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KASPER QUARTERLY THRESHOLD ANALYSIS REPORT

FIRST QUARTER 2018

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KASPER Quarterly Threshold Analysis Report, First Quarter 2018

The Kentucky Injury Prevention and Research Center, a bona fide agent for the Kentucky Department for Public Health, prepares this report to provide information on rates of controlled substance dispensing (number of prescriptions dispensed per 1,000 Kentucky residents) by age group and gender. The analysis includes dispensing rates of 1) total Schedule II through V controlled substances; 2) alprazolam; 3) buprenorphine/naloxone; 4) opioids, excluding buprenorphine/naloxone 5) hydrocodone; 6) oxycodone; 7) gabapentin and 8) total Schedule II stimulants.

Additionally, trend graphs for the First Quarter 2015 to First Quarter 2018 are presented for each dispensed controlled substance class or specific controlled substance.

There was a substantial increase in the number of controlled substances prescriptions dispensed in the Third Quarter of 2017 that was captured by KASPER. This increase was due, in part, to the scheduling of gabapentin in Kentucky as a Schedule V controlled substance that took effect July 1, 2017. Gabapentin dispensing rates are being provided for the first time in this report.

Prior threshold analysis reports are available on the KASPER website at <https://chfs.ky.gov/agencies/os/oig/dai/deppb/Pages/kasper.aspx> and on KIPRC's website at <http://www.mc.uky.edu/kiprc/>.

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Report Summary

1. *All Controlled Substance Dispensing:* Females over the age of 17 were dispensed Schedule II-V controlled substance prescriptions at higher rates than males. The highest controlled substance prescription dispensing rates were for females 55 to 64 years of age at 1,239 prescriptions dispensed per 1,000 females and for females 45 to 54 years of age at 1,122 prescriptions dispensed per 1,000.
2. *Alprazolam Dispensing:* Females over 17 years of age were dispensed alprazolam prescriptions at higher rates than males. Females over 25 years of age were dispensed alprazolam at rates approximately 2 times more often than males over 25 years of age. The highest rate of dispensed alprazolam prescriptions was for females 65 years of age and older at 96 prescriptions dispensed per 1,000 females. The overall dispensing rate for alprazolam declined for the tenth consecutive quarter.
3. *Buprenorphine-Naloxone Dispensing:* Dispensing rates for buprenorphine-naloxone prescriptions were highest for both males and females 25 to 44 years of age. Males 35 to 44 years of age had the highest dispensing rates of buprenorphine-naloxone prescriptions at 166 prescriptions per 1,000 males. The buprenorphine-naloxone dispensing rate increased for the twelfth consecutive quarter.
4. *Opioids, excluding Buprenorphine-Naloxone:* By excluding buprenorphine-naloxone dispensing, opioid dispensing rates may better represent opioid use for pain control. Females had higher dispensing rates than males. The highest rates were for females and males aged 55 to 64 years at 481 opioid (non-buprenorphine-naloxone) prescriptions per 1,000 and 457 prescriptions per 1,000 for females and males, respectively. Trend comparisons for opioids, excluding buprenorphine-naloxone, are preliminary. Dispensing rates for opioids, excluding buprenorphine-naloxone, decreased from 235 prescriptions per 1,000 persons to 227 per 1,000 persons in the last quarter.
5. *Hydrocodone Dispensing:* The dispensing rates for hydrocodone declined for the tenth consecutive quarter. Females were dispensed hydrocodone at higher rates than males. The highest hydrocodone dispensing rates were for females and males 55 to 64 years of age at 241 prescriptions dispensed per 1,000 females and 232 prescriptions per 1,000 males.
6. *Oxycodone Dispensing:* Females under the age of 55 years had higher oxycodone dispensing rates compared to males. After 55 years of age, males were dispensed oxycodone at higher rates than females. The highest dispensing rates were for males and females aged 55 to 64 years at 122 prescriptions dispensed per 1,000 for males and 117 per 1,000 for females.
7. *Gabapentin:* Gabapentin was dispensed to females at higher rates than males. The highest dispensing rate was for females aged 55 to 64 years at 238 prescriptions dispensed per 1,000 females and for females aged 45 to 54 years at 215 prescriptions dispensed per 1,000 females

8. *Schedule II Stimulant Dispensing:* Schedule II stimulants include amphetamine (e.g. Adderall) and methylphenidate (e.g. Concerta, Ritalin). The Schedule II stimulant dispensing rates were highest for males and females aged 0 to 16 years at 182 prescriptions dispensed per 1,000 for males and 78 per 1,000 for females.
9. *County Resident Dispensing Rates:* Dispensing rates vary widely by both county and substance.
 - a. Alprazolam dispensing rates were highest in Bell (99 prescriptions per 1,000 persons), Powell (79 per 1,000), and Perry (75 per 1,000) counties. The lowest alprazolam dispensing rates were in Russell (13 per 1,000), Grant, Hardin, Kenton and Meade (18 per 1,000), and Warren, Green, Boone and Letcher (19 per 1,000) counties.
 - b. Buprenorphine-naloxone dispensing rates were highest in Magoffin (321 per 1,000), Owsley (299 per 1,000), and Lee (266 per 1,000) counties. The lowest buprenorphine-naloxone dispensing rates were in Union (2 per 1,000), Todd (5 per 1000), and Oldham and Breckinridge (6 per 1,000) counties.
 - c. Opioid, excluding buprenorphine-naloxone, dispensing rates were highest in Owsley (582 per 1,000), Perry (504 per 1,000), and Clay (499 per 1,000) counties. The lowest opioid, excluding buprenorphine-naloxone, dispensing rates were Russell (86 per 1,000), Boyd (115 per 1,000), and Oldham (119 per 1,000) counties.
 - d. Hydrocodone dispensing rates were highest in Owsley (373 per 1,000), Clay (328 per 1,000), and Bell (301 per 1,000) counties. The lowest hydrocodone dispensing rates were in Kenton (38 per 1,000), Boone (48 per 1,000), and Boyd (51 per 1,000) counties.
 - e. Oxycodone dispensing rates were highest in Powell (114 per 1,000), Perry (107 per 1,000), and Estill (106 per 1,000) counties. The lowest oxycodone dispensing rates were in Russell (14 per 1,000), Davies and Oldham (26 per 1,000), and Boyd (30 per 1,000) counties.
 - f. Gabapentin dispensing rates were highest in Owsley (371 per 1,000), Clay (328 per 1,000), and Perry (310 per 1,000) counties. The lowest gabapentin dispensing rates were in Oldham (42 per 1,000), Russell (43 per 1,000), and Daviess (45 per 1,000) counties.
 - g. Schedule II stimulant dispensing rates were highest in Henderson (145 per 1,000), Union (119 per 1,000), and McCracken (108 per 1,000) counties. The lowest Schedule II Stimulant dispensing rates were in Russell (9 per 1,000), Clay (15 per 1,000), and Cumberland (18 per 1,000) counties.

