainosus
ICD-10	G43.919	Migraine unspecified, intractable without status migrainosus
ICD-10	G43.901	Migraine, unspecified, not intractable with status migrainosus
ICD-10	G43.911	Migraine, unspecified intractable with status migrainosus

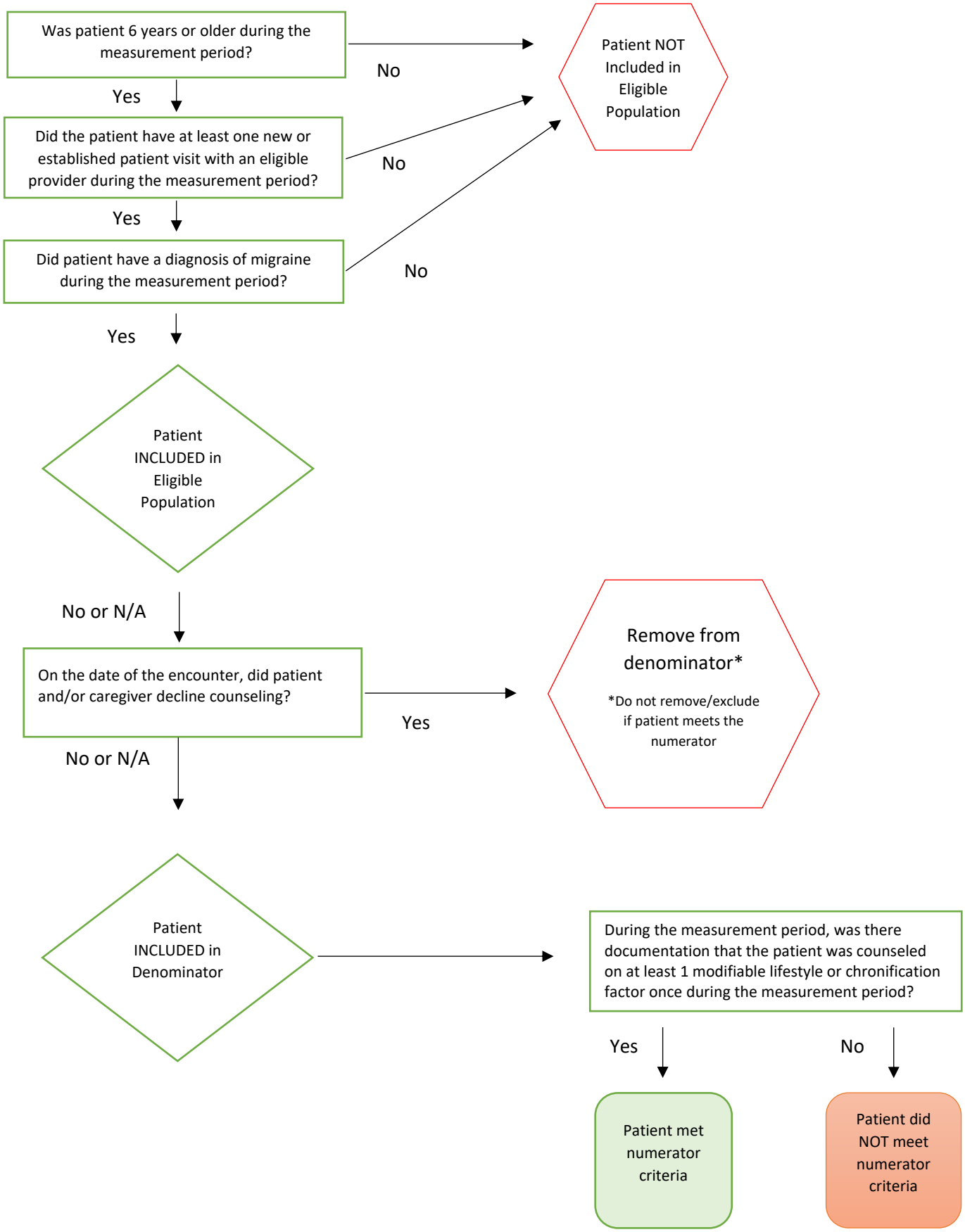
CPT	99201-99205	Office or other outpatient visit 10, 20, 30, 45, or 60 minutes for the evaluation and management of a new patient
CPT	99211-99215	Office or other outpatient visit 5, 10, 15, 25, or 40 minutes for the evaluation and management of an established patient

Measure Title	Modifiable lifestyle and chronification factors counseling for migraine	
Description	Percentage of patients aged 6 years and older with a diagnosis of migraine who had documentation that the patient was counseled on at least 1 modifiable lifestyle or chronification factor.	
Measurement Period	January 1, 20xx to December 31, 20xx	
Eligible Population	**Eligible Providers**	Medical Doctor (MD), Doctor of Osteopathy (DO), Advanced Practice Provider (APP), Advanced Practice Registered Nurse (APRN)
	Care Setting(s)	Outpatient
	Ages	≥ 6 years of age
	Event	Office visit
	Diagnosis	Migraine
Denominator	Patients ≥ 6 years of age diagnosed with migraine	
Numerator	Documentation that the patient was counseled on at least 1 modifiable lifestyle or chronification factor^ once during the measurement period ^Modifiable lifestyle and chronification factors include: • Irregular or skipping of meals • Excessive or irregular caffeine consumption • Exercise • Smoking • Stress management • Restorative sleep (feels rested upon waking) • Adequate hydration • Other issues identified by the clinician or patient • Trigger identification and avoidance • Acute medication overuse	
Required Exclusions	None	
Allowable Exclusions	• Patient and/or caregiver decline counseling For data collection via a clinical registry, we suggest using the following key phrases for capturing exclusions. These key phrases should be recorded on the encounter date: • "Patient and/or caregiver declines counseling" • "Caregiver declines counseling" • "Patient declines counseling"	
Exclusion Rationale	Patients and their caregivers have the right to refuse a service.	
Measure Scoring	Percentage	
Interpretation of Score	Higher score indicates better quality	
Measure Type	Process	
Level of Measurement	Provider	
Risk Adjustment	Not applicable	
For Process Measures Relationship to	The ultimate outcome when treating headache and migraine is to reduce the frequency of headache. Working with the patient to identify potential migraine triggers and counseling them on lifestyle factors they can change can help reduce the severity and number of migraines. Reduction of headaches is associated with improved health-related quality of life.	

Desired Outcome	
Opportunity to Improve Gap in Care	Becker et al, state that "comprehensive migraine therapy includes management of lifestyle factors and triggers, acute and prophylactic medications, and migraine self-management strategies."[1] By modifying certain lifestyle factors, a patient is able to influence their migraine frequency and severity.
Harmonization with Existing Measures	No existing measures known.
References	1. Lipton RB, Bigal ME, Diamond M, et al. The American Migraine Prevalence and Prevention Advisory Group. Migraine Prevalence, disease burden, and the need for preventive therapy. *Neurology* 2017; 68:343-349. <u>Supporting evidence</u> • Becker W, Findlay T, Moga C, et al. Guideline for primary care management of headache in adults. Canadian Family Physicians 2015; 61:670-679. • Pellegrino A, Davis-Martin R, Houle T, et al. Perceived triggers of primary headache disorders: A meta-analysis. Cephalalgia 2018; 38:1188-1198. • Silberstein SD, Holland S, Freitag F, et al. Evidence-based guideline update: pharmacologic treatment for episodic migraine prevention in adults: report of the Quality Standards Subcommittee of the American Academy of Neurology and the American Headache Society. Neurology 2012; 78: 1337-1345. • Holland S, Silberstein SD, Freitag F, et al. Evidence-based guideline update: pharmacologic treatment for episodic migraine prevention in adults: report of the Quality Standards Subcommittee of the American Academy of Neurology and the American Headache Society. Neurology 2012; 78:1346-1353. • Pringsheim T, Davenport W, Mackie G, et al. Canadian Headache Society guideline for migraine prophylaxis. Can J Neurol Sci 2012; 39:S1-59. • Carville S, Padhi S. Rason T, et al. Diagnosis and management of headaches in young people and adults: summary of NICE guidance. BMJ 2012; 345:e5765. • Loder E, Burch R, Rizzoli P. The 2012 AHS/AAN guidelines for prevention of episodic migraine: a summary and comparison with other recent clinical practice guidelines. Headache 2012; 52:930-45. • EFNS guideline on the treatment of migraine – revised report of an EFNS task force. Evers S, Afra J, Frese A, et al. Eur J Neurol 2009; 16:968-981. • Ramadan N, Silberstein S, Freitag F, et al. Evidence-based guidelines for migraine headache in the primary care setting: Pharmacological management for prevention of migraine.

	• Scottish Intercollegiate Guidelines Network (SIGN). Diagnosis and management of headache in adults Guideline 107. 2008. • NICE Headache: Diagnosis and management of headaches in young people and adults. National Clinical Guideline Centre on behalf of the National Institute for Health and Clinical Excellent (NICE). September 2012; NICE clinical guideline 150. • Harris P, Loveman E, Clegg A, et al. Systematic review of cognitive behavioral therapy for the management of headaches and migraines in adults. British Journal of Pain 2015; 9:213-224. • Hepp Z, Bloudek L, Varon S. Systematic review of migraine prophylaxis adherence and persistence. JMCP 2014; 20:22-33. • Oskoui M, Pringsheim T, Holler-Managan Y, et al. Practice guideline update summary: Acute treatment of migraine in children and adolescents: Report of the Guideline Development, Dissemination, and Implementation Subcommittee of the American Academy of Neurology and the American Headache Society. Neurology 2019; Epub ahead of print. • Oskoui M, Pringsheim T, Billinghurst L, et al. Practice guideline update summary: Pharmacologic treatment for pediatric migraine prevention. Report of the Guideline Development, Dissemination, and Implementation Subcommittee of the American Academy of Neurology and the American Headache Society. Neurology 2019; Epub ahead of print. • Becker W, Findlay T, Moga C, et al. Guideline for primary care management of headache in adults. Canadian Family Physicians 2015; 61:670-679. • Robberstad L, Dyb G, Hagen K, Stovner LJ, Holmen TL, Zwart JA. An unfavorable lifestyle and recurrent headaches among adolescents: the HUNT study. Neurology 2010; 75. • Pellegrino A, Davis-Martin R, Houle T, et al. Perceived triggers of primary headache disorders: A meta-analysis. Cephalalgia 2018; 38:1188-1198. • Lipton RB, Diamond M, Freitag F, et al. Migraine prevention patterns in a community sample: results from the American migraine prevalence and prevention (AMPP) study. Headache 2005; 45:792-793.

