

Supplemental Online Content

Jin MC, Jensen M, Zhou Z, et al. Health care resource utilization in management of opioid-naive patients with newly diagnosed neck pain. *JAMA Netw Open*. 2022;5(7):e2222062. doi:10.1001/jamanetworkopen.2022.22062

eTable 1. Study Coding Scheme

eTable 2. Gamma Regression (Log-Link) on 1 Year Post-Diagnosis Total Healthcare Costs

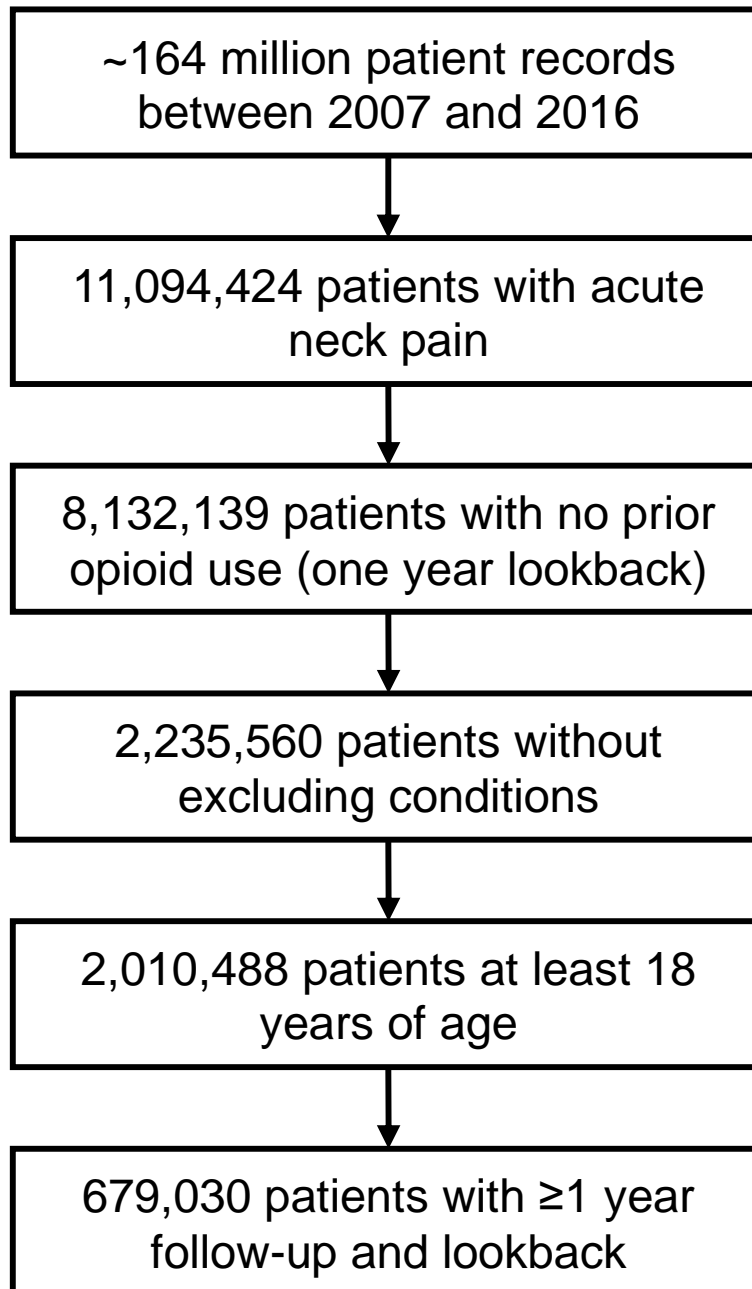
eFigure 1. CONSORT Diagram

eFigure 2. Marginal Opioid Prescribing Duration Associated With Initial Provider Specialty