Schedule II-V Controlled Substances

Figure 1:

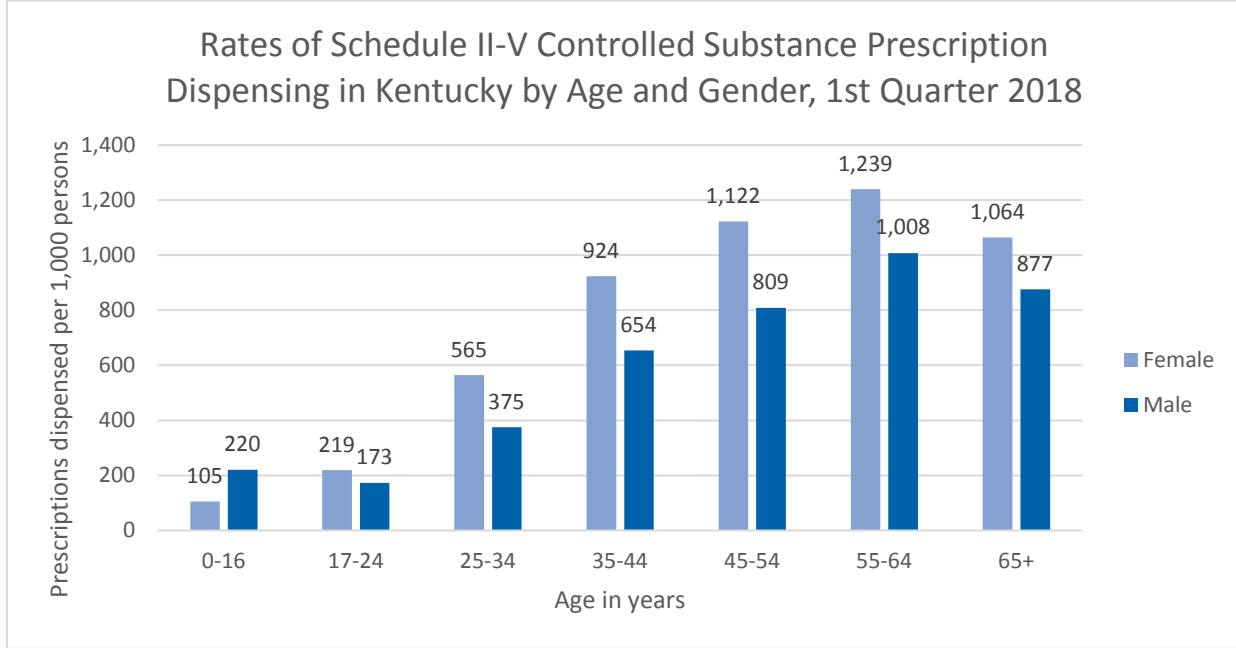
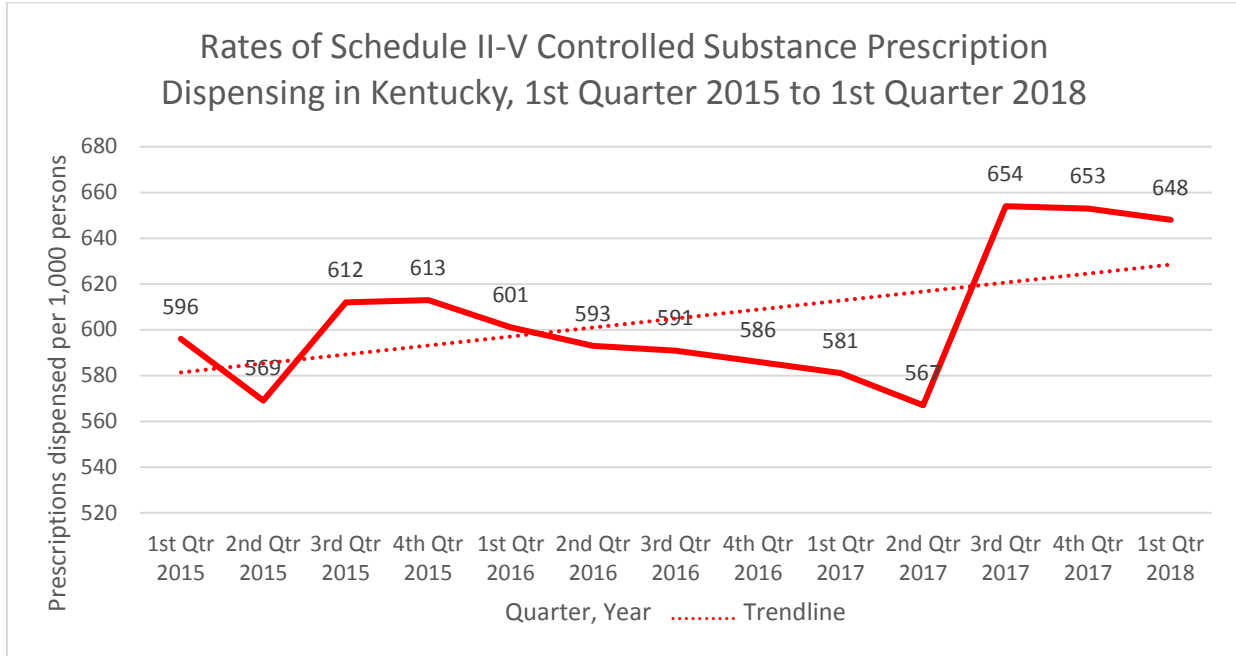


Figure 2:



* Note: The increase in the rate beginning 3rd Quarter 2017 is due, in part, to the scheduling of gabapentin in Kentucky.

Produced by the Kentucky Injury Prevention and Research Center, May 2018. Data source: Kentucky All Schedule Prescription Electronic Reporting, Kentucky Office of Inspector General, Cabinet for Health and Family Services.

Alprazolam

Figure 3:

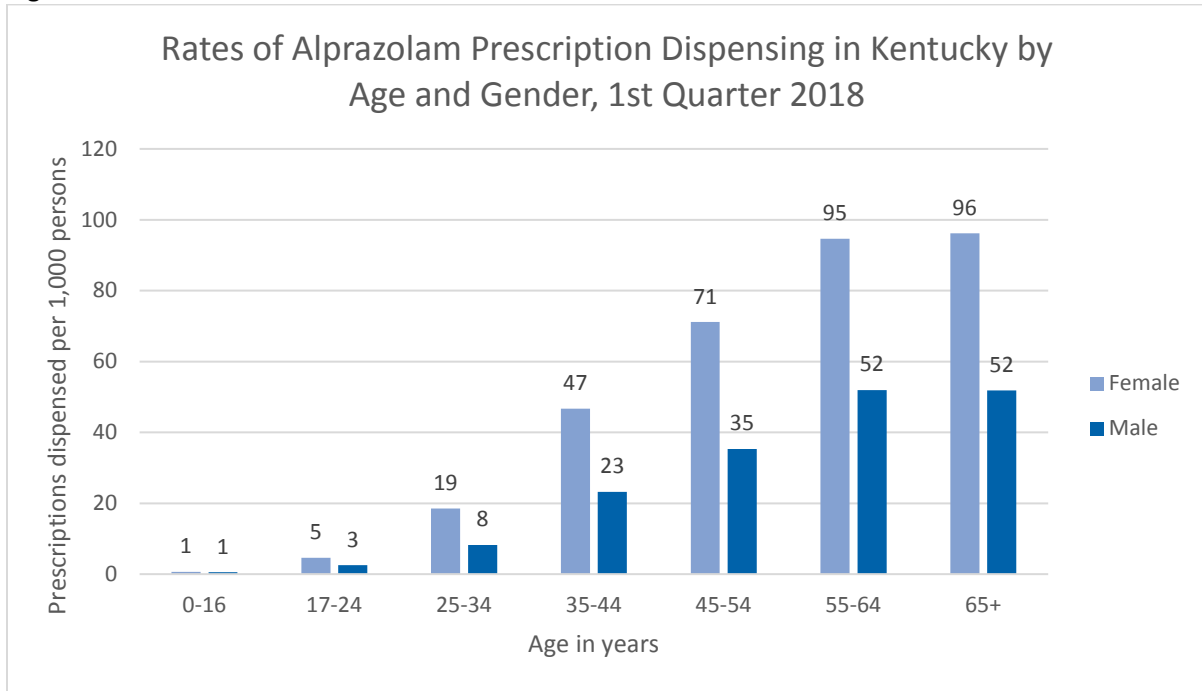
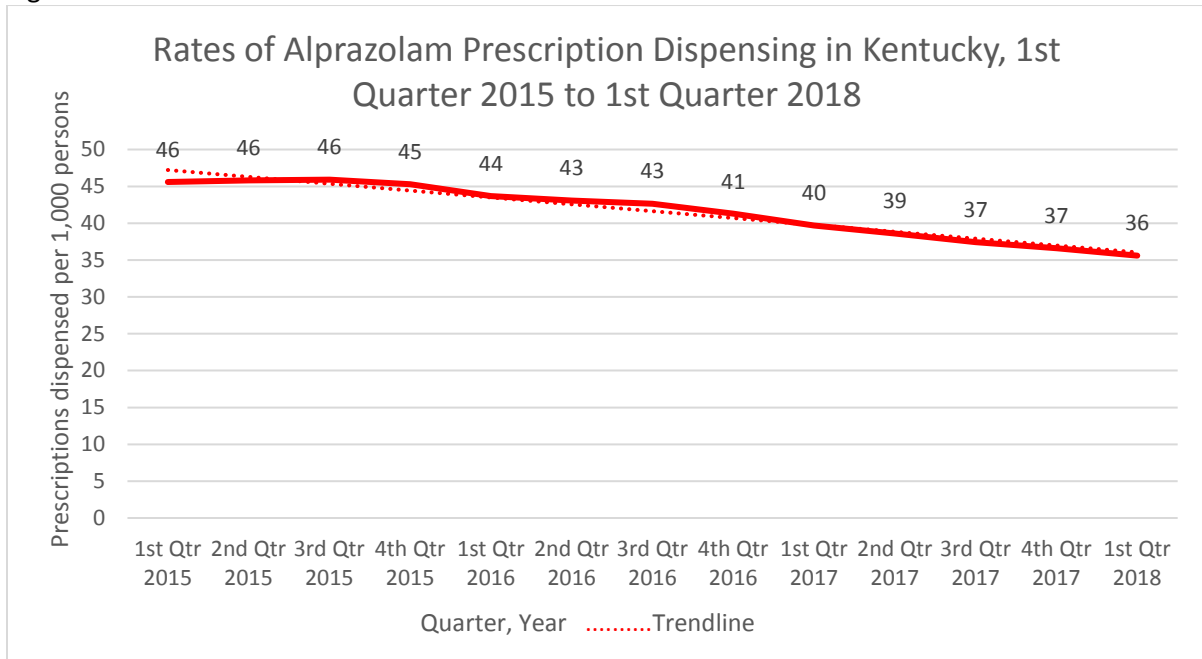


Figure 4:



Produced by the Kentucky Injury Prevention and Research Center, May 2018. Data source: Kentucky All Schedule Prescription Electronic Reporting, Kentucky Office of Inspector General, Cabinet for Health and Family Services.

Buprenorphine-Naloxone

Figure 5:

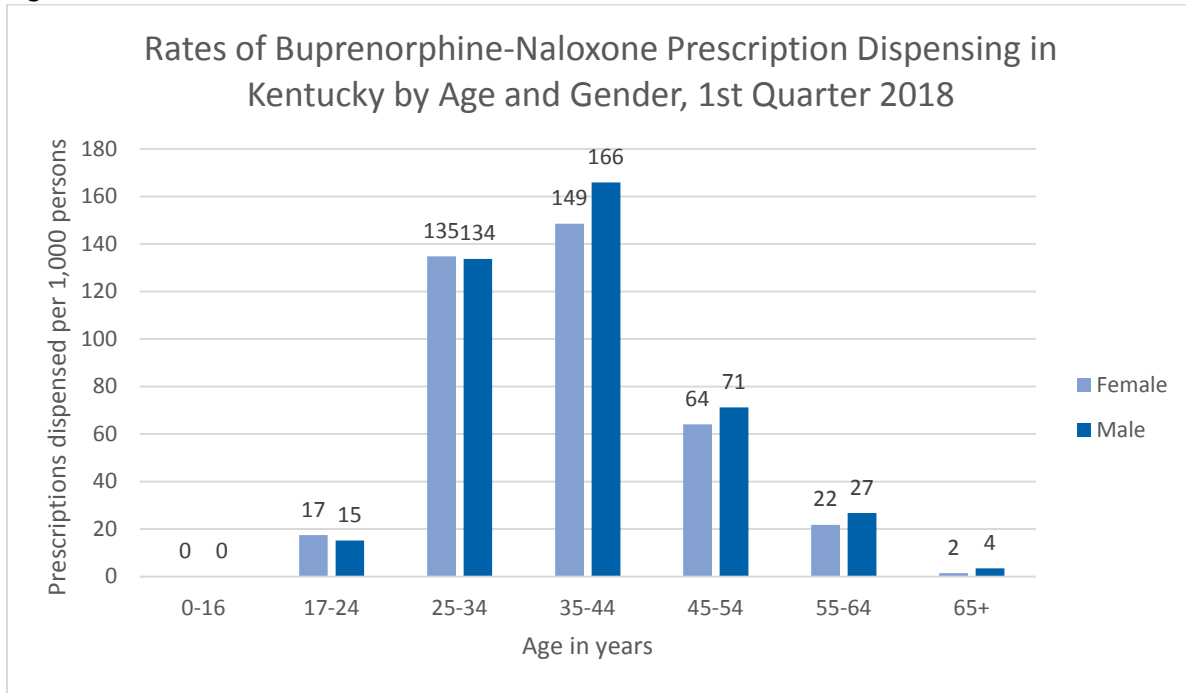
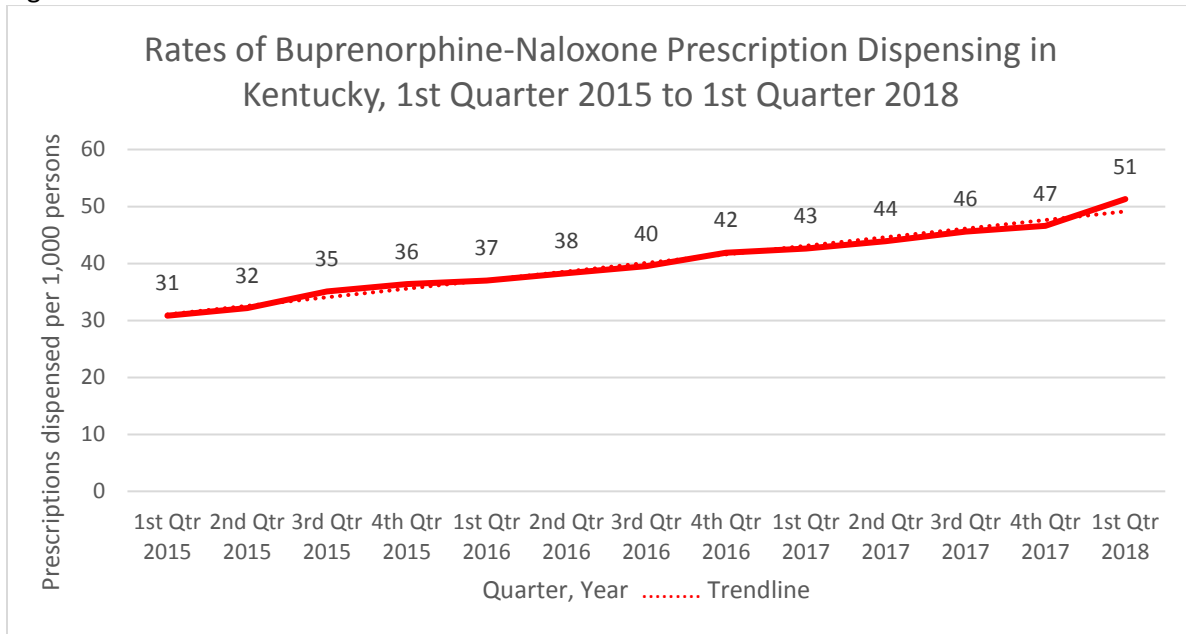


Figure 6:



Produced by the Kentucky Injury Prevention and Research Center, May 2018. Data source: Kentucky All Schedule Prescription Electronic Reporting, Kentucky Office of Inspector General, Cabinet for Health and Family Services.