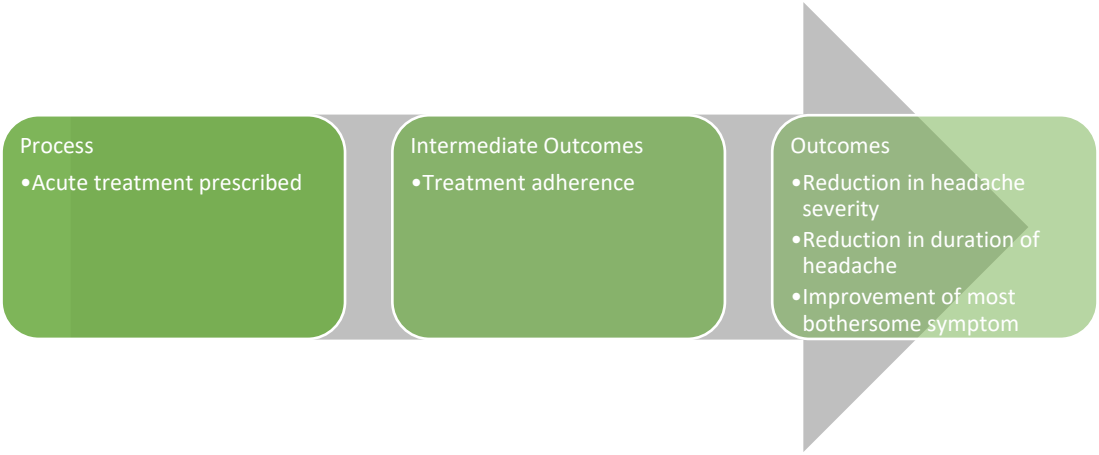
Flow Chart Diagram: Lifestyle Factors Counseling



Code System	Code	Code Description
ICD-10	G43	Migraine
ICD-10	G43.1	Migraine with aura
ICD-10	G43.109	Migraine with aura, not intractable, without status migrainosus
ICD-10	G43.119	Migraine with aura, intractable, without status migrainosus
ICD-10	G43.101	Migraine with aura, not intractable with status migrainosus
ICD-10	G43.111	Migraine with aura, intractable with status migrainosus
ICD-10	G43.0	Migraine without aura
ICD-10	G43.009	Migraine without aura, not intractable without status migrainosus
ICD-10	G43.019	Migraine without aura, intractable without status migrainosus
ICD-10	G43.001	Migraine without aura, not intractable with status migrainosus
ICD-10	G43.011	Migraine without aura, intractable with status migrainosus
ICD-10	G43.9	Migraine, unspecified
ICD-10	G43.909	Migraine, unspecified, not intractable without status migrainosus
ICD-10	G43.919	Migraine, unspecified, intractable without status migrainosus
ICD-10	G43.901	Migraine, unspecified, not intractable with status migrainosus
ICD-10	G43.911	Migraine, unspecified, intractable with status migrainosus
ICD-10	G43.4	Hemiplegic migraine
ICD-10	G43.409	Hemiplegic migraine, not intractable without status migrainosus
ICD-10	G43.419	Hemiplegic migraine, intractable without status migrainosus
ICD-10	G43.401	Hemiplegic migraine, not intractable with status migrainosus
ICD-10	G43.411	Hemiplegic migraine, intractable with status migrainosus
ICD-10	G43.8	Other migraine
ICD-10	G43.829	Menstrual migraine, not intractable without status migrainosus
ICD-10	G43.839	Menstrual migraine, intractable without status migrainosus
ICD-10	G43.821	Menstrual migraine, not intractable with status migrainosus
ICD-10	G43.831	Menstrual migraine, intractable with status migrainosus
ICD-10	G43.5	Persistent migraine aura without cerebral infarction
ICD-10	G43.509	Persistent migraine aura without cerebral infarction, not intractable without status migrainosus
ICD-10	G43.519	Persistent migraine aura without cerebral infarction, intractable without status migrainosus
ICD-10	G43.501	Persistent migraine aura without cerebral infarction, not intractable with status migrainosus
ICD-10	G43.511	Persistent migraine aura without cerebral infarction, intractable with status migrainosus
ICD-10	G43.7	Chronic migraine without aura
ICD-10	G43.709	Chronic migraine without aura, not intractable without status migrainosus
ICD-10	G43.719	Chronic migraine without aura, intractable without status migrainosus
ICD-10	G43.701	Chronic migraine without aura, not intractable with status migrainosus
ICD-10	G43.711	Chronic migraine without aura, intractable with status migrainosus
ICD-10	G43.8	Other migraine
ICD-10	G43.809	Other migraine, not intractable without status migrainosus
ICD-10	G43.819	Other migraine, intractable without status migrainosus
ICD-10	G43.801	Other migraine, not intractable with status migrainosus
ICD-10	G43.811	Other migraine, intractable with status migrainosus
ICD-10	G43.9	Migraine, unspecified
ICD-10	G43.909	Migraine unspecified, not intractable without status migrainosus
ICD-10	G43.919	Migraine unspecified, intractable without status migrainosus
ICD-10	G43.901	Migraine, unspecified, not intractable with status migrainosus
ICD-10	G43.911	Migraine, unspecified intractable with status migrainosus

CPT	99201-99205	Office or other outpatient visit 10, 20, 30, 45, or 60 minutes for the evaluation and management of a new patient
CPT	99211-99215	Office or other outpatient visit 5, 10, 15, 25, or 40 minutes for the evaluation and management of an established patient

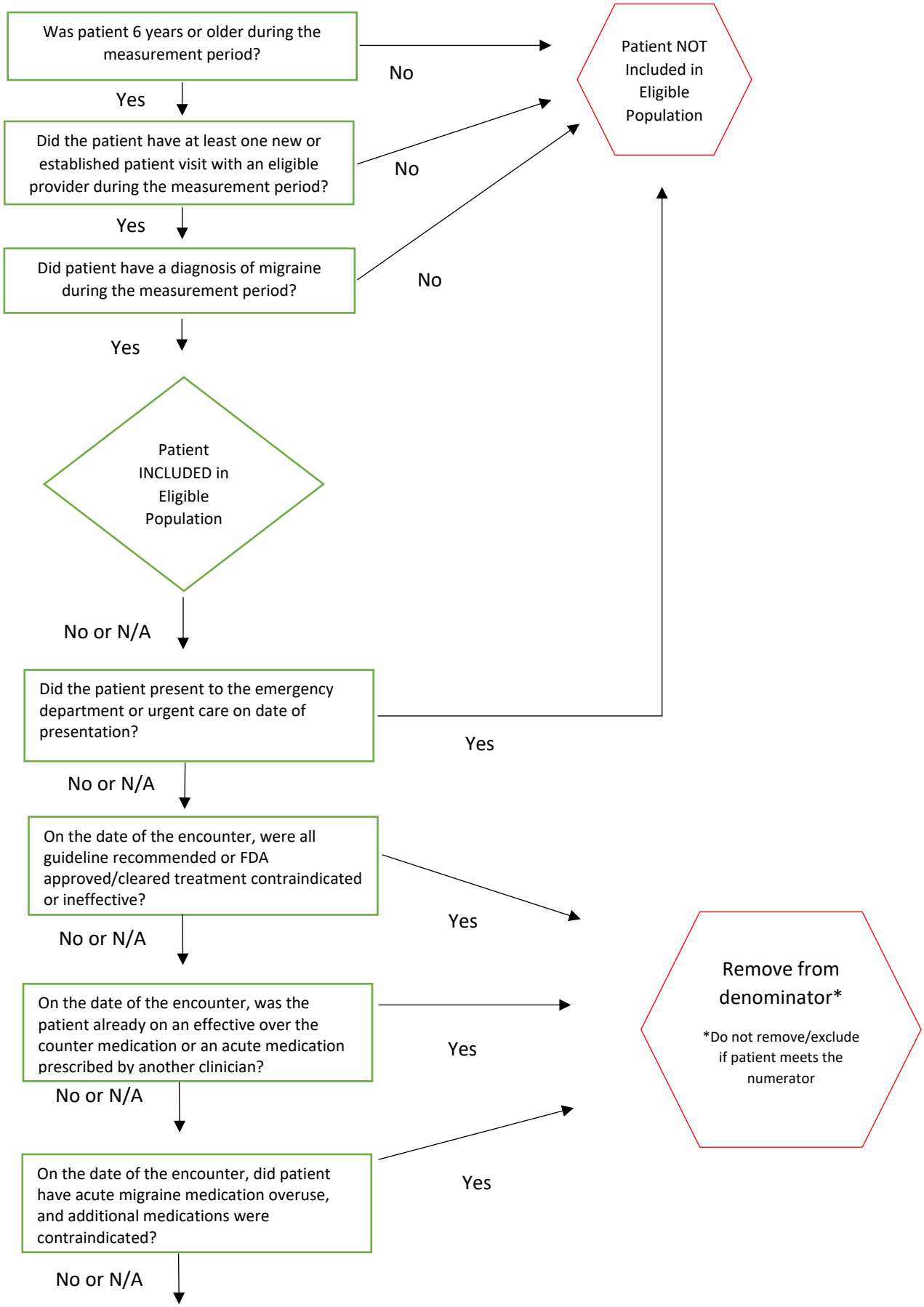
Measure Title	Treatment prescribed for acute migraine attacks	
Description	Percentage of patients age 6 years and older with a diagnosis of migraine who were prescribed a guideline recommended or FDA approved/cleared treatment for acute migraine attacks during the measurement period.	
Measurement Period	January 1, 20xx to December 31, 20xx	
Eligible Population	**Eligible Providers**	Medical Doctor (MD), Doctor of Osteopathy (DO), Advanced Practice Provider (APP), Advanced Practice Registered Nurse (APRN)
	Care Setting(s)	Outpatient Care
	Ages	≥ 6 years of age
	Event	Patient had an office visit or E/M services performed or supervised by an eligible provider
	Diagnosis	Migraine
Denominator	Patients ≥ 6 years of age diagnosed with migraine.	
Numerator	Patients who were prescribed a guideline recommended or FDA approved/cleared treatment* for acute migraine attacks once during the measurement period. *Guideline recommended or FDA approved/cleared acute medications for acute migraine attack include the following but are not limited to: triptans, dihydroergotamine (DHE), NSAIDs, D2 antagonists. Guideline recommended or FDA approved/cleared acute migraine attack treatment may include neuromodulation. Clinicians should use their best judgment to prescribe a treatment for acute migraine attacks to meet the specific needs of the individual patient. Note: The above list of medications/treatment names is based on clinical guidelines and other evidence and may not be all-inclusive or current. Physicians and other health care professionals should refer to the Food and Drug Administration's (FDA) web site page entitled "Drug Safety Communications" for up-to-date drug recall and alert information when prescribing medications.	
Required Exclusions	• Emergency department and urgent care visits on date of presentation.	
Allowable Exclusions	• All Guideline recommended or FDA approved/cleared treatments are medically contraindicated or ineffective for the patient. • Patient is already on an effective over the counter medication or an acute migraine medication prescribed by another clinician. • Patient has history of acute migraine medication overuse and additional medications contraindicated at time of visit. • Patient has minimal or no pain with migraine. • Patient and/or caregiver decline. For data collection via a clinical registry, we suggest using the following key phrases for capturing exclusions. These key phrases should be recorded on the encounter date: • "Patient and/or caregiver declines therapies" • "Patient declines therapies" • "Caregiver declines therapies" • "All guideline recommended treatments and FDA approved/cleared treatments are contraindicated" • "All guideline recommended treatments and FDA approved/cleared treatments are ineffective" • "Patient is currently taking effective medication"	

