

Trends in Prescription Opioid Patterns Among Children Enrolled in Kentucky Medicaid: A Review of a Recent Cohort



Kasi Eastep DO ¹, Michelle Stevenson MD, MS ¹, Yana Feygin MS ^{2,3}, Xiaofang Yan MS ^{2,3}, John Myers PhD, MSPH ², Bethany Wattles PharmD ², Kahir Jawad MD, MPH ², Maiying Kong PhD ^{2,3}, Brit Anderson MD ¹

¹University of Louisville School of Medicine, Department of Pediatrics; ²University of Louisville School of Medicine, Department of Pediatrics, Child and Adolescent Health Research Design and Support Unit; ³University of Louisville, Department of Bioinformatics and Biostatistics

Background

- There has been a significant increase in the number of prescription opioids administered over the past two decades, resulting in a correlating increase in the number of individuals who report non-medical use of these medications. [1,2]
- 2012: KY HB 1 implemented mandatory registration and utilization of the KASPER system. [3]
- 2016: The AAP released a policy statement that recognized the problem of opioid misuse among adolescents has nearly doubled from 1991 to 2012, resulting in a recommendation for medication-assisted treatment.
- 2017: FDA releases a contraindication to the use of codeine and tramadol in children younger than 12.

Objective

- To determine if an upward trend exists in the frequency of oral opioid prescriptions provided to low-income children over time.
- To test if any demographic or claim-based variables impact the trajectory of opioid prescriptions over time.
- To identify the most common indications for which opioids are being prescribed to this population.

Methods

- Pharmacy and medical claims were utilized from the KY Medicaid Claims Database from 2012 through 2017; demographic data were obtained and an oral opioid prescription rate was calculated per 1,000 enrolled children for each year.
- The pharmacy and medical claims data were merged to extrapolate indications in the medical claims that preceded a prescription claim using a three day caliper. Certain medical conditions that would require chronic use of opioid medications, including sickle cell anemia, neoplasms and neonatal abstinence syndrome, were excluded for this portion of the study.
- Four categories for reasonable medical indications were created: post-operative status, major injury, painful medical condition and serious infection. Diagnoses were placed into one of these groups; if an indication did not meet one of these criteria, it was grouped as "other."
- An inquiry was performed for the "other" group and the top seven diagnoses for each year were analyzed further.