Opioids, Excluding Buprenorphine-Naloxone

Figure 7:

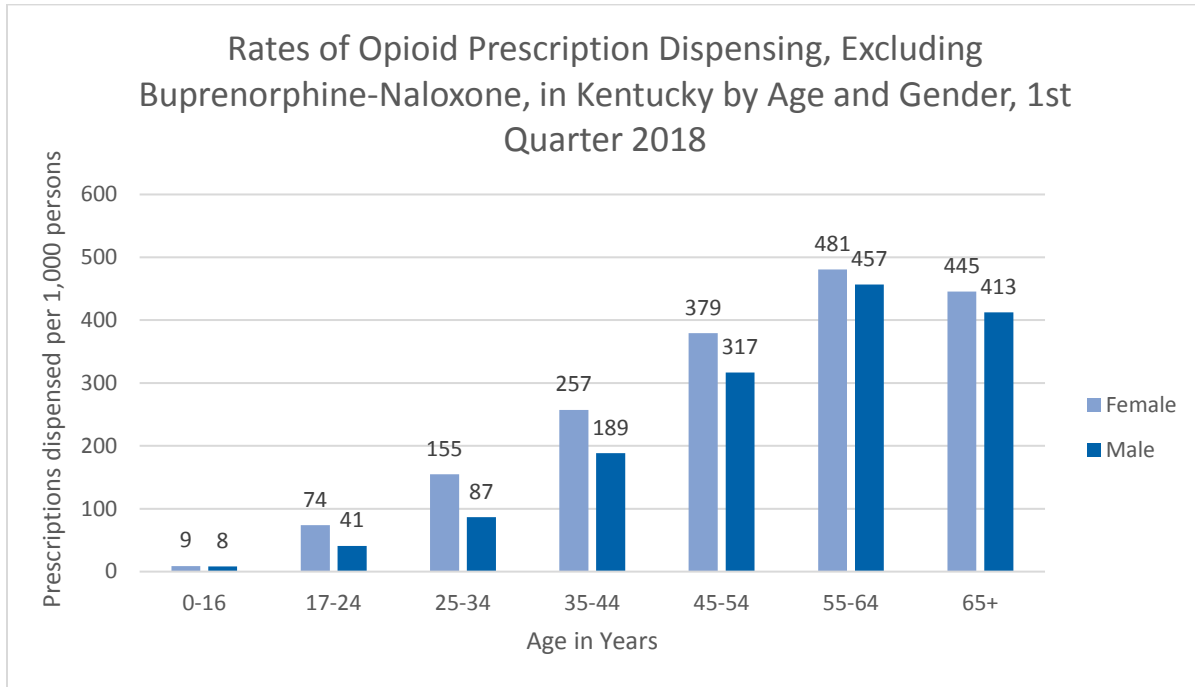
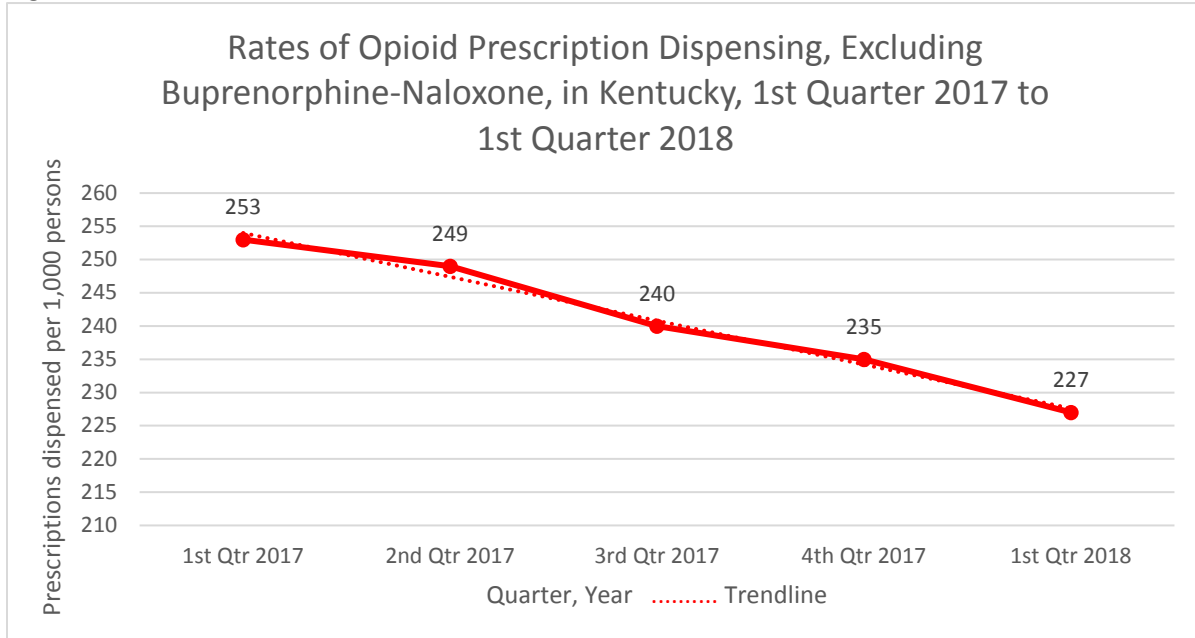


Figure 8:



Produced by the Kentucky Injury Prevention and Research Center, May 2018. Data source: Kentucky All Schedule Prescription Electronic Reporting, Kentucky Office of Inspector General, Cabinet for Health and Family Services. Surveillance of Opioid Prescriptions, excluding Buprenorphine-Naloxone, began 1st Quarter 2017.