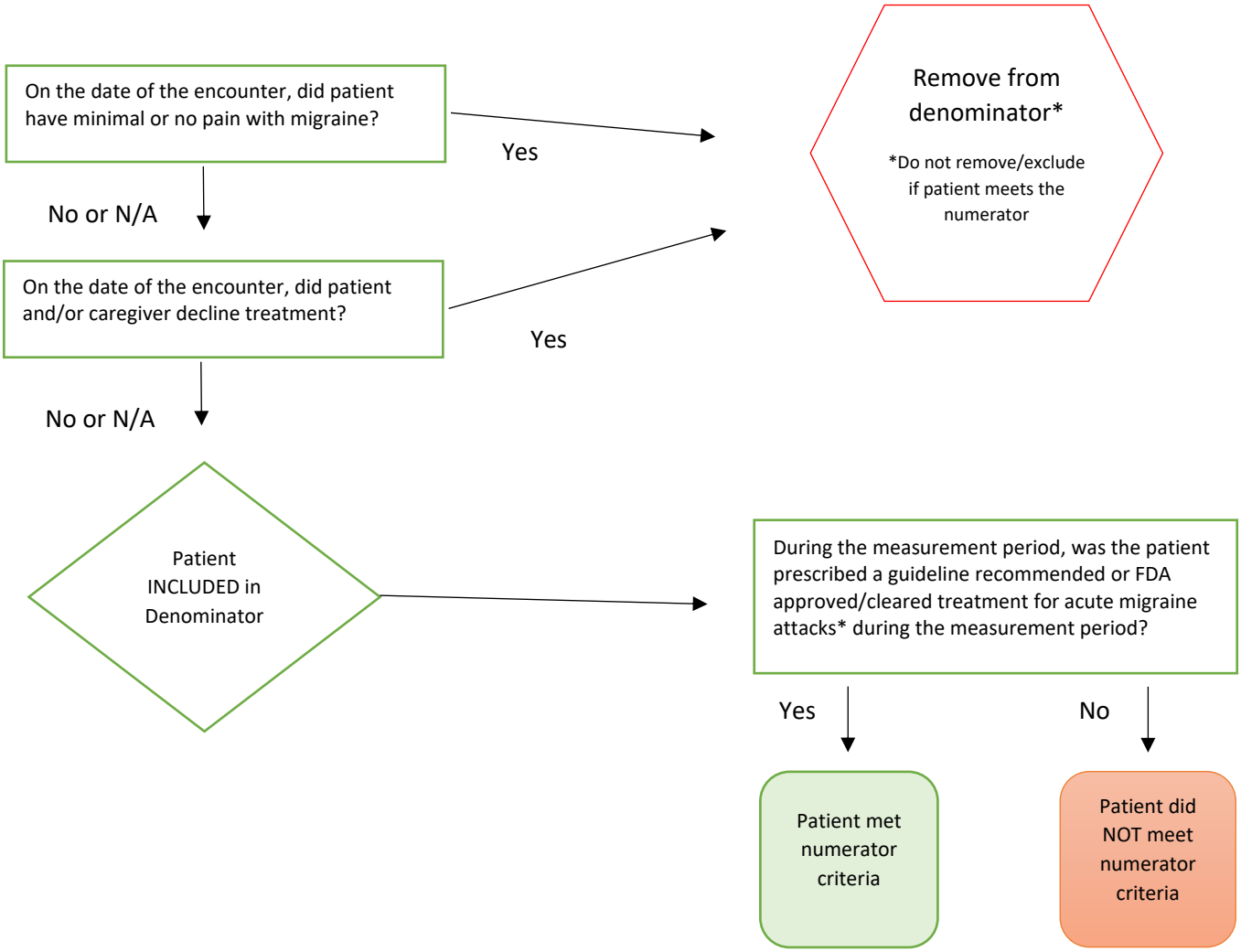
	• "Patient has history of acute migraine medication overuse" • "Patient has minimal pain with migraine" • "Patient has no pain with migraine"
Exclusion Rationale	Patients and their caregivers have the right to refuse a service. Patients who have contraindications or are already on an effective treatment should be excluded from the measure. Additionally, it may be inappropriate to prescribe a medication to a patient who has medication overuse or one that does not experience pain with migraine.
Measure Scoring	Percentage/proportion
Interpretation of Score	Higher score indicates better quality
Measure Type	Process
Level of Measurement	Provider
Risk Adjustment	Not applicable
For Process Measures Relationship to Desired Outcome	By providing appropriate guideline recommended treatments, it is anticipated that headache severity and duration of headache would be reduced for patients that have acute attacks. 
Opportunity to Improve Gap in Care	Only 29% of patients are satisfied with their acute migraine treatment.[1] Among persons with episodic migraine, 18.31% reported current use of triptans for acute headache treatment.[2] Triptan use increased with headache frequency, headache-related disability and allodynia, but decreased among persons with depression.[2] Less than 1 in 5 persons with migraine in the US who were respondents to this survey used triptans for acute headache treatment over the course of a year.[2] In a population sample of individuals with episodic migraine (EM), more than 40% have at least one unmet need in the area of acute treatment. The leading reasons for unmet needs, which include headache-related disability and dissatisfaction with current acute treatment, suggest opportunities for improving outcomes for persons with EM.[3] In an analysis of data from the 2005 American Migraine Prevalence and Prevention (AMPP) study, authors reported that 91.7% of respondents meeting criteria for EM used acute treatment for their headaches. Of these respondents, only 36.1% used migraine-specific medications. Triptans were used by 18.3% of the sample, opioids were used by 11.7% of the sample, and barbiturate medications were used by 6.1% of the sample.[4] According to another study, 21.87% of patients use triptans for acute treatment of migraine, 20% use ergots, 20.87% use opioids, and 13.52% use barbiturates.[5]

	Using the guideline recommended first-line acute treatments would provide superior pain relief for migraine. Triptans and ergots are considered first-line acute treatments for migraine according to the latest American Headache Society guideline.[6] The leading reasons for unmet needs, which include headache related disability and dissatisfaction with current acute treatment, suggest opportunities for improving outcomes for persons with EM.[3]
Harmonization with Existing Measures	ICSI: Diagnosis and treatment of headache: percentage of patients with migraine headache prescribed appropriate acute treatment.
References	1. Lipton RB, Stewart WF. Acute migraine therapy: do doctors understand what patients with migraine want from therapy? Headache 1999; 39:S20-26. 2. Bigal ME, Buse DC, Hen YT, et al. Rates and predictors of starting a triptan: results from the American Migraine Prevalence and Prevention Study. Headache 2010; 50:1440-8. 3. Lipton RB, Buse DC, SerranoD, et al. Examination of unmet treatment needs among persons with episodic migraine: results of the American Migraine Prevalence and Prevention (AMPP) Study. Headache 2013; 53:1300-11. 4. Lipton RB, Buse DC, Serrano, D, et al. Acute medication use patterns in episodic migraine: results of the American Migraine prevalence and prevention (AMPP) study. Cephalgia 2009; 29:17 (Presented at the 14th Congress of the International Headache Society, September 10-13, 2009). 5. Bigal ME, Borouchu S, Serrano D. The acute treatment of episodic and chronic migraine in the United States. Cephalgia 2009; 29:891-897. 6. Marmura MJ, Silberstein SD, Schwedt TJ. The acute treatment of migraine in adults: the American Headache Society evidence assessment of migraine pharmacotherapies. Headache 2015; 55:3-20. <u>Supporting evidence</u> • Evers S, Afra J, Frese A, et al. EFNS guideline on the drug treatment of migraine – revised report of an EFNS task force. European J of Neurology 2009, 16: 968–981 (EFNS: 2009; Drug treatment of migraine). • Scottish Intercollegiate Guidelines Network (SIGN) Diagnosis and management of headache in adults Guideline 107. 2008. • US Headache Consortium. Matchar D, Young W, Rosenberg J et al. Evidence-Based Guidelines for Migraine Headache in the Primary Care Setting: Pharmacological Management of Acute Attacks. • Cameron C, Kelly S, Hsieh SC, et al. Triptans in Acute Treatment of Migraine: Systematic review and Network Meta-Analysis. Headache 2015; 55:221-35. • Marmura MJ, Silberstein SJ, Schwedt TJ. Acute treatment of migraine in adults: The American Headache Society Evidence Assessment of Migraine Pharmacotherapies. Headache 2015; 55:3-20. • Richer L, Billinghurst L, Linsdell MA, et al. Drugs for acute treatment of migraine in children and adolescents. Cochrane 2016. • Cameron C, Kelly S, Hsieh S, et al. Triptans in the Acute Treatment of Migraine: A Systematic Review and Network Meta-Analysis. Headache 2015; 55:221-235. • Derry CJ, Derry S, Moore RA. Sumatriptan (all route of administration) for acute migraine attacks in adults – overview of Cochrane review (review). Cochrane Database of Systematic Reviews 2014; Issue 5. • Oskoui M, Pringsheim T, Holler-Managan Y, et al. Practice guideline update summary: Acute treatment of migraine in children and adolescents: Report of the Guideline Development, Dissemination, and Implementation Subcommittee of the American Academy of Neurology and the American Headache Society. Neurology 2019; Epub ahead of print.

	• Oskoui M, Pringsheim T, Billinghurst L, et al. Practice guideline update summary: Pharmacologic treatment for pediatric migraine prevention. Report of the Guideline Development, Dissemination, and Implementation Subcommittee of the American Academy of Neurology and the American Headache Society. Neurology 2019; Epub ahead of print. • Turner S, Rende E, Pezzuto T, et al. Pediatric Migraine Action Plan (PedMAP). Headache 2019; 59:1871-1873.