Results

Figure 1A: Rate of Filled Opioid Prescriptions By Age

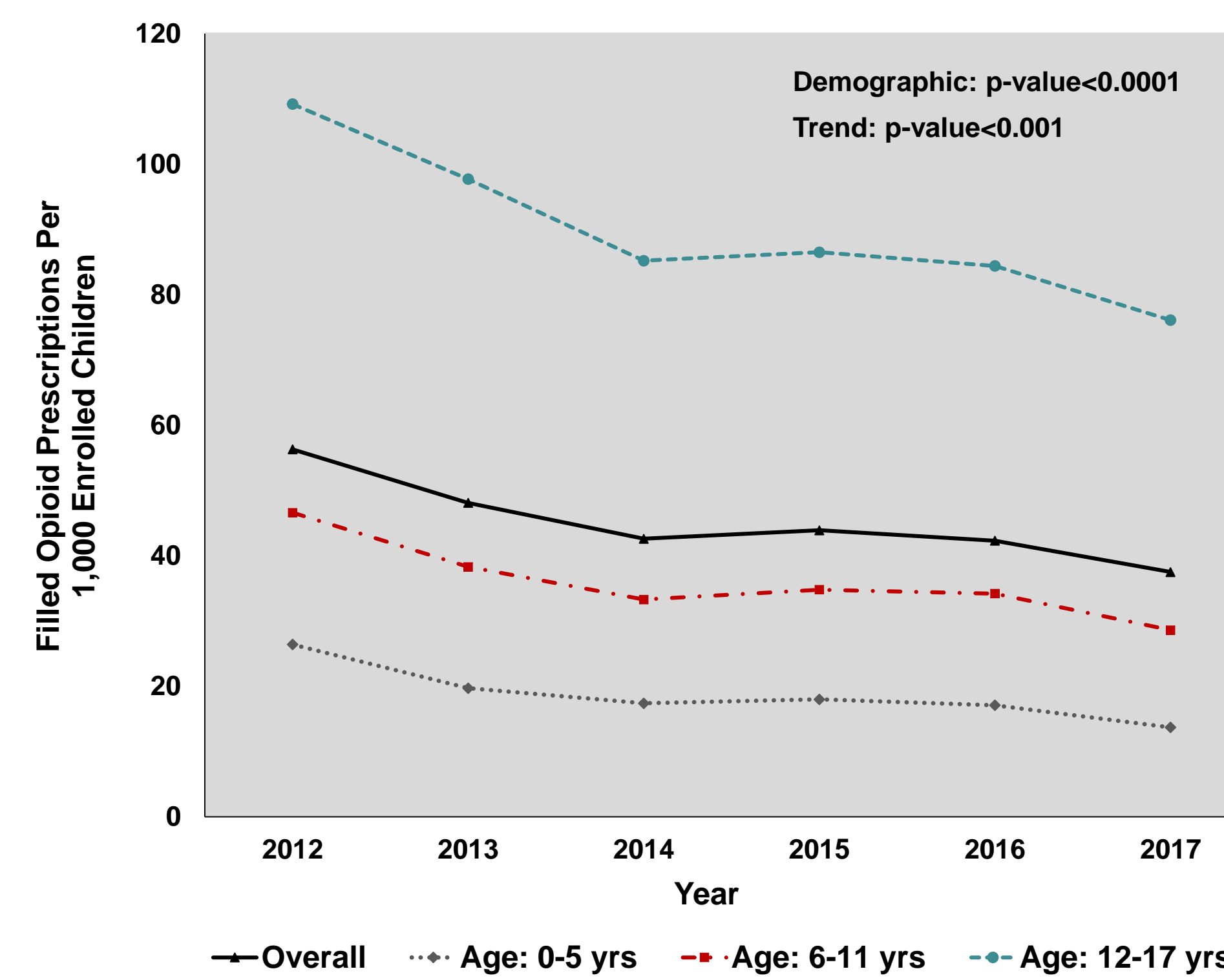


Figure 1B: Rate of