Hydrocodone

Figure 9:

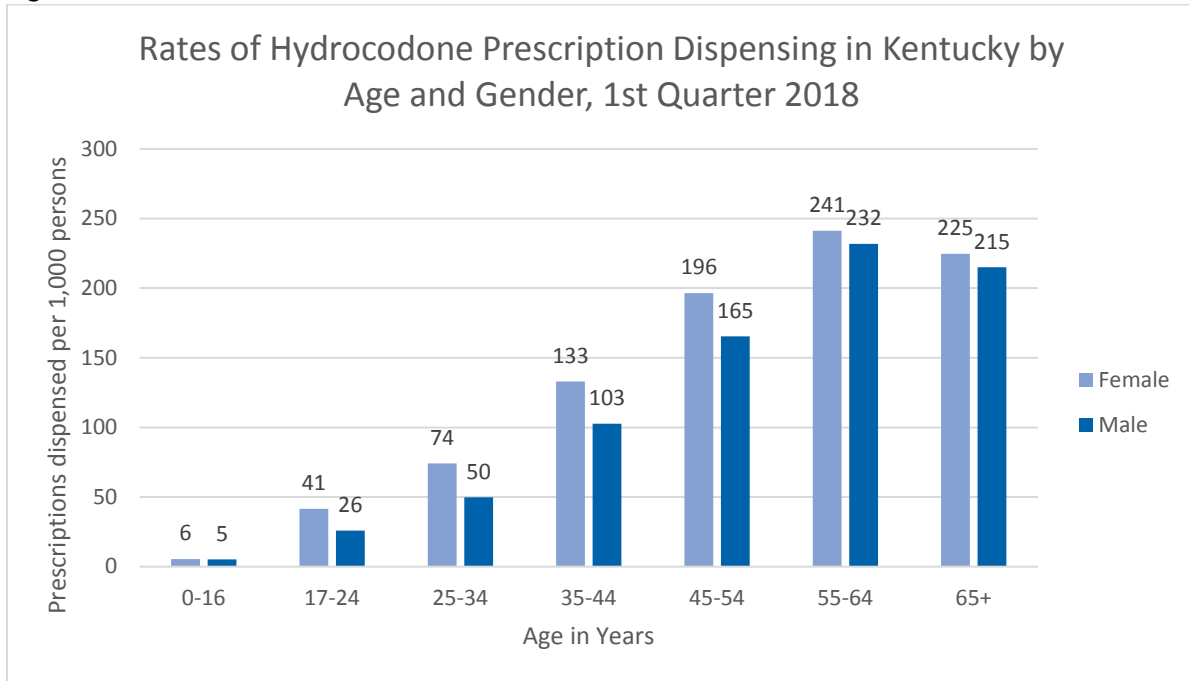
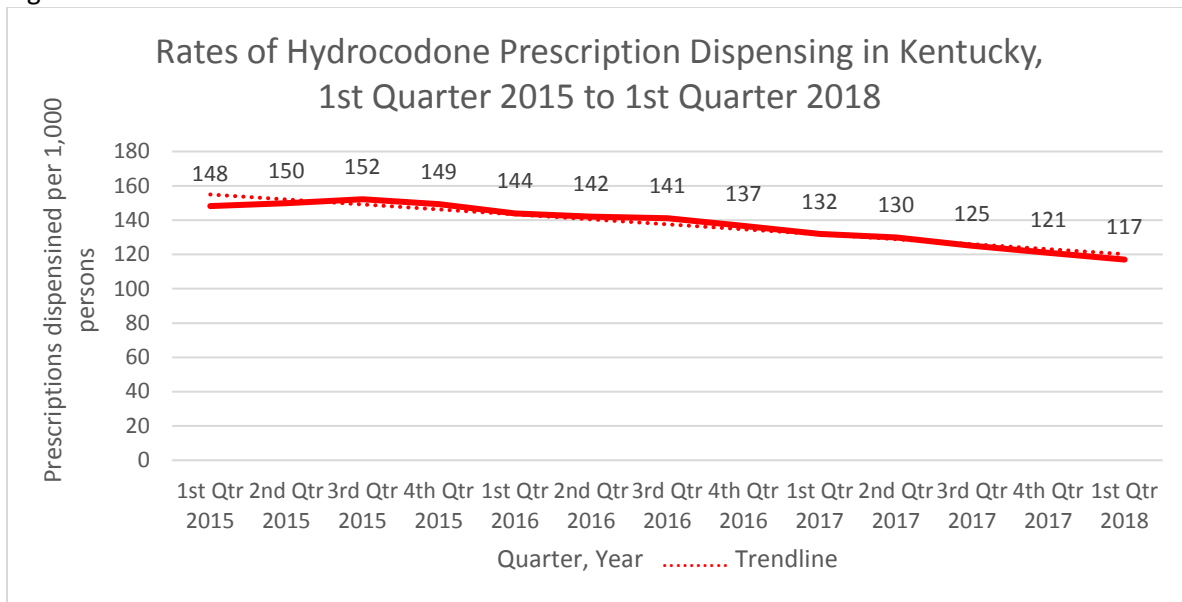


Figure 10:



Produced by the Kentucky Injury Prevention and Research Center, May 2018. Data source: Kentucky All Schedule Prescription Electronic Reporting, Kentucky Office of Inspector General, Cabinet for Health and Family Services.

Oxycodone

Figure 11:

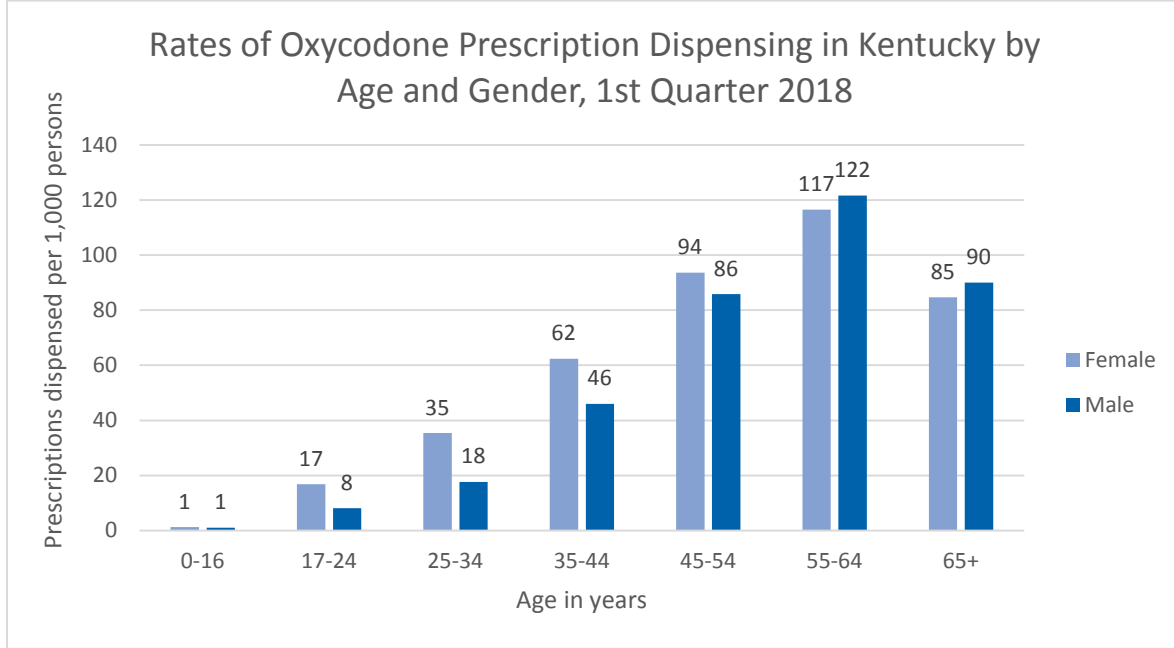
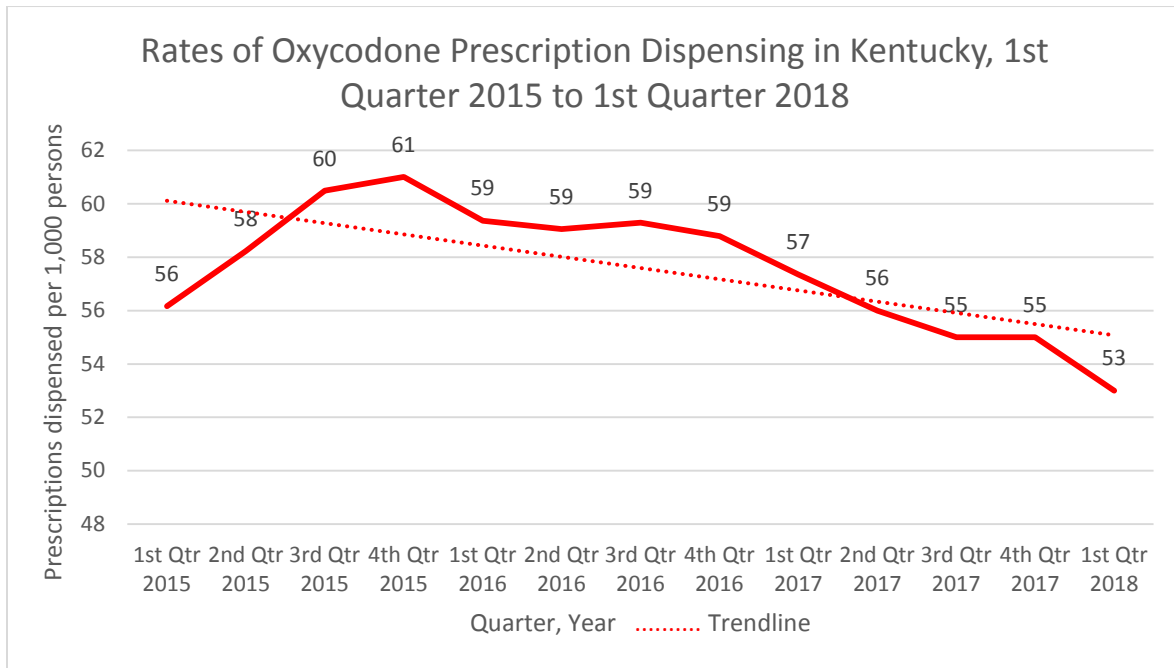