Flow Chart Diagram: Recommended treatment for acute migraine attack

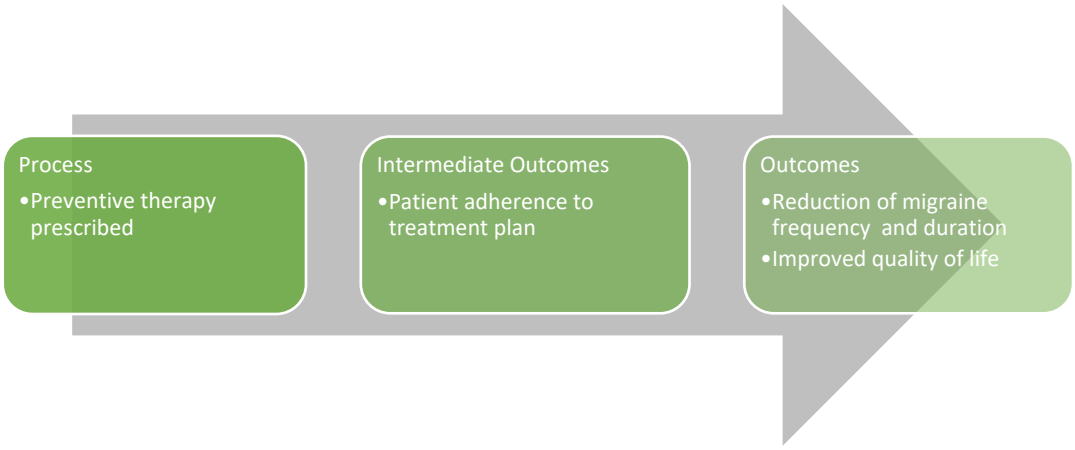




Code System	Code	Code Description
ICD-10	G43	Migraine
ICD-10	G43.1	Migraine with aura
ICD-10	G43.109	Migraine with aura, not intractable, without status migrainosus
ICD-10	G43.119	Migraine with aura, intractable, without status migrainosus
ICD-10	G43.101	Migraine with aura, not intractable with status migrainosus
ICD-10	G43.111	Migraine with aura, intractable with status migrainosus
ICD-10	G43.0	Migraine without aura
ICD-10	G43.009	Migraine without aura, not intractable without status migrainosus
ICD-10	G43.019	Migraine without aura, intractable without status migrainosus
ICD-10	G43.001	Migraine without aura, not intractable with status migrainosus
ICD-10	G43.011	Migraine without aura, intractable with status migrainosus
ICD-10	G43.9	Migraine, unspecified
ICD-10	G43.909	Migraine, unspecified, not intractable without status migrainosus
ICD-10	G43.919	Migraine, unspecified, intractable without status migrainosus
ICD-10	G43.901	Migraine, unspecified, not intractable with status migrainosus
ICD-10	G43.911	Migraine, unspecified, intractable with status migrainosus
ICD-10	G43.4	Hemiplegic migraine
ICD-10	G43.409	Hemiplegic migraine, not intractable without status migrainosus
ICD-10	G43.419	Hemiplegic migraine, intractable without status migrainosus
ICD-10	G43.401	Hemiplegic migraine, not intractable with status migrainosus
ICD-10	G43.411	Hemiplegic migraine, intractable with status migrainosus
ICD-10	G43.8	Other migraine
ICD-10	G43.829	Menstrual migraine, not intractable without status migrainosus
ICD-10	G43.839	Menstrual migraine, intractable without status migrainosus
ICD-10	G43.821	Menstrual migraine, not intractable with status migrainosus
ICD-10	G43.831	Menstrual migraine, intractable with status migrainosus
ICD-10	G43.5	Persistent migraine aura without cerebral infarction
ICD-10	G43.509	Persistent migraine aura without cerebral infarction, not intractable without status migrainosus
ICD-10	G43.519	Persistent migraine aura without cerebral infarction, intractable without status migrainosus
ICD-10	G43.501	Persistent migraine aura without cerebral infarction, not intractable with status migrainosus
ICD-10	G43.511	Persistent migraine aura without cerebral infarction, intractable with status migrainosus
ICD-10	G43.7	Chronic migraine without aura
ICD-10	G43.709	Chronic migraine without aura, not intractable without status migrainosus
ICD-10	G43.719	Chronic migraine without aura, intractable without status migrainosus
ICD-10	G43.701	Chronic migraine without aura, not intractable with status migrainosus
ICD-10	G43.711	Chronic migraine without aura, intractable with status migrainosus
ICD-10	G43.8	Other migraine
ICD-10	G43.809	Other migraine, not intractable without status migrainosus
ICD-10	G43.819	Other migraine, intractable without status migrainosus
ICD-10	G43.801	Other migraine, not intractable with status migrainosus
ICD-10	G43.811	Other migraine, intractable with status migrainosus
ICD-10	G43.9	Migraine, unspecified
ICD-10	G43.909	Migraine unspecified, not intractable without status migrainosus
ICD-10	G43.919	Migraine unspecified, intractable without status migrainosus
ICD-10	G43.901	Migraine, unspecified, not intractable with status migrainosus
ICD-10	G43.911	Migraine, unspecified intractable with status migrainosus

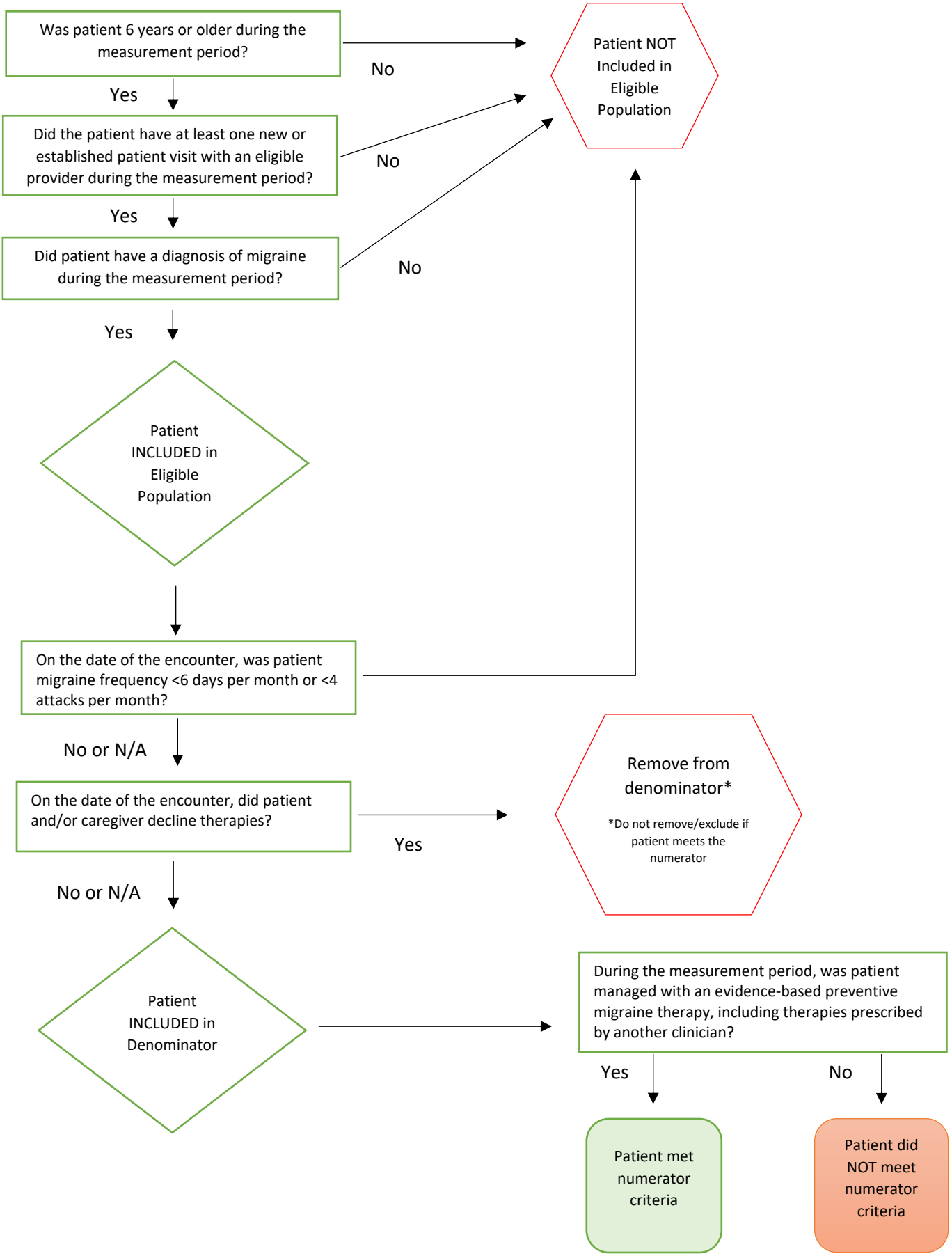
CPT	99201-99205	Office or other outpatient visit 10, 20, 30, 45, or 60 minutes for the evaluation and management of a new patient
CPT	99211-99215	Office or other outpatient visit 5, 10, 15, 25, or 40 minutes for the evaluation and management of an established patient

Measure Title	Migraine preventive therapy management	
Description	Percentage of patients aged 6 years and older with a diagnosis of migraine whose migraine frequency is ≥ 6 days per month/4 attacks per month who were managed with an evidence-based preventive migraine therapy, including therapies prescribed by another clinician.	
Measurement Period	January 1, 20xx to December 31, 20xx	
Eligible Population	**Eligible Providers**	Medical Doctor (MD), Doctor of Osteopathy (DO), Advanced Practice Provider (APP), Advanced Practice Registered Nurse (APRN)
	Care Setting(s)	Outpatient
	Ages	≥ 6 years of age
	Event	Office visit
	Diagnosis	Migraine
Denominator	Patients ≥ 6 years of age diagnosed with migraine	
Numerator	Patients whose migraine frequency is ≥ 6 days per month/4 attacks per month who were managed with an evidence-based preventive migraine therapy^, including therapies prescribed by another clinician once during the measurement period ^Preventive migraine therapies can be at least one of the following: • Medication prescribed or recommended, or • Procedure ordered, performed, or referred, or • Device prescribed, or • Counseled on or referred to biobehavioral therapy, or • Counseled on the use of nutraceuticals, or • Counseled on evidence-based complementary and integrative strategies, or • Referral to neurology or headache specialist	
Required Exclusions	• Patient migraine frequency < 6 days per month or < 4 attacks per month	
Allowable Exclusions	• Patient and/or caregiver decline therapies For data collection via a clinical registry, we suggest using the following key phrases for capturing exclusions. These key phrases should be recorded on the encounter date: • "Patient declines therapies" • "Caregiver declines therapies" • "Patient and/or caregiver decline therapies" • "Migraine frequency < 6 days per month" • "Migraine frequency < 4 attacks per month"	
Exclusion Rationale	Patients and their caregivers have the right to refuse a service. Patients with low frequency migraine should be excluded from this measure as it may not be appropriate for them to receive preventive therapies.	
Measure Scoring	Percentage	
Interpretation of Score	Higher score indicates better quality	
Measure Type	Process	
Level of Measurement	Provider	
Risk Adjustment	Not applicable	
For Process Measures Relationship to	It is anticipated that by prescribing preventive therapy there would be a reduction in frequency and duration if therapy is successful for the patient.	