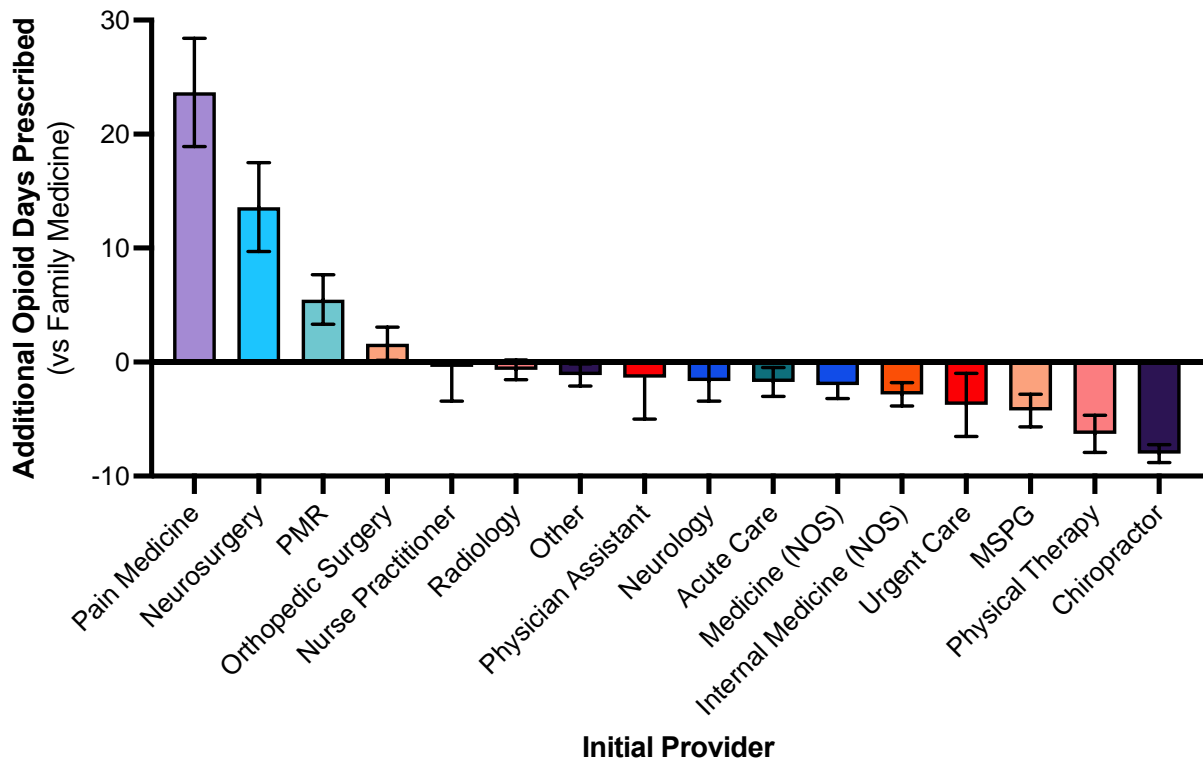
This supplemental material has been provided by the authors to give readers additional information about their work.

eTable 1. Study Coding Scheme	
Characteristic	Codes Used
<i>Inclusion Diagnosis</i>	
Neck Pain without Myelopathy	353.2, 739.1, 721.0, 722.0, 722.4, 722.91, 723.1, 723.2, 723.3, 723.4, 723.7, 723.8, 723.9, 805.11, 806.11, 847.0, G54.2, M47.22, M47.23, M47.812, M47.813, M47.892, M47.893, M54.12, M54.13, M54.2, M50.10, M50.11, M50.12, M50.120, M50.121, M50.122, M50.123, M50.13, M50.20, M50.21, M50.22, M50.220, M50.221, M50.222, M50.223, M50.23, M50.30, M50.31, M50.32, M50.320, M50.321, M50.322, M50.323, M50.33, M50.80, M50.81, M50.82, M50.820, M50.821, M50.822, M50.823, M50.83, M50.90, M50.91, M50.92, M50.920, M50.921, M50.922, M50.923, M50.93, M53.0, M53.1, M53.2X2, M53.2X3, M53.82, M53.83, M54.02, M54.03, M99.01, S13.4XXA, S13.8XXA
<i>Exclusion Diagnoses</i>	
Traumatic Cervical Disc Dislocation	839.00, 839.01, 839.02, 839.03, 839.04, 839.05, 839.06, 839.07, 839.08, 839.10, 839.11, 839.12, 839.13, 839.14, 839.15, 839.16, 839.17, 839.18
Cervical Fracture	805.00, 805.01, 805.02, 805.03, 805.04, 805.05, 805.06, 805.07, 805.08, 805.10, 805.11, 805.12, 805.13, 805.14, 805.15, 805.16, 805.17, 805.18
Malignancy	140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239
Other	038, 334.1, 338.2, 342, 343, 720, 739.1, 787.6, 788.3, 995.9
<i>Procedures</i>	
<i>Surgery</i>	
Anterior Decompression	22856, 22861, 22864, 0095T, 63075, 22859, 63081
Anterior Fusion	22548, 22554, 22551, 22845, 22843, 22853, 22854
Posterior Decompression	63001, 63015, 63020, 63040, 63045, 63050, 63051, 22210
Posterior Fusion	22590, 22595, 22600, 22840, 22842, 22843
<i>Imaging</i>	
X-Ray	72040, 72050, 72052
CT	72125, 72126, 72127
MRI	72141, 72156, 72142
<i>Non-Surgical Treatments</i>	
ESI	62310, 64479, 64480
Chiropractic Manipulative Therapy	98940, 98941, 98942, 98943
Physical Therapy	97010, 97014, 97001, 97002, 97161, 97162, 97163, 97164, 97140, 97110, 97012