Figure 12:



Produced by the Kentucky Injury Prevention and Research Center, May 2018. Data source: Kentucky All Schedule Prescription Electronic Reporting, Kentucky Office of Inspector General, Cabinet for Health and Family Services.

Gabapentin

Figure 13:

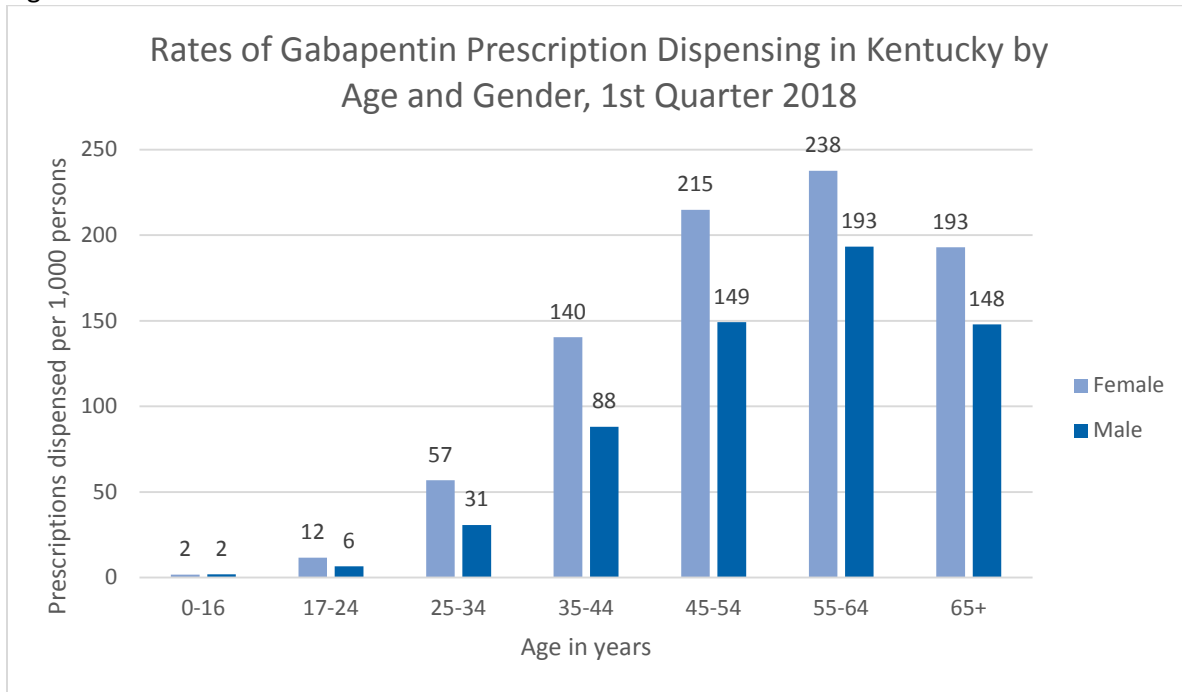


Figure 14:

A dispensing trend graph will be added when sufficient data are available.

Produced by the Kentucky Injury Prevention and Research Center, May 2018. Data source: Kentucky All Schedule Prescription Electronic Reporting, Kentucky Office of Inspector General, Cabinet for Health and Family Services.

Schedule II Stimulants

Figure 15:

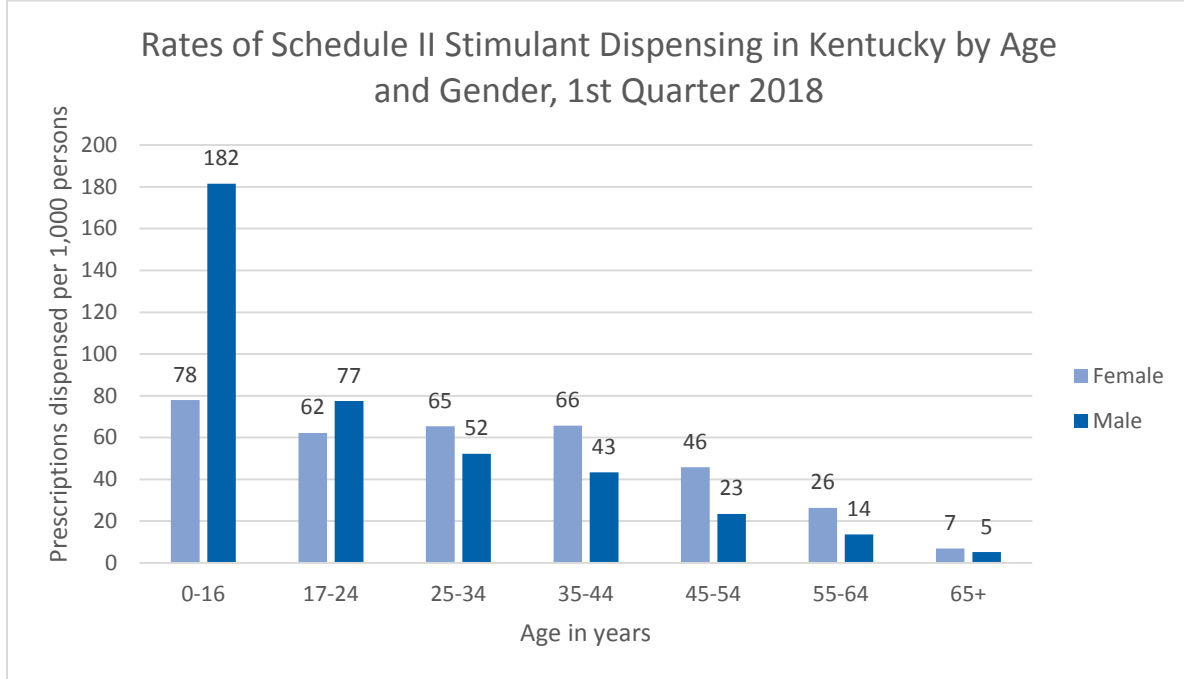
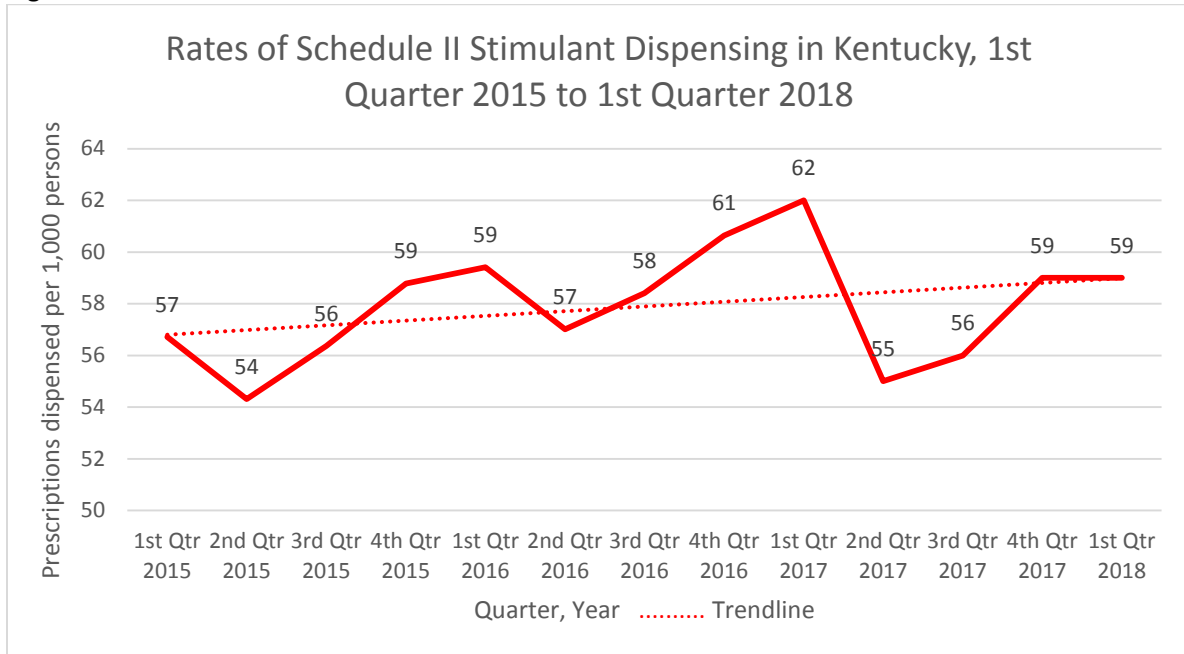


Figure 16:



Produced by the Kentucky Injury Prevention and Research Center, May 2018. Data source: Kentucky All Schedule Prescription Electronic Reporting, Kentucky Office of Inspector General, Cabinet for Health and Family Services.

County Resident Rates

Table 1:

| Rates per 1000 persons for Dispensing by Drug Class or Type by Kentucky County, 1st Quarter 2018 | | | | | | | |
|--|-----------------|--------------|----------------|------------------|----------------|-----------------|---------------------|
| County | Alprazolam Rate | Bup-Nal Rate | Opioid-BN Rate | Hydrocodone Rate | Oxycodone Rate | Gabapentin Rate | CII Stimulants Rate |
| ADAIR | 32 | 71 | 245 | 152 | 31 | 108 | 25 |
| ALLEN | 33 | 21 | 235 | 141 | 45 | 103 | 28 |
| ANDERSON | 33 | 56 | 219 | 118 | 44 | 86 | 50 |
| BALLARD | 43 | 17 | 228 | 137 | 56 | 72 | 59 |
| BARREN | 26 | 38 | 222 | 134 | 41 | 109 | 37 |
| BATH | 37 | 150 | 240 | 104 | 62 | 160 | 36 |
| BELL | 99 | 147 | 466 | 301 | 36 | 247 | 24 |
| BOONE | 19 | 12 | 151 | 48 | 61 | 50 | 75 |
| BOURBON | 33 | 114 | 214 | 93 | 55 | 121 | 52 |
| BOYD | 21 | 64 | 115 | 51 | 30 | 66 | 41 |
| BOYLE | 34 | 50 | 202 | 112 | 37 | 81 | 43 |
| BRACKEN | 52 | 19 | 235 | 86 | 80 | 93 | 45 |
| BREATHITT | 64 | 234 | 398 | 230 | 70 | 237 | 31 |
| BRECKINRIDGE | 35 | 6 | 202 | 112 | 36 | 85 | 36 |
| BULLITT | 30 | 18 | 181 | 97 | 44 | 64 | 50 |
| BUTLER | 23 | 16 | 242 | 149 | 45 | 124 | 37 |
| CALDWELL | 47 | 25 | 259 | 131 | 67 | 123 | 48 |
| CALLOWAY | 55 | 10 | 195 | 109 | 39 | 68 | 56 |
| CAMPBELL | 24 | 15 | 165 | 52 | 71 | 59 | 70 |
| CARLISLE | 48 | 22 | 274 | 156 | 69 | 88 | 66 |
| CARROLL | 40 | 36 | 293 | 140 | 90 | 136 | 59 |
| CARTER | 32 | 116 | 173 | 75 | 41 | 96 | 32 |
| CASEY | 49 | 72 | 231 | 129 | 37 | 101 | 19 |
| CHRISTIAN | 27 | 9 | 152 | 84 | 31 | 62 | 46 |
| CLARK | 33 | 99 | 222 | 92 | 73 | 120 | 58 |
| CLAY | 63 | 180 | 499 | 328 | 79 | 328 | 15 |
| CLINTON | 71 | 46 | 382 | 215 | 99 | 135 | 19 |
| CRITTENDEN | 38 | 25 | 315 | 172 | 75 | 121 | 55 |
| CUMBERLAND | 55 | 93 | 337 | 199 | 64 | 144 | 18 |
| DAVISS | 26 | 8 | 125 | 68 | 26 | 45 | 44 |
| EDMONSON | 26 | 14 | 208 | 116 | 42 | 91 | 33 |
| ELLIOTT | 40 | 96 | 148 | 66 | 40 | 75 | 19 |
| ESTILL | 64 | 188 | 404 | 217 | 106 | 237 | 37 |
| FAYETTE | 25 | 32 | 129 | 57 | 33 | 54 | 66 |