Desired Outcome	
Opportunity to Improve Gap in Care	Epidemiologic studies suggest approximately 38% of people with headache need preventive therapy, but only 3%–13% currently use it.[1] Preventive therapies can decrease the occurrence of migraine attacks and reduce the severity and duration of migraine attacks that do occur. The American Migraine Prevalence and Prevention (AMPP) study found that approximately 12% of Americans have migraines and approximately 40% could benefit from preventative therapies.[1] The Work Group discussed how to address use of diet and exercise changes prior to use of a preventive therapy. The Work Group agreed that patients that decline a preventive therapy in favor of diet and exercise changes would meet the allowable exclusion of "patient declines." Use of the allowable exclusion will be monitored during future reviews to ensure there are no unintended consequences. A separate measure on lifestyle modifications can be found earlier in the measures document.
Harmonization with Existing Measures	The Institute for Clinical Systems Improvement (ICSI) has a measure for the percentage of patients with primary headache syndrome who are prescribed prophylactic treatment when appropriate (12 years and up). This measure focuses on patients aged 6 years and older and it also incorporates many different treatment modalities.
References	1. Lipton RB, Bigal ME, Diamond M, et al. The American Migraine Prevalence and Prevention Advisory Group. Migraine Prevalence, disease burden, and the need for preventive therapy. *Neurology* 2017; 68:343-349. <u>Supporting evidence</u> • Becker W, Findlay T, Moga C, et al. Guideline for primary care management of headache in adults. Canadian Family Physicians 2015; 61:670-679. • Pellegrino A, Davis-Martin R, Houle T, et al. Perceived triggers of primary headache disorders: A meta-analysis. Cephalalgia 2018; 38:1188-1198. • Silberstein SD, Holland S, Feitag F, et al. Evidence-based guideline update: pharmacologic treatment for episodic migraine prevention in adults: report of the Quality Standards Subcommittee of the American Academy of Neurology and the American Headache Society. Neurology 2012; 78: 1337-1345. • Holland S, Silberstein SD, Feitag F, et al. Evidence-based guideline update: pharmacologic treatment for episodic migraine prevention in adults: report of the Quality Standards Subcommittee of the American Academy of Neurology and the American Headache Society. Neurology 2012; 78:1346-1353. • Pringsheim T, Davenport W, Mackie G, et al. Candaian Headache Society guideline for migraine prophylaxis. Can J Neurol Sci 2012; 39:S1-59. • Carville S, Padhi S. Rason T, et al. Diagnosis and management of headaches in young people and adults: summary of NICE guidance. BMJ 2012; 345:e5765.

	• Loder E, Burch R, Rizzoli P. The 2012 AHS/AAN guidelines for prevention of episodic migraine: a summary and comparison with other recent clinical practice guidelines. Headache 2012; 52:930-45. • EFNS guideline on the treatment of migraine – revised report of an EFNS task force. Evers S, Afra J, Frese A, et al. Eur J Neurol 2009; 16:968-981. • Ramadan N, Silberstein S, Freitag F, et al. Evidence-based guidelines for migraine headache in the primary care setting: Pharmacological management for prevention of migraine. • Scottish Intercollegiate Guidelines Network (SIGN). Diagnosis and management of headache in adults Guideline 107. 2008. • NICE Headache: Diagnosis and management of headaches in young people and adults. National Clinical Guideline Centre on behalf of the National Institute for Health and Clinical Excellent (NICE). September 2012; NICE clinical guideline 150. • Harris P, Loveman E, Clegg A, et al. Systematic review of cognitive behavioral therapy for the management of headaches and migraines in adults. British Journal of Pain 2015; 9:213-224. • Hepp Z, Bloudek L, Varon S. Systematic review of migraine prophylaxis adherence and persistence. JMCP 2014; 20:22-33. • Oskoui M, Pringsheim T, Holler-Managan Y, et al. Practice guideline update summary: Acute treatment of migraine in children and adolescents: Report of the Guideline Development, Dissemination, and Implementation Subcommittee of the American Academy of Neurology and the American Headache Society. Neurology 2019; Epub ahead of print. • Oskoui M, Pringsheim T, Billinghurst L, et al. Practice guideline update summary: Pharmacologic treatment for pediatric migraine prevention. Report of the Guideline Development, Dissemination, and Implementation Subcommittee of the American Academy of Neurology and the American Headache Society. Neurology 2019; Epub ahead of print. • Becker W, Findlay T, Moga C, et al. Guideline for primary care management of headache in adults. Canadian Family Physicians 2015; 61:670-679. • Robberstad L, Dyb G, Hagen K, Stovner LJ, Holmen TL, Zwart JA. An unfavorable lifestyle and recurrent headaches among adolescents: the HUNT study. Neurology 2010; 75. • Pellegrino A, Davis-Martin R, Houle T, et al. Perceived triggers of primary headache disorders: A meta-analysis. Cephalalgia 2018; 38:1188-1198. • Lipton RB, Diamond M, Freitag F, et al. Migraine prevention patterns in a community sample: results from the American migraine prevalence and prevention (AMPP) study. Headache 2005; 45:792-793.

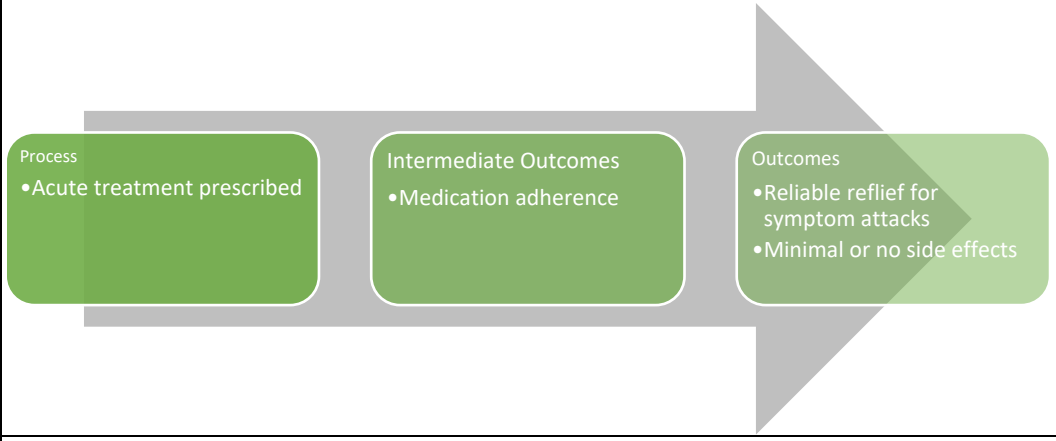
Chart Diagram: Preventive Therapy Prescribed



Code System	Code	Code Description
ICD-10	G43	Migraine
ICD-10	G43.1	Migraine with aura
ICD-10	G43.109	Migraine with aura, not intractable, without status migrainosus
ICD-10	G43.119	Migraine with aura, intractable, without status migrainosus
ICD-10	G43.101	Migraine with aura, not intractable with status migrainosus
ICD-10	G43.111	Migraine with aura, intractable with status migrainosus
ICD-10	G43.0	Migraine without aura
ICD-10	G43.009	Migraine without aura, not intractable without status migrainosus
ICD-10	G43.019	Migraine without aura, intractable without status migrainosus
ICD-10	G43.001	Migraine without aura, not intractable with status migrainosus
ICD-10	G43.011	Migraine without aura, intractable with status migrainosus
ICD-10	G43.9	Migraine, unspecified
ICD-10	G43.909	Migraine, unspecified, not intractable without status migrainosus
ICD-10	G43.919	Migraine, unspecified, intractable without status migrainosus
ICD-10	G43.901	Migraine, unspecified, not intractable with status migrainosus
ICD-10	G43.911	Migraine, unspecified, intractable with status migrainosus
ICD-10	G43.4	Hemiplegic migraine
ICD-10	G43.409	Hemiplegic migraine, not intractable without status migrainosus
ICD-10	G43.419	Hemiplegic migraine, intractable without status migrainosus
ICD-10	G43.401	Hemiplegic migraine, not intractable with status migrainosus
ICD-10	G43.411	Hemiplegic migraine, intractable with status migrainosus
ICD-10	G43.8	Other migraine
ICD-10	G43.829	Menstrual migraine, not intractable without status migrainosus
ICD-10	G43.839	Menstrual migraine, intractable without status migrainosus
ICD-10	G43.821	Menstrual migraine, not intractable with status migrainosus
ICD-10	G43.831	Menstrual migraine, intractable with status migrainosus
ICD-10	G43.5	Persistent migraine aura without cerebral infarction
ICD-10	G43.509	Persistent migraine aura without cerebral infarction, not intractable without status migrainosus
ICD-10	G43.519	Persistent migraine aura without cerebral infarction, intractable without status migrainosus
ICD-10	G43.501	Persistent migraine aura without cerebral infarction, not intractable with status migrainosus
ICD-10	G43.511	Persistent migraine aura without cerebral infarction, intractable with status migrainosus
ICD-10	G43.7	Chronic migraine without aura
ICD-10	G43.709	Chronic migraine without aura, not intractable without status migrainosus
ICD-10	G43.719	Chronic migraine without aura, intractable without status migrainosus
ICD-10	G43.701	Chronic migraine without aura, not intractable with status migrainosus
ICD-10	G43.711	Chronic migraine without aura, intractable with status migrainosus
ICD-10	G43.8	Other migraine
ICD-10	G43.809	Other migraine, not intractable without status migrainosus
ICD-10	G43.819	Other migraine, intractable without status migrainosus
ICD-10	G43.801	Other migraine, not intractable with status migrainosus
ICD-10	G43.811	Other migraine, intractable with status migrainosus
ICD-10	G43.9	Migraine, unspecified
ICD-10	G43.909	Migraine unspecified, not intractable without status migrainosus
ICD-10	G43.919	Migraine unspecified, intractable without status migrainosus
ICD-10	G43.901	Migraine, unspecified, not intractable with status migrainosus
ICD-10	G43.911	Migraine, unspecified intractable with status migrainosus

