

APPENDIX

Appendix Table 1. List of Acute Treatment Medications

Level A	Level B	Level C	Level U	Others
Analgesics Acetaminophen	Ergots Ergotamine/caffeine	Ergot Ergotamine	NSAIDs Celecoxib	NSAIDs Ketorolac tromethamine spray
Ergots Dihydroergotamine	NSAIDs Flurbiprofen Ketoprofen	NSAIDs Phenazone		
NSAIDs Aspirin Diclofenac Ibuprofen Naproxen	Others Isometheptene	Opioid Codeine		
Opioids Butorphanol nasal spray	Combinations Codeine/ acetaminophen Tramadol/ acetaminophen	Others Butalbital		
Opioids Butorphanol nasal spray		Combination Butalbital/ acetaminophen/ caffeine		
Triptans Almotriptan Eletriptan Frovatriptan Naratriptan Rizatriptan Sumatriptan Zolmitriptan				
Combinations Acetaminophen/ aspirin/caffeine Sumatriptan/naproxen				

This list was adapted from the 2000 American Academy of Neurology Review
 NSAID – non-steroidal anti-inflammatory drug.

Appendix Table 2. Family and Link Functions Used in Generalized Linear Model (GLM) Regressions

Outcome**	1-12 months		13-24 months	
	Family	Link Function	Family	Link Function
HRU				
Migraine and/or HA-related physician visits	Gamma	Power 0.2	Gamma	Power -0.1
Costs				
All-cause total costs	Poisson	Power -0.1	Poisson	Power 0
Migraine and/or HA-related total costs	Gamma	Power 0	Gamma	Power 0.2

** Remaining outcomes were run as logistic regressions

Appendix Table 3. Patient Demographic and Clinical Characteristics

Characteristic, n (%)	Triptan-Only Continuers N = 4,371	Potential TIR Patients (N=3,102)		
		All N = 3,102	Triptan Discontinuers with Triptan Acute Meds N = 944	Triptan Continuers with Triptan Acute Meds N = 2,158
Age (years)				
18–24	494 (11.3)	314 (10.1)	128 (13.6)	186 (8.6)
25–34	865 (19.8)	658 (21.2)	221 (23.4)	437 (20.3)
35–44	1,391 (31.8)	996 (32.1)	269 (28.5)	727 (33.7)
45+	1,621 (37.1)	1,134 (36.6)	326 (34.5)	808 (37.4)
Gender				
Female	3,583 (82.0)	2,592 (83.6)	764 (80.9)	1,828 (84.7)
Male	788 (18.0)	510 (16.4)	180 (19.1)	330 (15.3)
Region				
Northeast	333 (7.6)	220 (7.1)	74 (7.8)	146 (6.8)
Midwest	1,332 (30.5)	835 (26.9)	243 (25.7)	592 (27.4)
South	1,788 (40.9)	1,406 (45.3)	444 (47.0)	962 (44.6)
West	918 (21.0)	641 (20.7)	183 (19.4)	458 (21.2)
Plan type				
Point of service	3,384 (77.4)	2,439 (78.6)	733 (77.6)	1,706 (79.1)
Health maintenance organization	405 (9.3)	280 (9.0)	84 (8.9)	196 (9.1)
Other*	582 (13.3)	383 (12.3)	127 (13.5)	256 (11.8)
Elixhauser comorbidity count				
0	1,953 (44.7)	1,022 (32.9)	349 (37.0)	673 (31.2)
1	1,265 (28.9)	894 (28.8)	263 (27.9)	631 (29.2)
2–3	913 (20.9)	815 (26.3)	236 (25.0)	579 (26.8)
4+	240 (5.5)	371 (12.0)	96 (10.2)	275 (12.7)
Migraine-related comorbidities				
Pain	970 (22.2)	1,125 (36.3)	309 (32.7)	816 (37.8)
Mood disorders	864 (19.8)	906 (29.2)	242 (25.6)	664 (30.8)
Rhinitis	753 (17.2)	611 (19.7)	176 (18.6)	435 (20.2)
Sleep disturbances	404 (9.2)	517 (16.7)	134 (14.2)	383 (17.7)
Cardiovascular disease-related comorbidities				
Hyperlipidemia	875 (20.0)	729 (23.5)	217 (23.0)	512 (23.7)
Hypertension	733 (16.8)	708 (22.8)	216 (22.9)	492 (22.8)
Obesity	327 (7.5)	334 (10.8)	98 (10.4)	236 (10.9)
Ischemic disease (coronary heart disease, peripheral vascular disease, and/or cerebrovascular disease)	181 (4.1)	235 (7.6)	69 (7.4)	166 (7.7)
Index triptan agent				
Sumatriptan	2,702 (61.8)	1,972 (63.6)	631 (66.8)	1,341 (62.1)
Rizatriptan	814 (18.6)	557 (18.0)	167 (17.7)	390 (18.1)
Eletriptan	437 (10.0)	293 (9.4)	69 (7.3)	224 (10.4)
Zolmitriptan	199 (4.6)	115 (3.7)	28 (3.0)	87 (4.0)
Naratriptan	88 (2.0)	71 (2.3)	17 (1.8)	54 (2.5)
Frovatriptan	73 (1.7)	58 (1.9)	20 (2.1)	38 (1.8)
Almotriptan	36 (0.8)	18 (0.6)	5 (0.5)	13 (0.6)
Sumatriptan combination	22 (0.5)	18 (0.6)	7 (0.7)	11 (0.5)
Presence of chronic migraine diagnosis	228 (5.2)	286 (9.2)	74 (7.8)	212 (9.8)
Pre-index count of distinct medication classes for acute treatment of migraine**				
0	3359 (76.8)	1711 (55.2)	580 (61.4)	1,131 (52.4)
1	888 (20.3)	1115 (35.9)	289 (30.6)	826 (38.3)
2+	124 (2.8)	276 (8.9)	75 (7.9)	201 (9.3)
Pre-index migraine-related inpatient or emergency department visit	489 (11.2)	626 (20.2)	179 (19.0)	447 (20.7)

