Supplemental Table 1. Joinpoint analysis results for trends displayed in Figures 1b and 1c.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Corresponding Figure** | **Type** | **Number of Joinpoints\*** | **Years** | **Average Annual Change\*\*** | **95% Confidence Interval** | **SE** |
| 1b | Opioid alone | 0 | 2009-2018 | -4.94 | (-5.70, -4.19) | 0.3855 |
| 1b | Opioid + 1 other substance | 0 | 2009-2018 | 2.26 | (1.97, 2.56) | 0.1514 |
| 1b | Opioid + 2 other substances | 0 | 2009-2018 | 2.59 | (1.95, 3.23) | 0.3269 |
| 1c | Non-opioid (1 substance alone) | 0 | 2009-2018 | -0.02 | (-0.02, -0.01) | 0.0042 |
| 1c | Non-opioid (2 substances) | 0 | 2009-2018 | 0.01 | (0.00, 0.02) | 0.0034 |
| 1c | Non-opioid (≥3 substances)\*\*\* | -- | -- | -- | -- | -- |

Note: Joinpoint analyses were conducted using proportions and the standard error for weighted least squares by year.

\*Number of joinpoints used in each trend is based on results recommended from the permutation model.

\*\*Average annual change in overall proportion of overdoses within category.

\*\*\*Model estimates were not available due to small sample size.

Supplemental Table 2. Joinpoint analysis results for trends displayed in Figures 1a and 1d.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Corresponding****Figure** | **Type** | **Number of Joinpoints\*** | **Segment** | **Years** | **Annual Percent Change** | **95% Confidence Interval** | **P-value** |
| 1a | Opioids | 0 | Cumulative | 2009-2018 | 12.3 | (7.8, 17.0) | <0.001 |
|  |  |  | First | 2009-2018 | 12.3 | (7.8, 17.0) | <0.001 |
|  |  |  | Second | -- | -- | -- | -- |
|  |  |  | Third | -- | -- | -- | -- |
| 1a | Stimulants | 0 | Cumulative | 2009-2018 | 26.2 | (18.9, 33.8) | <0.001 |
|  |  |  | First | 2009-2018 | 26.2 | (18.9, 33.8) | <0.001 |
|  |  |  | Second | -- | -- | -- | -- |
|  |  |  | Third | -- | -- | -- | -- |
| 1a | Benzodiazepines | 0 | Cumulative | 2009-2018 | 25.1 | (16.4, 34.6) | <0.001 |
|  |  |  | First | 2009-2018 | 25.1 | (16.4, 34.6) | <0.001 |
|  |  |  | Second | -- | -- | -- | -- |
|  |  |  | Third | -- | -- | -- | -- |
| 1a | Alcohol | 0 | Cumulative | 2009-2018 | 17.7 | (13.1, 22.5) | <0.001 |
|  |  |  | First | 2009-2018 | 17.7 | (13.1, 22.5) | <0.001 |
|  |  |  | Second | -- | -- | -- | -- |
|  |  |  | Third | -- | -- | -- | -- |
| 1a | Antiepileptics | 1 | Cumulative | 2009-2018 | 51.1 | (36.7, 67.1) | <0.001 |
|  |  |  | First | 2009-2015 | 68.6 | (41.0, 101.5) | 0.001 |
|  |  |  | Second | 2015-2018 | 21.5 | (2.8, 43.7) | 0.031 |
|  |  |  | Third | -- | -- | -- | -- |
| 1a | Other substances | 2 | Cumulative | 2009-2018 | 5.4 | (1.1, 9.8) | 0.012 |
|  | First | 2009-2012 | -10.0 | (-20.2, 1.6) | 0.064 |
|  | Second | 2012-2015 | 26.9 | (1.3, 58.9) | 0.045 |
|  | Third | 2015-2018 | 2.5 | (-6.3, 12.1) | 0.353 |
| 1d | Opioids & stimulants | 0 | Cumulative | 2009-2018 | 31.2 | (22.1, 41.0) | <0.001 |
|  | First | 2009-2018 | 31.2 | (22.1, 41.0) | <0.001 |
|  | Second | -- | -- | -- | -- |
|  | Third | -- | -- | -- | -- |
| 1d | Opioids & benzodiazepines | 0 | Cumulative | 2009-2018 | 17.4 | (9.7, 25.5) | <0.001 |
|  | First | 2009-2018 | 17.4 | (9.7, 25.5) | <0.001 |
|  | Second | -- | -- | -- | -- |
|  | Third | -- | -- | -- | -- |
| 1d | Opioids & alcohol | 1 | Cumulative | 2009-2018 | 7.0 | (0.9, 13.5) | 0.025 |
|  | First | 2009-2011 | -14.3 | (-37.9, 18.4) | 0.275 |
|  | Second | 2011-2018 | 14.0 | (9.8, 18.3) | <0.001 |
|  | Third | -- | -- | -- | -- |
| 1d | Opioids, stimulants, & benzodiazepines | 0 | Cumulative | 2009-2018 | 45.3 | (27.4, 65.7) | <0.001 |
|  | First | 2009-2018 | 45.3 | (27.4, 65.7) | <0.001 |
|  | Second | -- | -- | -- | -- |
|  |  |  | Third | -- | -- | -- | -- |
| 1d | Opioids, benzodiazepines, & antiepileptics | 0 | Cumulative | 2009-2018 | 31.7 | (5.8, 63.9) | 0.02 |
|  | First | 2009-2018 | 31.7 | (5.8, 63.9) | 0.02 |
|  | Second | -- | -- | -- | -- |
|  | Third | -- | -- | -- | -- |
| Note: Joinpoint analyses were conducted using crude rates and the standard error for Poisson variance by year with log transformation.\*Number of joinpoints used in each trend is based on results recommended from the permutation model. |

