Most Eye Emergency Department Visits Can Be Treated in Optometry Clinics

Awareness of the cost of health care decisions is critical at all levels of health care.[1] Many patients obtain care in emergency departments (EDs) that can be obtained in a less costly outpatient setting. According to the Centers for Disease Control and Prevention (CDC), Americans made 145.6 million visits to one of the country's nearly 5,000 emergency rooms in 2016. [2]

The Health Policy Institute (HPI) conducted a descriptive epidemiological analysis of the diagnosis codes[3] reported nationwide in emergency department encounters, and determined that, although urgent, most eye-related conditions reported in the emergency department may be treatable in an outpatient optometry office or clinic.

The Agency for Healthcare Research and Quality (AHRQ) sponsors the Healthcare Cost and Utilization Project (HCUP), a family of health care databases and related software tools and products.[4] The Nationwide Emergency Department Sample (NEDS) is contained in a tool called HCUPnet, useful for identifying, tracking and analyzing national hospital data.[5] Using the select set of eye and vision related diagnosis codes, HPI queried the HCUPnet tool and identified a rate of 4.5 visits per 1000 persons totaling 1.45 million Eye ED visits, in 2016.[6] . *(Table 1)* The CDC reports a national rate of 458.0 per 1000 persons in 2016 so eye visits represent approximately 1.0 percent of all emergency department visits in 2016.

Table: 1.0: Total number of ED visits with ICD-10-CM Eye Codes treatable by outpatient optometry in 2016 by age (HCUPnet)

Age	Number of Visits	%
<1	63,257	4.4
1-17	414,886	28.6
18-44	519,096	35.8
65-84	134,373	9.3
85+	20,405	1.4
Missing		20.5
Total	1,451,135	100

If these eye ED visits occurred outside the emergency department, in an outpatient optometry setting, a direct cost savings could be realized simply through the elimination of standard excess hospital visit charges.

Potential savings, by transitioning eye emergencies to optometry offices and clinics, should be a key interest of health care payers and policy makers, most especially those shown by these data to bear the brunt of avoidable eye related emergency department visits and charges. These payers include: Private Insurance (28.9 percent), Medicaid (40 percent), and Medicare (12.4 percent). *(Table 2)* For example, a 2013 study of 475,941 patients found that 91.5 percent of total costs *($18.4 million*) could be saved by diverting eye emergency department care to optometry offices and clinics. This represents a potential cost savings of $0.18 Per Member Per Month (PMPM).[7]

Table: 2.0: Total number of ED visits with ICD-10-CM Eye Codes treatable by outpatient optometry in 2016 by Payer (HCUPnet)

Payer	%
Private Insurance	28.9
Medicare	12.4
Medicaid	40.0
Uninsured	14.0
Other	4.6
Missing	0.1
Total	100

Previous studies of ED encounters covered by private insurance over a 14-year period report that of 377,000 eye-related emergency room visits by adults, nearly one in four people have mild conditions.[8] Importantly, in addition to the mild cases identified, optometry offices and clinics have medical equipment and expertise to take care of moderate and more complex eye cases.

Unfortunately, hospital emergency department use continues to increase, especially among Medicaid beneficiaries. The most recent Medicaid State Health System Performance Scorecard describes Medicaid covering 44.5 percent of all emergency department visits.[9]

HPI analysis of all emergency department eye visits further describes urban Metro areas at 65.6 percent utilization, while more rural and suburban areas describe 33.9 percent utilization. (*Table 3*) This compares to 2016 CDC national data at 79.6 percent metropolitan and 20.4 percent non-metropolitan.[10]

Table: 3: Total number of ED visits with ICD-10-CM Eye Codes treatable by outpatient optometry in 2016 by Patent Residence (HCUPnet)

		%	%
Metro Large Central	533,707	36.8	
Metro Medium/Small	418,346	28.8	
Metro Subtotal			65.6
Suburbs	284,502	19.6	
Non-metropolitan	207,057	14.3	
Non-metropolitan Subtotal			33.9
Missing	7,523	0.5	0.5
Total	1, 451,135	100	100

The CDC reports that in 2016 the overall national percent of emergency department visits resulting in hospital admission was 8.7 percent, while our HPI analysis shows only 1.1 percent of all eye-related emergency department visits resulted in hospital admission. The fact that 98.9 percent of emergency department eye episodes in 2016 were treated and released most likely means that these were treatable in outpatient optometry offices and clinics.

While overall ED data suggest $2 in $10 are potentially avoidable, this analysis focusing on ED eye encounters of mild, moderate and more complex diagnosis codes applicable to optometry offices and clinics, shows that more than $9 in $10 of ED eye expenditures are potentially avoidable.

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[1] https://www.who.int/hac/techguidance/tools/disrupted_sectors/module_06/en/index10.html
[2] https://www.cdc.gov/nchs/fastats/emergency-department.htm
[3] International Classification of Diseases, 10th edition, Clinical Modification (ICD-10-CM)
[4] https://www.hcup-us.ahrq.gov/overview.jsp
[5] https://hcupnet.ahrq.gov
[6] https://www.hcup-us.ahrq.gov/
[7] Eye Health and Accountable Care, SCIO Health Analytics, 2013
https://www.sciohealthanalytics.com/resources/eye-health-accountable-care
[8] Brian C. Stagg, Muazzum M. Shah, Nidhi Talwar, Dolly A. Padovani-Claudio, Maria A. Woodward, Joshua D. Stein. Factors Affecting Visits to the Emergency Department for Urgent and Nonurgent Ocular Conditions. Ophthalmology, 2017
[9] https://www.medicaid.gov/state-overviews/scorecard/state-health-system-performance/index.html
[10] https://www.cdc.gov/nchs/data/nhamcs/web_tables/2016_ed_web_tables.pdf