Filled Opioid Prescriptions By Place of Residence

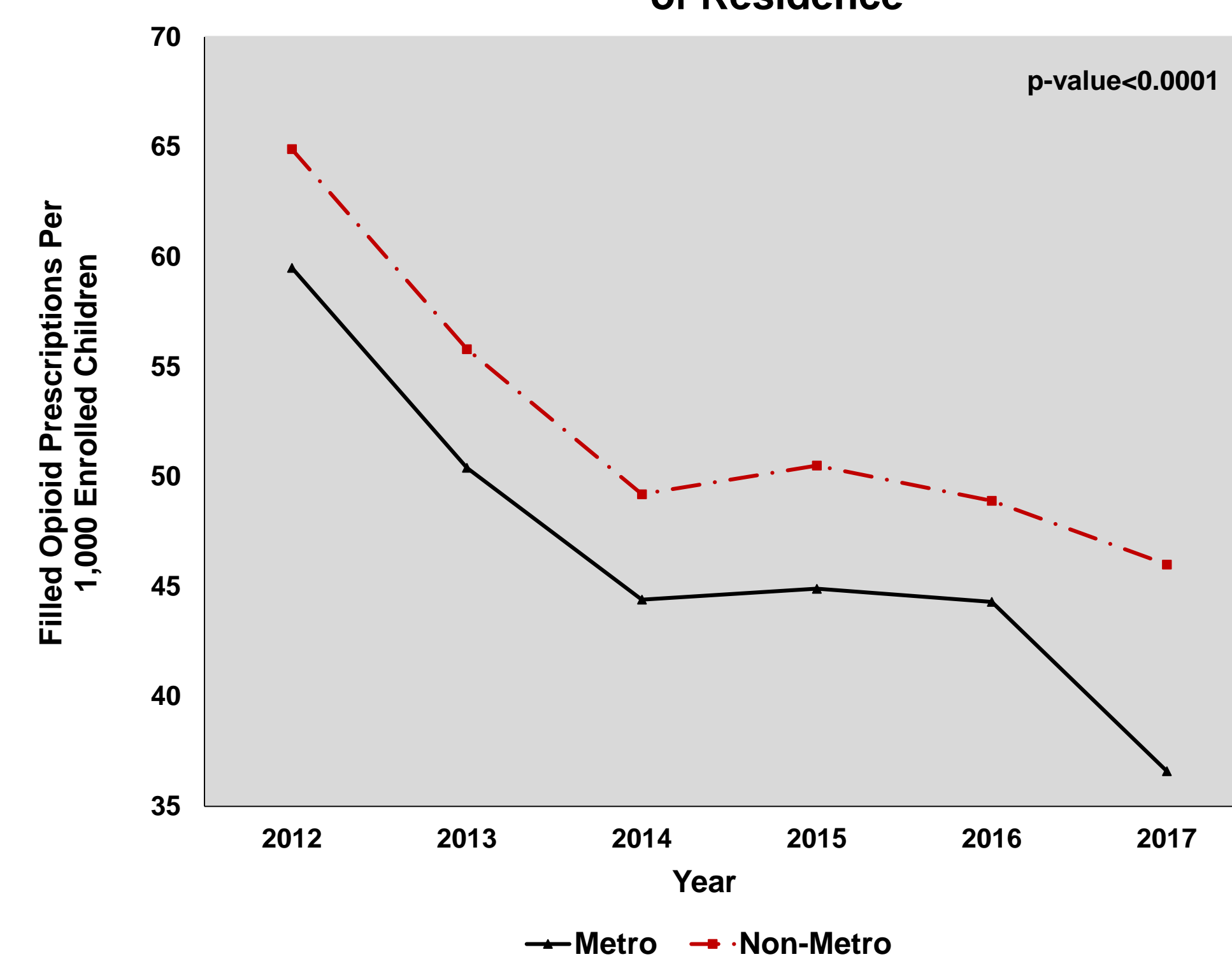


Figure 1C: Opioid Prescriptions