Supplemental Table 3. Number of drug overdose fatalities in substance categories and combinations per year.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **2009** | **2010** | **2011** | **2012** | **2013** | **2014** | **2015** | **2016** | **2017** | **2018** |
| Individual substances categories |  |  |  |  |  |  |  |  |  |  |
| Opioids | 707 | 635 | 701 | 724 | 712 | 826 | 1022 | 1343 | 1787 | 1651 |
| Stimulants | 152 | 125 | 178 | 207 | 183 | 220 | 337 | 546 | 819 | 866 |
| Benzodiazepines | 62 | 79 | 134 | 122 | 96 | 220 | 323 | 450 | 506 | 435 |
| Alcohol | 83 | 74 | 78 | 93 | 100 | 127 | 152 | 190 | 287 | 281 |
| Antiepileptics | 8 | 7 | 25 | 27 | 33 | 83 | 149 | 186 | 226 | 264 |
| Other substances | 88 | 87 | 81 | 68 | 81 | 121 | 146 | 146 | 161 | 162 |
| Number of substance in opioid involved overdoses |  |  |  |  |  |  |  |  |  |  |
| 1 | 509 | 439 | 451 | 448 | 458 | 399 | 405 | 519 | 625 | 510 |
| 2 | 169 | 166 | 193 | 212 | 209 | 299 | 386 | 499 | 750 | 724 |
| ≥3 | 29 | 30 | 57 | 64 | 45 | 128 | 231 | 325 | 412 | 417 |
| Number of substance in non- opioid involved overdoses |  |  |  |  |  |  |  |  |  |  |
| 1 | 123 | 123 | 133 | 124 | 130 | 137 | 139 | 213 | 190 | 223 |
| 2 | 16 | 10 | 23 | 23 | 25 | 22 | 28 | 35 | 65 | 57 |
| ≥3 | 3 | 0 | 2 | 0 | 3 | 2 | 6 | 4 | 11 | 12 |
| Polysubstance combinations |  |  |  |  |  |  |  |  |  |  |
| Opioids & stimulants | 51 | 39 | 58 | 78 | 72 | 82 | 130 | 186 | 376 | 373 |
| Opioids & benzodiazepines | 43 | 51 | 72 | 72 | 52 | 112 | 143 | 183 | 207 | 149 |
| Opioids & alcohol | 48 | 48 | 33 | 40 | 54 | 63 | 66 | 74 | 95 | 96 |
| Opioids, stimulants, &benzodiazepines | 3 | 6 | 14 | 8 | 5 | 19 | 27 | 81 | 104 | 99 |
| Opioids, benzodiazepines,& antiepileptics | 0 | 1 | 8 | 7 | 3 | 19 | 55 | 64 | 51 | 51 |