| County | Alprazolam Rate | Bup-Nal Rate | Opioid-BN Rate | Hydrocodone Rate | Oxycodone Rate | Gabapentin Rate | CII Stimulants Rate |
|------------|-----------------|--------------|----------------|------------------|----------------|-----------------|---------------------|
| FLEMING | 49 | 51 | 212 | 95 | 57 | 113 | 33 |
| FLOYD | 46 | 220 | 497 | 297 | 92 | 297 | 49 |
| FRANKLIN | 31 | 64 | 185 | 97 | 41 | 77 | 57 |
| FULTON | 41 | 14 | 271 | 162 | 59 | 137 | 55 |
| GALLATIN | 20 | 20 | 207 | 69 | 87 | 79 | 51 |
| GARRARD | 33 | 64 | 214 | 102 | 52 | 90 | 41 |
| GRANT | 18 | 24 | 208 | 62 | 94 | 75 | 47 |
| GRAVES | 63 | 23 | 256 | 144 | 59 | 114 | 77 |
| GRAYSON | 38 | 15 | 354 | 203 | 58 | 164 | 51 |
| GREEN | 19 | 33 | 225 | 110 | 37 | 105 | 26 |
| GREENUP | 43 | 97 | 260 | 112 | 64 | 139 | 76 |
| HANCOCK | 28 | 8 | 168 | 86 | 36 | 62 | 46 |
| HARDIN | 18 | 8 | 198 | 104 | 43 | 74 | 61 |
| HARLAN | 40 | 129 | 365 | 191 | 61 | 219 | 40 |
| HARRISON | 36 | 89 | 218 | 95 | 58 | 118 | 43 |
| HART | 24 | 21 | 207 | 115 | 44 | 100 | 37 |
| HENDERSON | 43 | 11 | 274 | 136 | 71 | 75 | 145 |
| HENRY | 31 | 25 | 238 | 126 | 53 | 96 | 60 |
| HICKMAN | 30 | 12 | 176 | 107 | 35 | 71 | 37 |
| HOPKINS | 24 | 37 | 270 | 148 | 63 | 114 | 75 |
| JACKSON | 25 | 127 | 290 | 146 | 67 | 195 | 25 |
| JEFFERSON | 34 | 14 | 179 | 101 | 42 | 65 | 64 |
| JESSAMINE | 27 | 75 | 187 | 80 | 51 | 86 | 69 |
| JOHNSON | 44 | 171 | 396 | 233 | 60 | 219 | 47 |
| KENTON | 18 | 15 | 135 | 38 | 59 | 48 | 69 |
| KNOTT | 55 | 145 | 404 | 228 | 97 | 273 | 33 |
| KNOX | 53 | 81 | 337 | 195 | 53 | 248 | 21 |
| LARUE | 25 | 17 | 242 | 131 | 52 | 93 | 56 |
| LAUREL | 38 | 106 | 249 | 136 | 43 | 139 | 28 |
| LAWRENCE | 29 | 189 | 269 | 139 | 53 | 173 | 37 |
| LEE | 59 | 266 | 417 | 243 | 75 | 270 | 23 |
| LESLIE | 36 | 188 | 374 | 220 | 78 | 174 | 20 |
| LETCHER | 19 | 177 | 369 | 208 | 65 | 256 | 29 |
| LEWIS | 33 | 76 | 205 | 93 | 48 | 144 | 36 |
| LINCOLN | 44 | 72 | 254 | 131 | 58 | 103 | 32 |
| LIVINGSTON | 59 | 30 | 379 | 201 | 96 | 119 | 72 |
| LOGAN | 28 | 15 | 238 | 132 | 51 | 109 | 27 |
| LYON | 71 | 23 | 254 | 134 | 61 | 94 | 49 |

| County | Alprazolam Rate | Bup-Nal Rate | Opioid-BN Rate | Hydrocodone Rate | Oxycodone Rate | Gabapentin Rate | CII Stimulants Rate |
|------------|-----------------|--------------|----------------|------------------|----------------|-----------------|---------------------|
| MADISON | 22 | 85 | 193 | 91 | 48 | 91 | 47 |
| MAGOFFIN | 57 | 321 | 411 | 247 | 63 | 275 | 49 |
| MARION | 42 | 40 | 237 | 132 | 51 | 103 | 50 |
| MARSHALL | 52 | 28 | 286 | 149 | 77 | 102 | 74 |
| MARTIN | 52 | 223 | 352 | 182 | 45 | 259 | 32 |
| MASON | 46 | 22 | 159 | 67 | 44 | 103 | 45 |
| MCCRACKEN | 51 | 24 | 275 | 146 | 73 | 89 | 108 |
| MCCREARY | 32 | 109 | 337 | 149 | 98 | 146 | 19 |
| MCLEAN | 46 | 26 | 258 | 153 | 51 | 109 | 50 |
| MEADE | 18 | 8 | 144 | 76 | 32 | 55 | 36 |
| MENIFEE | 43 | 140 | 293 | 147 | 70 | 156 | 32 |
| MERCER | 25 | 63 | 224 | 114 | 45 | 100 | 47 |
| METCALFE | 33 | 44 | 301 | 189 | 47 | 143 | 39 |
| MONROE | 34 | 62 | 287 | 165 | 54 | 154 | 23 |
| MONTGOMERY | 51 | 143 | 254 | 102 | 75 | 150 | 38 |
| MORGAN | 55 | 119 | 298 | 147 | 53 | 154 | 30 |
| MUHLENBURG | 48 | 75 | 311 | 176 | 73 | 154 | 65 |
| NELSON | 30 | 22 | 232 | 122 | 57 | 81 | 68 |
| NICHOLAS | 40 | 157 | 236 | 104 | 56 | 169 | 41 |
| OHIO | 33 | 26 | 273 | 157 | 46 | 115 | 40 |
| OLDHAM | 24 | 7 | 119 | 62 | 26 | 42 | 77 |
| OWEN | 21 | 29 | 169 | 66 | 52 | 89 | 31 |
| OWSLEY | 43 | 299 | 582 | 373 | 88 | 371 | 42 |
| PENDLETON | 22 | 22 | 197 | 68 | 78 | 82 | 50 |
| PERRY | 75 | 257 | 504 | 267 | 107 | 310 | 53 |
| PIKE | 26 | 127 | 250 | 150 | 33 | 148 | 24 |
| POWELL | 79 | 189 | 383 | 189 | 114 | 247 | 47 |
| PULASKI | 56 | 75 | 239 | 115 | 57 | 107 | 35 |
| ROBERTSON | 43 | 41 | 191 | 83 | 49 | 121 | 62 |
| ROCKCASTLE | 22 | 86 | 265 | 141 | 58 | 92 | 22 |
| ROWAN | 26 | 87 | 168 | 71 | 37 | 84 | 40 |
| RUSSELL | 13 | 29 | 86 | 52 | 14 | 43 | 9 |
| SCOTT | 26 | 76 | 183 | 81 | 51 | 67 | 66 |
| SHELBY | 27 | 17 | 182 | 96 | 42 | 72 | 52 |
| SIMPSON | 30 | 19 | 212 | 109 | 50 | 94 | 29 |
| SPENCER | 27 | 19 | 203 | 113 | 43 | 82 | 54 |
| TAYLOR | 35 | 41 | 240 | 121 | 42 | 115 | 33 |
| TODD | 35 | 5 | 201 | 114 | 40 | 89 | 46 |

| County | Alprazolam Rate | Bup-Nal Rate | Opioid-BN Rate | Hydrocodone Rate | Oxycodone Rate | Gabapentin Rate | CII Stimulants Rate |
|------------|-----------------|--------------|----------------|------------------|----------------|-----------------|---------------------|
| TRIGG | 42 | 14 | 233 | 117 | 50 | 96 | 49 |
| TRIMBLE | 26 | 16 | 214 | 118 | 46 | 71 | 35 |
| UNION | 40 | 2 | 277 | 146 | 64 | 78 | 119 |
| WARREN | 19 | 17 | 182 | 101 | 37 | 74 | 52 |
| WASHINGTON | 23 | 30 | 180 | 92 | 40 | 84 | 44 |
| WAYNE | 53 | 72 | 298 | 175 | 54 | 113 | 24 |
| WEBSTER | 37 | 15 | 325 | 165 | 81 | 119 | 94 |
| WHITLEY | 67 | 189 | 459 | 245 | 96 | 282 | 47 |
| WOLFE | 61 | 112 | 382 | 223 | 74 | 204 | 34 |
| WOODFORD | 29 | 39 | 180 | 80 | 44 | 72 | 70 |