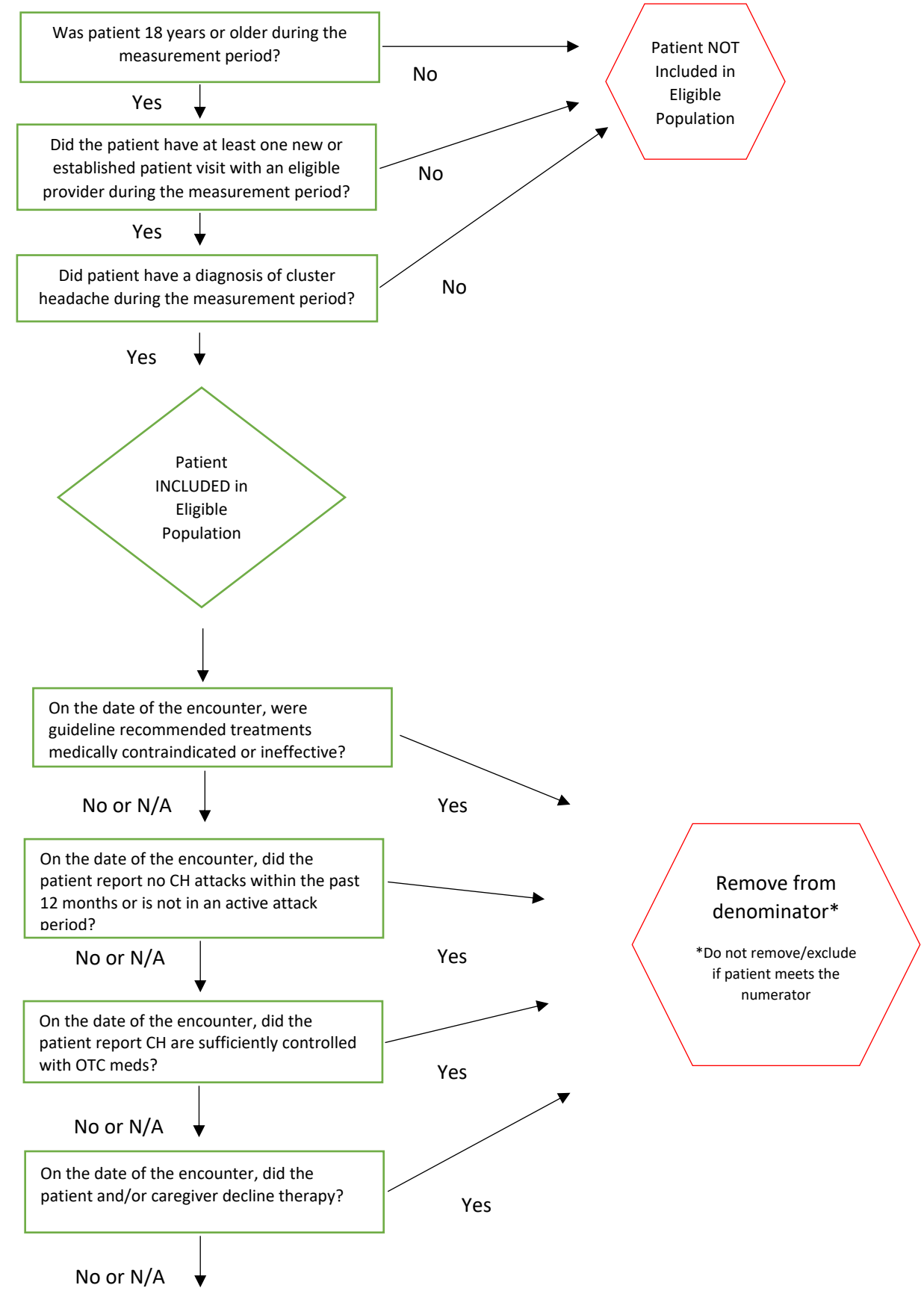
CPT	99201-99205	Office or other outpatient visit 10, 20, 30, 45, or 60 minutes for the evaluation and management of a new patient
CPT	99211-99215	Office or other outpatient visit 5, 10, 15, 25, or 40 minutes for the evaluation and management of an established patient

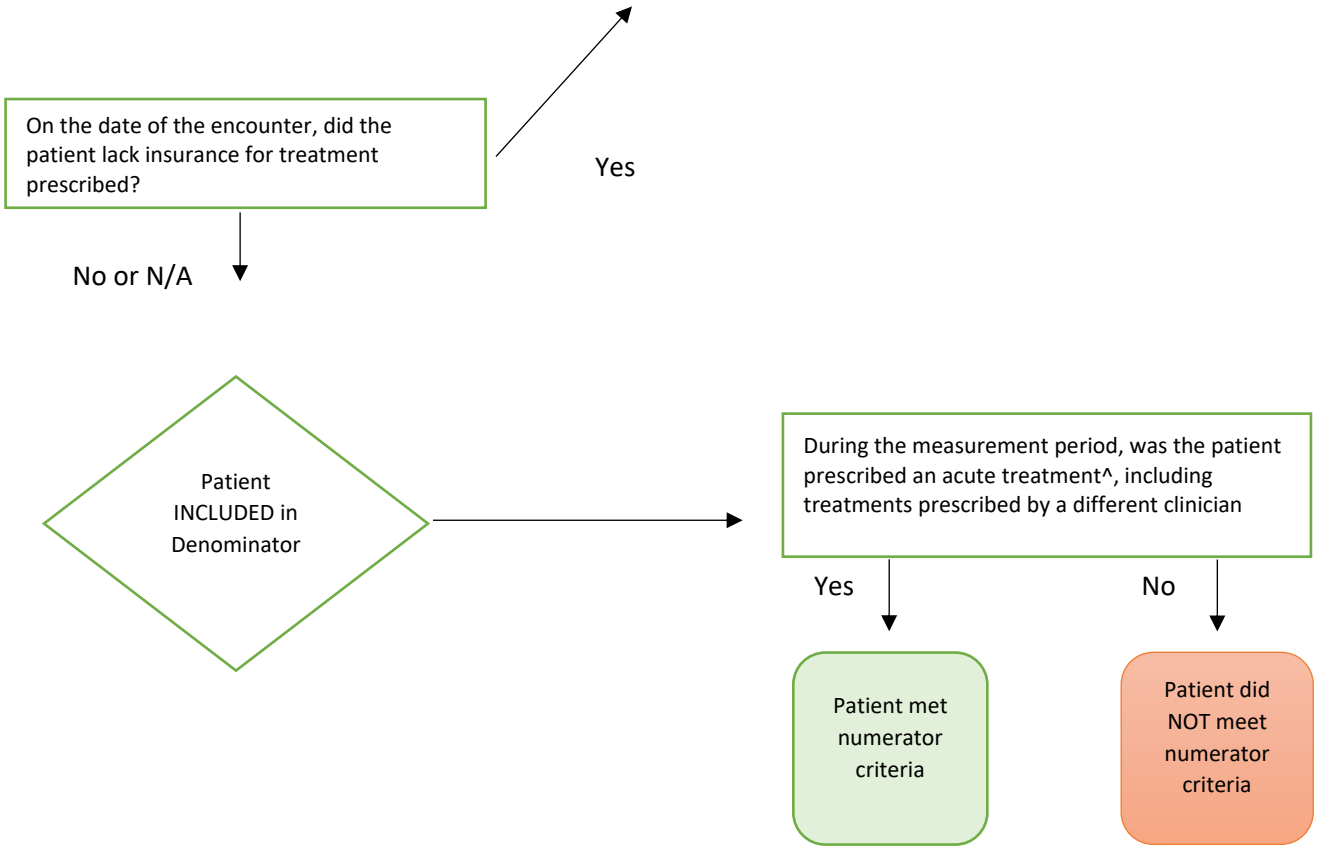
Measure Title	Acute treatment prescribed for cluster headache **This is a paired measure. Recommend that this measure is used in conjunction with "Preventive Treatment Prescribed for Cluster Headache" on page 39**	
Description	Percentage of patients ≥ 18 years of age with a diagnosis of cluster headache (CH) who were prescribed an acute treatment, including treatments prescribed by a different clinician.	
Measurement Period	January 1, 20xx to December 31, 20xx	
Eligible Population	**Eligible Providers**	Medical Doctor (MD), Doctor of Osteopathy (DO), Advanced Practice Provider (APP), Advanced Practice Registered Nurse (APRN)
	Care Setting(s)	Outpatient
	Ages	≥ 18 years of age
	Event	Patient had an office visit or E/M services performed or supervised by an eligible provider.
	Diagnosis	Cluster headache
Denominator	Patients ≥ 18 years of age with a diagnosis of cluster headache	
Numerator	Patients who were prescribed an acute treatment^, including treatments prescribed by a different clinician once during the measurement period ^Acute treatments include, but are not limited to, the following: oxygen 100%, sumatriptan SC, sumatriptan IN, zolmitriptan IN, DHE (IV, IM, SC, IN), external vagus nerve stimulation, Sphenopalatine ganglion (SPG) stimulation device*[1,2,3] *Availability in U.S. may be limited Note: The above list of medications/treatment names is based on clinical guidelines and other evidence and may not be all-inclusive or current. Physicians and other health care professionals should refer to the Food and Drug Administration's (FDA) web site page entitled "Drug Safety Communications" for up-to-date drug recall and alert information when prescribing medications. Some treatments are not available in all care settings.	
Required Exclusions	None	
Allowable Exclusions	• Guideline recommended treatment is medically contraindicated or ineffective for the patient. (This allowable exclusion allows for documentation to occur any time in the patient record) • Patient reports no CH attacks within the past 12 months or is not in an active attack period. (This allowable exclusion must be documented in the measurement period) • CH are sufficiently controlled with over the counter [OTC] medications. (This allowable exclusion must be documented on the date of the encounter) • Patient and/or caregiver decline therapy. (This allowable exclusion must be documented on the date of the encounter) • Lack of insurance or insurance coverage for treatment prescribed. (This allowable exclusion must be documented in the measurement period)	
Exclusion Rationale	A provider cannot prescribe an ineffective or contraindicated treatment. A patient may not need treatment if they have not had any CH attacks in the past 12 months. A patient and/or caregiver reserve the right to decline a prescription. Some of these treatments are costly to be paid out of pocket for a patient who does not have health insurance.	
Measure Scoring	Percentage	
Interpretation of Score	Higher score indicates better quality.	

Measure Type	Process
Level of Measurement	Provider
Risk Adjustment	Not applicable
For Process Measures Relationship to Desired Outcome	
Opportunity to Improve Gap in Care	Cluster headache is underdiagnosed and undertreated due to difficult symptomology and poor recognition.[1,2] Although cluster headache has a much lower prevalence than many other types of headache[3], it is often considered the most severe headache pain. Suicidal ideations in one study were as high as 55% of the study population.[4] Appropriate acute and preventive treatment for patients diagnosed with cluster headache leads to reliable symptom relief for attacks and reduction of attack frequency and severity. Cluster headache leads to major socioeconomic effects on patients as well as society due to direct healthcare costs and indirect costs caused by loss of working capacity.[5] Approximately 20% of CH patients have lost a job secondary to CH, while another 8% are out of work or on disability secondary to their headaches.[4] According to a 2016 study by Lademan et al, "guideline-adherent treatment in cluster headache is about 70% for acute treatment and about 35% for prophylactic treatment."[6] The efficacy rate for treatments for both groups is above 90%.[6] This evidence presents a wide gap in care for patients with cluster headache.
Harmonization with Existing Measures	No similar measures known.
References	1. Klapper JA, Klapper A and Voss T. The misdiagnosis of cluster headache: a nonclinical, population-based, Internet survey. Headache. 2000 Oct; 40(9):730-5. 2. Robbins M, Starling A, Pringsheim T, et al. Treatment of Cluster Headache: The American Headache Society Evidence-Based Guidelines. Headache 2016; 56:1093-1106. 3. Fischera M, Marziniak M, Gralow I, Evers S The incidence and prevalence of cluster headache: a meta-analysis of population-based studies. Cephalalgia. 2008 Jun;28(6):614-8 4. Rozen RD, Fishman RS Cluster headache in the United States of America: Demographics, Clinical Characteristics, Triggers, Suicidality, and Personal Burden. 2012 Headache doi: 10.1111/j.1526-4610.2011.02028.x 5. Gaul C, Finken J, Biermann J, et al. Treatment costs and indirect costs of cluster headache: A health economics analysis. Cephalgia 2011; 31 (16): 1664-1672. 6. Lademann v, Jasen JP, Evers S, Frese A. Evaluation of guideline-adherent treatment in cluster headache. Cephalalgia 2016; 36:760-764. <u>Supporting evidence</u>

	• EFNS Evers S, Afra J, Frese A, et al. Cluster headache and other trigemino-autonomic cephalgias. European handbook of neurological management. 2nd ed. Vol 1. Oxford (UK): Wiley-Blackwell; 2001; pg. 179-190. • Francis GJ, Becker WJ, Pringsheim TM. Acute and Preventive Pharmacologic Treatment of Cluster Headache Neurology 2010; 75;463 • EFNS guidelines on the treatment of cluster headache and other trigeminal-autonomic cephalalgias. European Journal of Neurology 2006; 13:1066-77. • Bennett MH, French C, Schnabel A, et al. Normobaric and hyperbaric oxygen therapy for the treatment and prevention of migraine and cluster headache (Review). Cochrane Library 2015.