eTable 2. Gamma Regression (Log-Link) on 1 Year Post-Diagnosis Total Healthcare Costs			
Characteristics	e^{β}	95% CI	<i>p</i> -value
Received Surgery	27.295	25.549 to 29.159	<0.001
Early Imaging			
None (ref)			
X-Ray	1.105	1.086 to 1.125	<0.001
Advanced Imaging	2.691	2.624 to 2.759	<0.001
X-Ray and Advanced Imaging	3.517	3.381 to 3.658	<0.001
Early Opioids	1.408	1.374 to 1.443	<0.001
No (ref)			
Yes			
Early Conservative	0.752	0.738 to 0.765	<0.001
No (ref)			
Yes			
Age (years, continuous)	0.997	0.996 to 0.998	<0.001
Sex			
Male (ref)			
Female	1.004	0.989 to 1.020	0.589
Comorbidities			
Congestive Heart Failure	0.884	0.817 to 0.957	0.002
Cardiac Arrhythmia	0.974	0.933 to 1.016	0.217
Valvular Disease	0.968	0.917 to 1.022	0.235
Pulmonary Circulation Disorders	0.871	0.761 to 0.997	0.041
Peripheral Vascular Disorders	0.876	0.823 to 0.933	<0.001
Hypertension Uncomplicated	0.989	0.969 to 1.011	0.318
Hypertension Complicated	0.966	0.900 to 1.038	0.337
Paralysis	1.299	1.008 to 1.675	0.039
Other Neurological Disorders	1.121	1.061 to 1.184	<0.001
Chronic Pulmonary Disease	0.990	0.961 to 1.021	0.521
Diabetes Uncomplicated	1.031	0.999 to 1.064	0.057
Diabetes Complicated	0.969	0.910 to 1.033	0.325
Hypothyroidism	1.007	0.977 to 1.038	0.665
Renal Failure	0.850	0.779 to 0.927	<0.001
Liver Disease	1.162	1.088 to 1.241	<0.001
Peptic Ulcer Disease excluding bleeding	1.117	0.954 to 1.308	0.162
AIDS/HIV	1.147	0.944 to 1.395	0.160
Rheumatoid Arthritis/collagen	1.032	0.973 to 1.094	0.280
Coagulopathy	0.954	0.847 to 1.076	0.435
Obesity	1.072	1.030 to 1.115	<0.001
Weight Loss	0.945	0.866 to 1.032	0.197
Fluid and Electrolyte Disorders	0.950	0.896 to 1.007	0.077
Blood Loss Anemia	0.859	0.715 to 1.032	0.098
Deficiency Anemia	1.017	0.957 to 1.081	0.579
Alcohol Abuse	0.990	0.904 to 1.085	0.832
Drug Abuse	1.046	0.941 to 1.163	0.395
Psychoses	0.837	0.748 to 0.936	0.001
Depression	1.101	1.071 to 1.132	<0.001



eFigure 1. CONSORT Diagram



eFigure 2. Marginal Opioid Prescribing Duration Associated With Initial Provider

Specialty. Regression-adjusted prescribed opioid duration stratified by initial provider type after diagnosis. Error bars indicate 95% confidence intervals.