**TABLES**

**Table 1.** Statistics of subjects in different age groups.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Age Group | Age Range (Years) | Total No. Of Subjects | No. Of Subjects With Side Effects | Proportion |
| 1 | *<* 13 | 269 | 0 | 0.000 |
| 2 | 13 - 19 | 253 | 7 | 0.028 |
| 3 | 20 - 40 | 2949 | 254 | 0.114 |
| 4 | 41 - 50 | 3273 | 203 | 0.062 |
| 5 | 51 - 65 | 8507 | 251 | 0.030 |
| 6 | 66 - 75 | 5974 | 26 | 0.004 |
| 7 | 76 - 85 | 5906 | 7 | 0.001 |
| 8 | *>* 85 | 2861 | 1 | 0.0003 |

**Table 2.** List of ICD 9 codes used for identifying subjects with adverse events.

|  |  |
| --- | --- |
| Broad Category | ICD 9 Codes |
| Opioid type or combination of opioid type with other drug dependence | |  |  |  | | --- | --- | --- | | 30400 | 30401 | 30402 | | 30403 | 30470 | 30471 | | 30472 | 30473 | 30550 | | 30551 | 30552 | 30553 | | 96500 | 96501 | 96502 | | 96509 |  |  | |
| Psychological effects | |  |  |  | | --- | --- | --- | | 30410 | 30411 | 30412 | | 30413 | 30540 | 30541 | | 30542 | 30543 |  | |
| Psychostimulant dependence | |  |  |  | | --- | --- | --- | | 30440 | 30441 | 30442 | | 30443 |  |  | |
| Poisoning | |  |  |  | | --- | --- | --- | | 96502 | 96509 | 9701 | | E8500 | E8501 | E8502 | |
| Hallucinogen dependence | |  |  |  | | --- | --- | --- | | 30450 | 30451 | 30452 | | 30453 |  |  | |
| Miscellaneous dependence | |  |  |  | | --- | --- | --- | | 30420 | 30421 | 30422 | | 30423 | 30430 | 30431 | | 30432 | 30433 |  | |

**Table 3.** Summary of best parameters for XGBoost.

|  |  |
| --- | --- |
| Parameter | Value |
| Learning rate | 0.1 |
| Maximum depth | 8 |
| N estimators | 200 |
| Objective | binary:logistic |

**Table 4.** Summary of performance for predictive modeling tasks.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Model | Target Variable | Accuracy | Precision | Recall |
| Logistic Regression | Side effects | 76.31% | 77.24% | 76.43% |
| XGBoost | Side effects | 93.26% | 92.26% | 95.47% |
| XGBoost | Mortality | 68.71% | 19.23% | 71.42% |