Without Visit (3 Days) Between 2012 & 2017

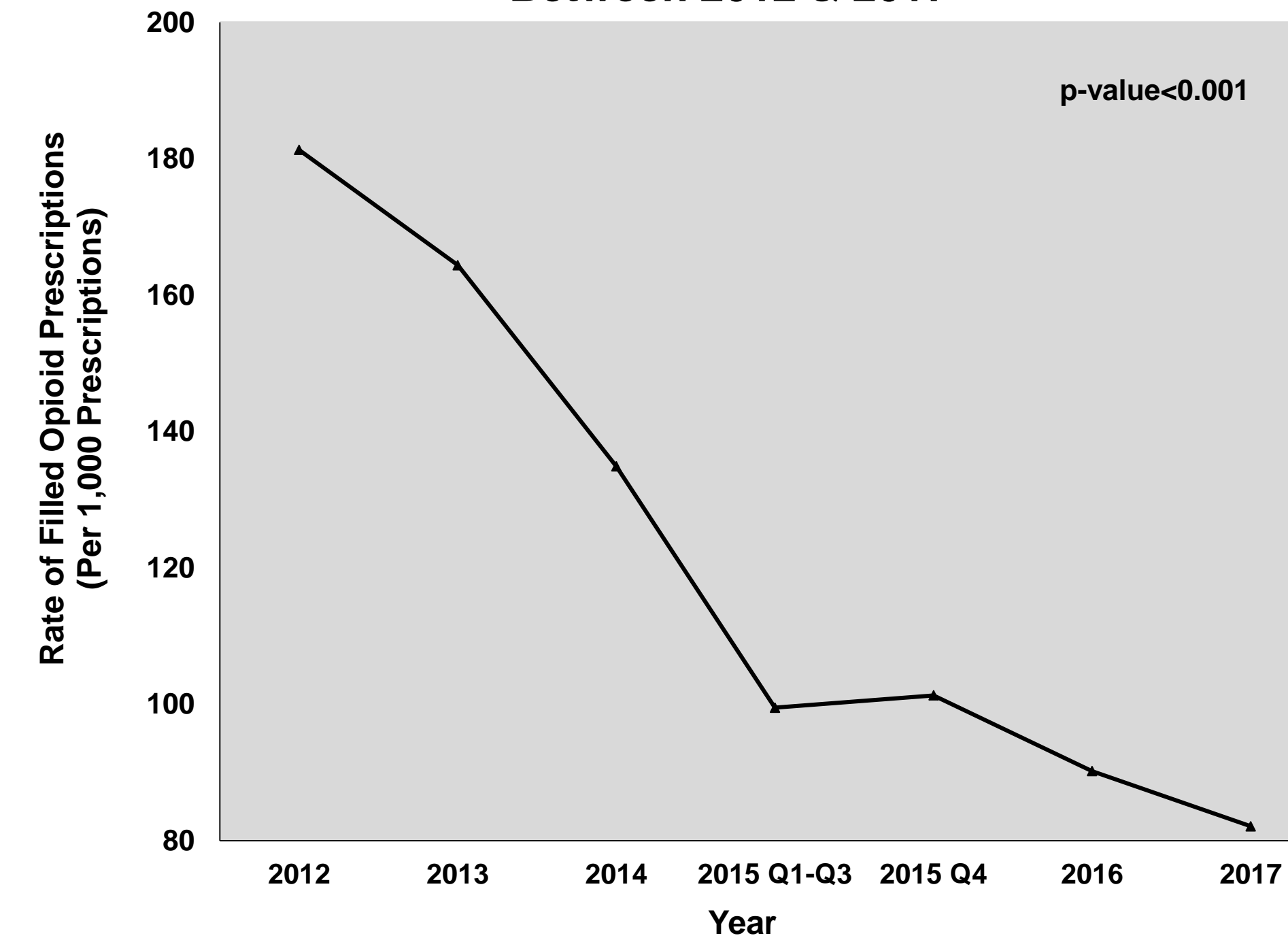
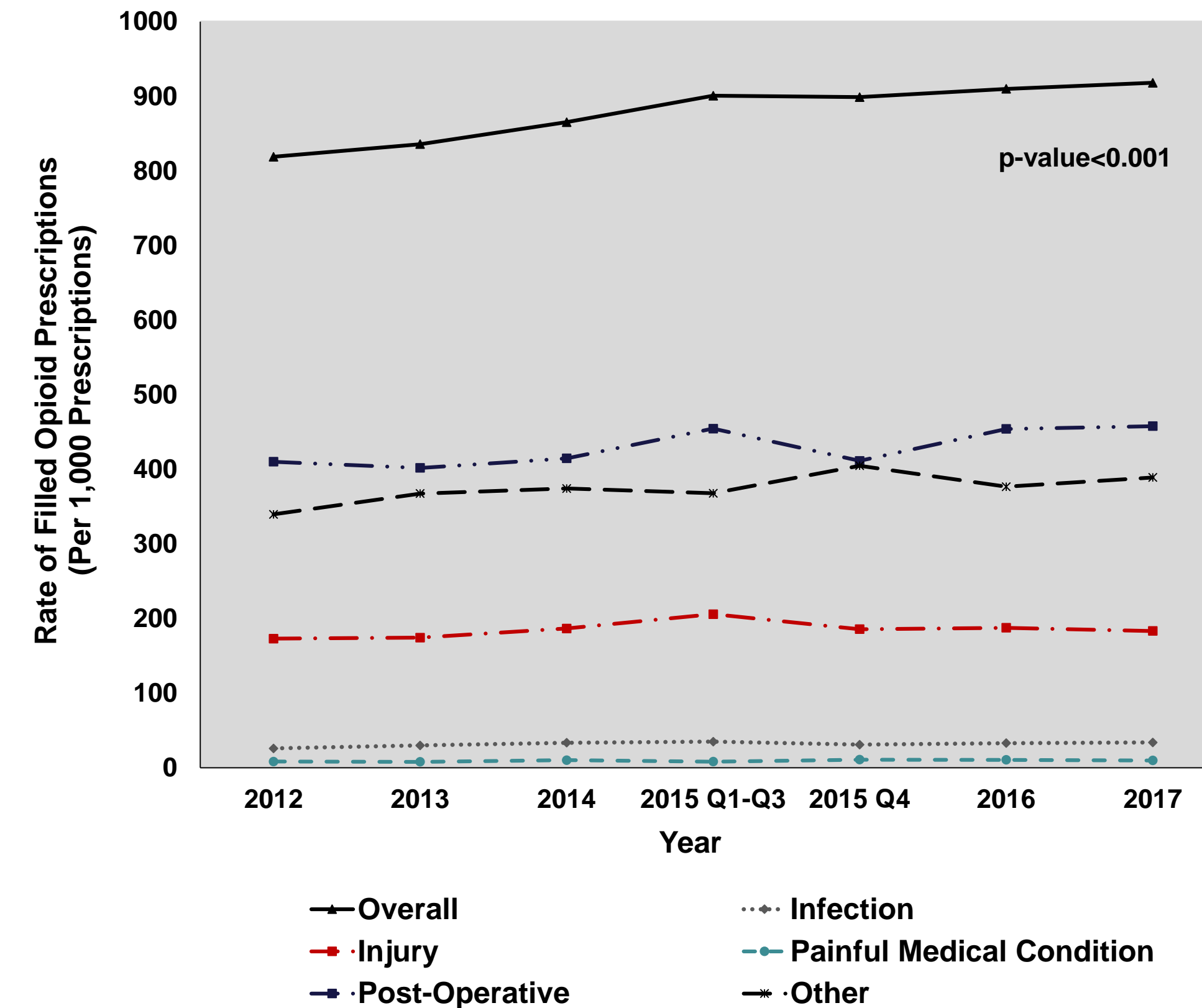


