**Additional File 2: *International Classification of Diseases, Tenth Revision, Clinical Modification* (ICD-10-CM) Codes**

We used ICD-10-CM codes to identify opioid use disorder, opioid misuse ,and opioid poisoning in the Denver Health organization:

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| Category | ICD-10-CM Code | Description | Additional information |
| Opioid Use Disorder | F11.10 | Opioid abuse, uncomplicated | NA |
| F11.11 | Opioid abuse, in remission | NA |
| F11.12 | Opioid abuse with intoxication | NA |
| F11.14 | Opioid abuse with opioid-induced mood disorder | NA |
| F11.15 | Opioid abuse with opioid-induced psychotic disorder | NA |
| F11.18 | Opioid abuse with other opioid-induced disorder | NA |
| F11.19 | Opioid abuse with unspecified opioid-induced disorder | NA |
| F11.20 | Opioid dependence, uncomplicated | NA |
| F11.21 | Opioid dependence, in remission | NA |
| F11.22 | Opioid dependence with intoxication | NA |
| F11.23 | Opioid dependence with withdrawal | NA |
| F11.24 | Opioid dependence with opioid-induced mood disorder | NA |
| F11.25 | Opioid dependence with opioid-induced psychotic disorder | NA |
| F11.28 | Opioid dependence with other opioid-induced disorder | NA |
| F11.29 | Opioid dependence with unspecified opioid-induced disorder | NA |
| Opioid Misuse | F11.9 | Opioid use, unspecified | Combined with markers of opioid misuse in the Electronic Health Record |
| F19.20 | Other psychoactive substance dependence, uncomplicated | Combined with markers of opioid misuse in the Electronic Health Record |
| Z87.898 | Personal history of other specified conditions | Combined with markers of opioid misuse in the Electronic Health Record |
| Opioid Poisoning or Opioid Overdose | T40.0 | Poisoning by, adverse effect of and underdosing of opium | NA |
| T40.1 | Poisoning by and adverse effect of heroin | NA |
| T40.2 | Poisoning by, adverse effect of and underdosing of other opioids | NA |
| T40.3 | Poisoning by, adverse effect of and underdosing of methadone | NA |
| T40.4 | Poisoning by, adverse effect of and underdosing of other synthetic narcotics | Combined with markers of opioid misuse in the Electronic Health Record |
| T40.0X6 (excluded) | Underdosing of opium | NA |
| T40.2X6 (excluded) | Underdosing of other opioids | NA |
| T40.3X6 (excluded) | Underdosing of methadone | NA |
| T40.4X6 (excluded) | Underdosing of other synthetic narcotics | NA |

NA = not applicable.