Pre-index all-cause total costs

Quartile 1 (<\$1,287):	1,198 (27.4)	520 (16.8)	198 (21.0)	322 (14.9)
Quartile 2 (\$1,287–\$3,817):	1,171 (26.8)	629 (20.3)	204 (21.6)	425 (19.7)
Quartile 3 (\$3,819–\$10,860):	1,070 (24.5)	829 (26.7)	234 (24.8)	595 (27.6)
Quartile 4 (\$10,865–\$645,097)	932 (21.3)	1,124 (36.2)	308 (32.6)	816 (37.8)

Note: All data are n (%) unless otherwise indicated.

NSAID – nonsteroidal anti-inflammatory drug, TIR – triptan insufficient responder.

*Plan type - Other includes preferred provider organizations, exclusive provider organizations, and other unspecified organizations

**Distinct medication classes for acute treatment of migraines includes butalbital combinations, ergots, NSAIDs, and opioids including opioid combinations.

Appendix Table 4. Unadjusted Healthcare Resource Utilization Over Months 1–12 and Months 13–24 Post-Index

		Triptan Only Continuer N = 4,371		Potential TIR Patients N = 3,102	
		Month 1–12	Month 13–24	Month 1–12	Month 13–24
All Cause					
Inpatient visits	%	3.6%	4.3%	11.2%	11.4%
	Mean	0.05	0.05	0.15	0.15
ED visits	%	17.5%	17.3%	37.4%	34.8%
	Mean	0.26	0.26	0.84	0.78
Outpatient service claims (excluding ED visits)	%	99.1%	97.6%	99.7%	98.5%
	Mean	12.77	12.14	20.17	19.06
Physician office visits	%	98.2%	96.4%	99.7%	97.7%
	Mean	6.90	6.24	11.07	9.86
Neurologist visits	%	25.4%	17.3%	40.0%	30.4%
	Mean	0.65	0.40	1.38	0.94
Migraine and/or Headache-Related					
Inpatient visits	%	0.8%	0.9%	6.4%	5.4%
	Mean	0.01	0.01	0.08	0.06
ED visits	%	5.2%	3.9%	19.0%	15.1%
	Mean	0.06	0.05	0.33	0.28
Outpatient service claims (excluding ED visits)	%	80.3%	53.5%	95.8%	70.4%
	Mean	2.21	1.35	4.55	3.01
Physician office visits	%	78.1%	50.4%	93.2%	65.9%
	Mean	1.71	0.97	3.24	2.06
Neurologist visits	%	23.0%	14.6%	37.0%	26.1%
	Mean	0.53	0.30	1.13	0.72

ED – emergency department; TIR – triptan insufficient responder.

Appendix Table 5. Unadjusted Healthcare Costs Over Months 1–12 and Months 13–24 Post-Index

	Triptan Only Continuer N = 4,371		Potential TIR Patients N = 3,102	
	Month 1–12	Month 13–24	Month 1–12	Month 13–24
All-Cause Total Costs	\$8,410	\$8,504	\$18,159	\$18,750
Medical	\$6,267	\$6,421	\$14,809	\$15,158
Inpatient	\$725	\$929	\$2,604	\$3,023
ED	\$729	\$751	\$2,357	\$2,156
Outpatient ^a	\$4,812	\$4,741	\$9,848	\$9,979
Evaluation & management visits	\$748	\$672	\$1,227	\$1,081
Neurologist visits ^b	\$166	\$114	\$369	\$299
Prescription	\$2,143	\$2,083	\$3,350	\$3,592
Migraine and/or Headache-Related Total Costs	\$1,321	\$978	\$5,070	\$4,456
Medical	\$832	\$633	\$4,128	\$3,655
Inpatient	\$104	\$134	\$1,313	\$1,436
ED	\$201	\$150	\$1,023	\$796
Outpatient ^a	\$496	\$315	\$1,639	\$1,241
OnabotulinumtoxinA (medical claims)	\$32	\$34	\$153	\$181
Evaluation & management visit	\$198	\$109	\$379	\$233
Neurologist visits ^b	\$89	\$50	\$212	\$140
Prescription	\$489	\$345	\$941	\$802
OnabotulinumtoxinA (prescription claims)	\$3	\$5	\$10	\$10
Acute medication	\$347	\$212	\$506	\$356
Oral migraine preventive medication	\$112	\$102	\$177	\$190

^a Excluded ED visits.

^b Includes any evaluation and management visit claims with neurology specialist
ED – emergency department; TIR – triptan insufficient responder.