Figure 1D: Prescriptions With Visit (3 Days) Between 2012 & 2017



- The rate of opioid prescriptions significantly decreased over time from 56.3 per 1,000 enrollees to 37.5 per 1,000 enrollees (a 33% decrease, $p < 0.001$) by 2017.
- Children of adolescent age, white NH race/ethnicity, female sex and non-metropolitan residence were prescribed opioids more frequently ($p < 0.0001$).
- While 8-18% of prescriptions did not have an associated medical claim, this percentage steadily decreased from 181 per 1,000 filled opioid prescriptions in 2012 to 82 per 1,000 filled opioid prescriptions by 2017.
- The most common diagnosis category was post-operative for all study years; however, 41-45% of prescriptions fell into the "other" category, making it the second highest in all study years.

Limitations

- A few limitations of this study include its scope, retrospective utilization of a preset database and the inability to directly extrapolate a specific diagnosis for each opioid prescription.

Conclusions

- Visit-associated diagnosis codes would suggest that some indications for which opioids are being prescribed is concerning, given the known association between medical use and future addiction.
- While the number of children enrolled in KY Medicaid who filled at least one prescription opioid has decreased in recent years, 8% of children still did not have an associated medical visit within three days by the end of the study period.

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Table 1 (Below): List of the top seven most common ICD-9 diagnoses, by year, among children who filled an opioid prescription and fell into the "other" category from figure 1D.

2012 Frequency	Diagnosis	2013 Frequency	Diagnosis	2014 Frequency	Diagnosis	2015 Q1-3 Frequency	Diagnosis
2861	Dental Caries NOS	936	Tooth Eruption Disturb	1722	Dental Caries NOS	1157	Dental Caries NOS
1502	Otitis Media NOS	898	Dental Caries NOS	760	Otitis Media NOS	600	Otitis Media NOS
1259	Tooth Eruption Disturb	812	Otitis Media NOS	729	Asthma NOS	371	Anxiety State NEC
1123	Fever NOS	775	Abdmnal Pain Unspcf Site	582	Abdmnal Pain Unspcf Site	370	Ovarian Cyst NEC/NOS
1096	Asthma NOS	689	Acute Pharyngitis	578	Acute Pharyngitis	369	Asthma NOS
1090	Acute Pharyngitis	647	Asthma NOS	516	Fever NOS	355	Abdmnal Pain Unspcf site
1000	Abdmnal Pain Unspcf site	619	Dental Disorder NOS	502	Attn Deficit w Hyperact	345	Headache