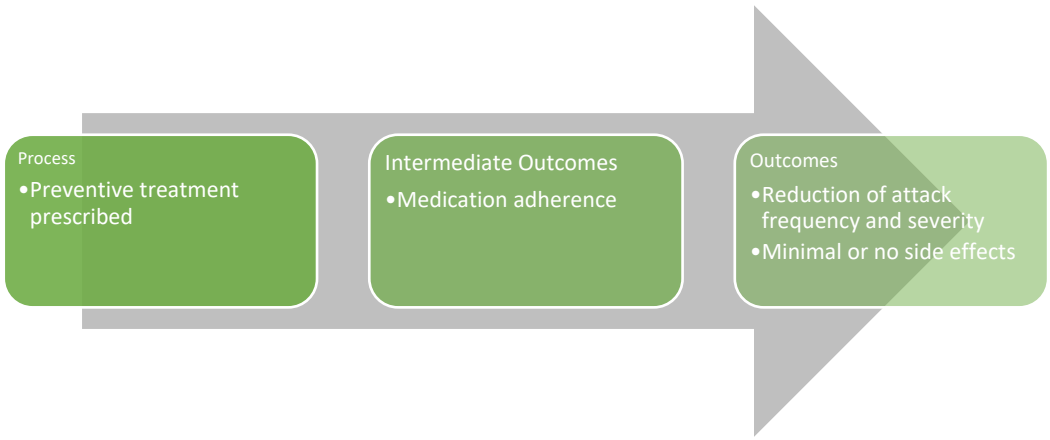
Flow Chart Diagram





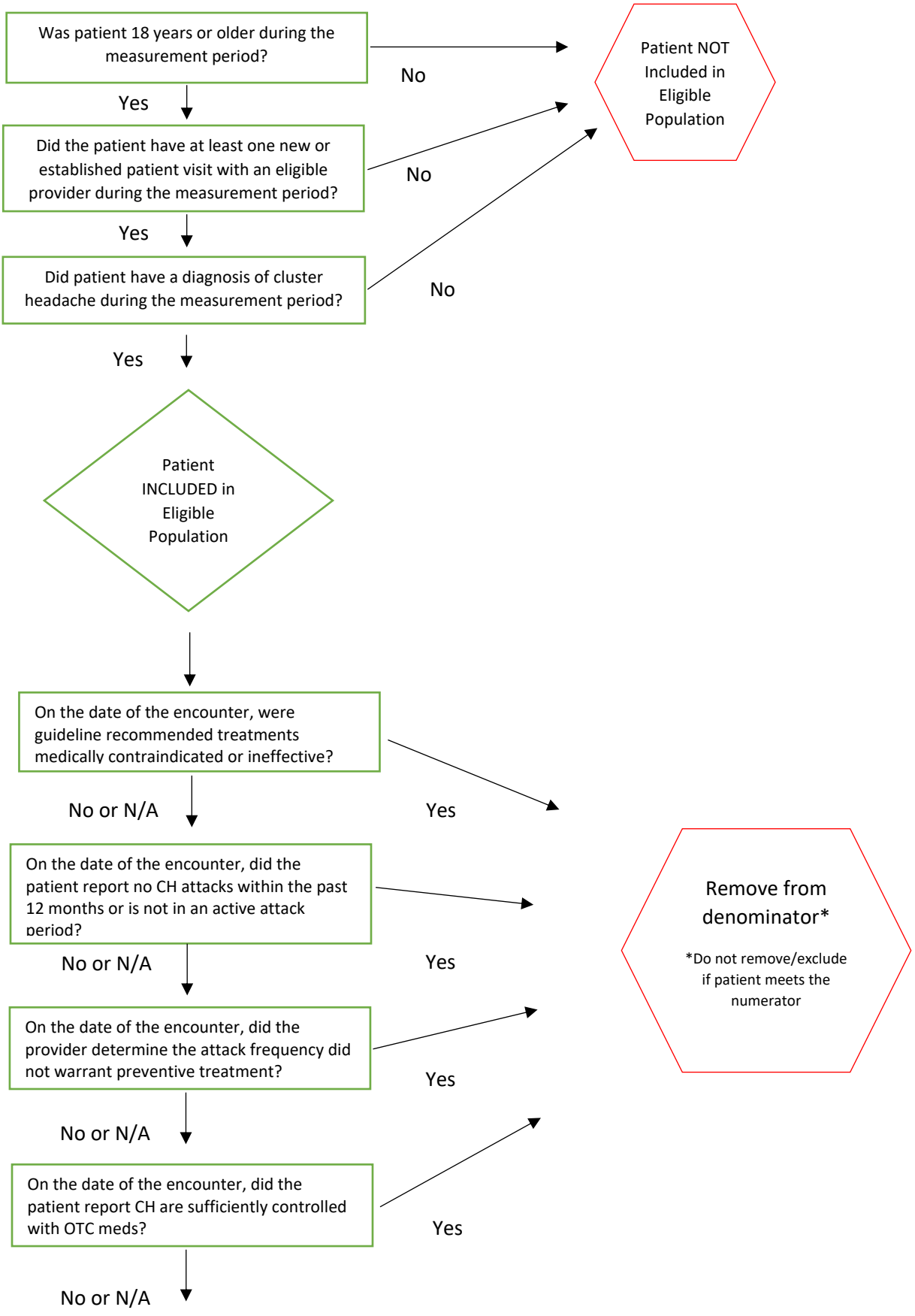
Code System	Code	Code Description
ICD-10	G44.001	Cluster headache syndrome, unspecified, intractable
ICD-10	G44.009	Cluster headache syndrome, unspecified, not intractable
ICD-10	G44.011	Episodic cluster headache, intractable
ICD-10	G44.019	Episodic cluster headache, not intractable
ICD-10	G44.021	Chronic cluster headache, intractable
ICD-10	G44.029	Chronic cluster headache, not intractable
CPT	99201-99205	Office or other outpatient visit 10, 20, 30, 45, or 60 minutes for the evaluation and management of a new patient
CPT	99211-99215	Office or other outpatient visit 5, 10, 15, 25, or 40 minutes for the evaluation and management of an established patient

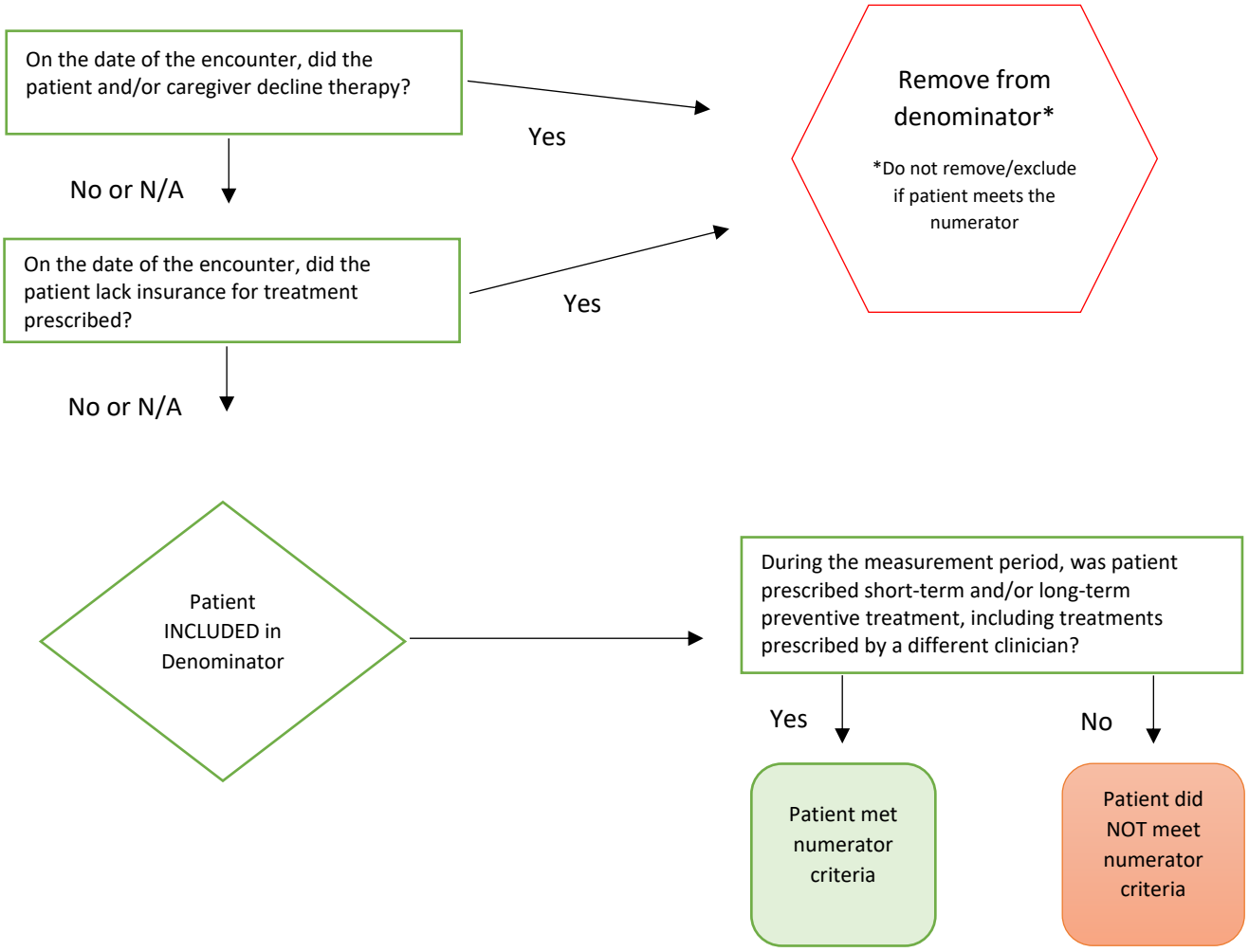
Measure Title	Preventive treatment prescribed for cluster headache. **This is a paired measure. Recommend that this measure is used in conjunction with "Acute Treatment Prescribed for Cluster Headache" on page 34**	
Description	Percentage of patients ≥ 18 years of age with a diagnosis of cluster headache (CH) who were prescribed short-term and/or long-term preventive treatment, including treatments prescribed by a different clinician.	
Measurement Period	January 1, 20xx to December 31, 20xx	
Eligible Population	**Eligible Providers**	Medical Doctor (MD), Doctor of Osteopathy (DO), Advanced Practice Provider (APP), Advanced Practice Registered Nurse (APRN)
	Care Setting(s)	Outpatient
	Ages	≥ 18 years of age
	Event	Patient had an office visit or E/M services performed or supervised by an eligible provider.
	Diagnosis	Cluster headache
Denominator	Patients ≥ 18 years of age with a diagnosis of cluster headache.	
Numerator	Patients who were prescribed short-term^ and/or long-term* preventive treatment, including treatments prescribed by a different clinician once during the measurement period ^Short term preventive treatments include, but are not limited to, the following: Occipital nerve injection with steroid, oral steroid. *Long term preventive treatments include, but are not limited to, the following: verapamil, lithium, sphenopalatine ganglion (SPG) stimulation device**, galcanezumab. **Availability may be limited in U.S.	
Required Exclusions	None	
Allowable Exclusions	• Guideline recommended treatment is medically contraindicated or ineffective for the patient. (This allowable exclusion allows for documentation to occur at any time in the patient record) • Patient reports no CH attacks within the past 12 months or is not in an active attack period. (This allowable exclusion must be documented in the measurement period) • Provider determined attack frequency does not warrant preventive treatment (This allowable exclusion must be documented on the date of the encounter) • CH are sufficiently controlled with over the counter [OTC] medications. (This allowable exclusion must be documented on the date of the encounter) • Patient and/or caregiver decline. (This allowable exclusion must be documented on the date of the encounter) • Lack of insurance or insurance coverage for treatment prescribed. (This allowable exclusion must be documented in the measurement period)	
Exclusion Rationale	A provider cannot prescribe an ineffective or contraindicated treatment. A patient may not need treatment if they have not had any CH attacks in the past 12 months. A patient and/or caregiver reserve the right to decline a prescription. Some of these treatments are costly to be paid out of pocket for a patient who does not have health insurance.	
Measure Scoring	Percentage	

Interpretation of Score	Higher score indicates better quality.
Measure Type	Process
Level of Measurement	Provider
Risk Adjustment	Not applicable
For Process Measures Relationship to Desired Outcome	
Opportunity to Improve Gap in Care	Cluster headache is underdiagnosed and undertreated due to difficult symptomology and poor recognition.[1,2] Although cluster headache has a much lower prevalence than many other types of headache[3], it is often considered the most severe headache pain. Suicidality ideations in one study were as high as 55% of the study population.[4] Appropriate acute and preventive treatment for patients diagnosed with cluster headache lead to reliable symptom relief for attacks and reduction of attack frequency and severity. Cluster headache leads to major socioeconomic impacts on patients as well as society due to direct healthcare costs and indirect costs caused by loss of working capacity.[5] Approximately 20% of CH patients have lost a job secondary to CH, while another 8% are out of work or on disability secondary to their headaches.[4] According to a 2016 study by Lademan et al, "guideline-adherent treatment in cluster headache is about 70% for acute treatment and about 35% for prophylactic treatment."[6] The efficacy rate for treatments for both groups is above 90%.[6] This evidence presents a wide gap in care for patients with cluster headache.
Harmonization with Existing Measures	No similar measures known.
References	1. Klapper JA, Klapper A and Voss T. The misdiagnosis of cluster headache: a nonclinical, population-based, Internet survey. Headache. 2000 Oct; 40(9):730-5. 2. Robbins M, Starling A, Pringsheim T, et al. Treatment of Cluster Headache: The American Headache Society Evidence-Based Guidelines. Headache 2016; 56:1093-1106. 3. Fischera M, Marziniak M, Gralow I, Evers S The incidence and prevalence of cluster headache: a meta-analysis of population-based studies. Cephalalgia. 2008 Jun;28(6):614-8 4. Rozen RD, Fishman RS Cluster headache in the United States of America: Demographics, Clinical Characteristics, Triggers, Suicidality, and Personal Burden. 2012 Headache doi: 10.1111/j.1526-4610.2011.02028.x

	5. Gaul C, Finken J, Biermann J, et al. Treatment costs and indirect costs of cluster headache: A health economics analysis. Cephalgia 2011; 31 (16): 1664-1672. 6. Lademann v, Jasen JP, Evers S, Frese A. Evaluation of guideline-adherent treatment in cluster headache. Cephalalgia 2016; 36:760-764. <u>Supporting evidence</u> • EFNS Evers S, Afra J, Frese A, et al. Cluster headache and other trigemino-autonomic cephalgias. European handbook of neurological management. 2nd ed. Vol 1. Oxford (UK): Wiley-Blackwell; 2001; pg. 179-190. • Francis GJ, Becker WJ, Pringsheim TM. Acute and Preventive Pharmacologic Treatment of Cluster Headache Neurology 2010; 75;463 • EFNS guidelines on the treatment of cluster headache and other trigeminal-autonomic cephalalgias. European Journal of Neurology 2006; 13:1066-77. • Bennett MH, French C, Schnabel A, et al. Normobaric and hyperbaric oxygen therapy for the treatment and prevention of migraine and cluster headache (Review). Cochrane Library 2015.

Flow Chart Diagram





Code System	Code	Code Description
ICD-10	G44.001	Cluster headache syndrome, unspecified, intractable
ICD-10	G44.009	Cluster headache syndrome, unspecified, not intractable
ICD-10	G44.011	Episodic cluster headache, intractable
ICD-10	G44.019	Episodic cluster headache, not intractable
ICD-10	G44.021	Chronic cluster headache, intractable
ICD-10	G44.029	Chronic cluster headache, not intractable
CPT	99201-99205	Office or other outpatient visit 10, 20, 30, 45, or 60 minutes for the evaluation and management of a new patient
CPT	99211-99215	Office or other outpatient visit 5, 10, 15, 25, or 40 minutes for the evaluation and management of an established patient

Contact Information

American Academy of Neurology
201 Chicago Avenue
Minneapolis, MN 55415
quality@aan.com

Appendix A Disclosures

Work Group Member	Disclosures
Mark Bailey, DO, PhD, FACN	Nothing to disclose
Calli Cook, DNP, APRN, FNP-C	Nothing to disclose
Ivan Garza, MD, FAAN, FAHS	Receives royalty payments from UpToDate, Inc. for his work as author.
J. Stephen Huff, MD	Receives research support from BrainScope, Inc and Banyan Biomarkers.
Duren Ready, MD, FAHS	Serves on scientific advisory boards for Alder and Allergan and speakers' bureau for Avanir.
Matthew Robbins, MD, FAAN, FAHS	Receives book royalties from "Headache", Neurology in Practice Series, and an editorial stipend from Springer (*Current Pain and Headache Reports*).
Nathaniel Schuster, MD	Receives research support from the Migraine Research Foundation and speaker's bureau for Eli Lilly & Co.
David Seidenwurm, MD, FACR	Receives funds for travel from NQF, ACR, and CMS (Acumen). He receives medical legal expert witness fees for witness and defense. Dr. Seidenwurm is a medical group shareholder for RASMG and SMG.
Elizabeth Seng, PhD, FAHS	Nothing to disclose
Christina Szperka, MD, MSCE, FAHS	Receives research support from Pfizer, then NIH, and the FDA. Her institution has received compensation for her consulting work from Allergan.
M. Cristina Victorio, MD, FAHS	Nothing to disclose
Raissa Villanueva, MD, MPH, FAAN	Nothing to disclose

References

1. Gibbs TS, Fleischer AB, Jr., Feldman SR, Sam MC, O'Donovan CA. Health care utilization in patients with migraine: demographics and patterns of care in the ambulatory setting. *Headache.* 2003;43(4):330-335.
2. Latinovic R, Gulliford M, Ridsdale L. Headache and migraine in primary care: consultation, prescription, and referral rates in a large population. *J Neurol Neurosurg Psychiatry.* 2006;77(3):385-387.
3. Burch RC, Loder S, Loder E, Smitherman TA. The prevalence and burden of migraine and severe headache in the United States: updated statistics from government health surveillance studies. Headache. 2015 Jan;55(1):21-34. doi: 10.1111/head.12482.
4. Friedman BW1, West J2, Vinson DR3, Minen MT4, Restivo A2, Gallagher EJ2.Current management of migraine in US emergency departments: an analysis of the National Hospital Ambulatory Medical Care Survey. Cephalalgia. 2015 Apr;35(4):301-9.
5. Robbins MS, Lipton RB. The epidemiology of primary headache disorders. Semin Neurol. 2010 Apr;30(2):107-19.
6. Lipton RB, Bigal ME, Diamond M, Freitag F, Reed ML, Stewart WF; AMPP Advisory Group. Migraine prevalence, disease burden, and the need for preventive therapy. Neurology. 2007 Jan 30;68(5):343-9.
7. Buse DC, Manack A, Serrano D, Turkel C, Lipton RB. Sociodemographic and comorbidity profiles of chronic migraine and episodic migraine sufferers. J Neurol Neurosurg Psychiatry. 2010 Apr;81(4):428-32.
8. Chronic migraine prevalence, disability, and sociodemographic factors: results from the American Migraine Prevalence and Prevention Study. Buse DC, Manack AN, Fanning KM, Serrano D, Reed ML, Turkel CC, Lipton RB. Headache. 2012 Nov-Dec;52(10):1456-70.
9. Global, regional, and national incidence, prevalence, and years lived with disability for 328 diseases and injuries for 195 countries, 1990-2016: a systematic analysis for the Global Burden of Disease Study 2016. GBD 2016 Disease and Injury Incidence and Prevalence Collaborators. Lancet. 2017 Sep 16; 390(10100):1211-1259.
10. Steiner T, Stovner L, Vos T, Jensen R, Katsarava Z. Migraine is *first* cause of disability in under 50s: will health politicians now take notice? J Headache Pain 2018; 19(1):17.
11. Fischera M, Marziniak M, Gralow I, Evers S. The incidence and prevalence of cluster headache: a meta-analysis of population-based studies. Cephalalgia. 2008 Jun;28(6):614-8.