**Problem**: Perinatal opioid use has increased over 4 times in the past decade, resulting in health implications and a public health concern for government agencies.

**Questions** we are trying to answer –

1. What are the known and emerging opioids? Use, Misuse, Abuse, Addiction, Treatment
   1. Pattern recognition to detect commonly co-occurring opioid abuse themes
   2. Range of OUDP topics
2. What are the drug abuse drivers?
   1. Relapse in pregnancy demonstrating drivers
3. Who is the target population?
   1. Need to capture pre-, peri-conception, peri-natal, post-partum drug use and effect on infants
      1. Reproductive age group women
      2. Pregnant women
      3. Perinatal, post-partum women
      4. Infants (for withdrawal)
   2. Geolocation showing agent/community based outbreak clusters
      1. Study the geographical aspects of clusters: ie as addiction begins, spreads and escalates in ways similar to infection with local factors like social networks, population density, types of drugs available
   3. Split up analysis between these time frames: (Identifying clinical and behavioral changes in pregnancy related opioid use over time)
      1. Before 2000 (very challenging)
      2. Between 2000 – 2013 (Possible but challenging)
      3. Between 2013 – 2019 (feasible)
4. What are the target population’s vulnerabilities?
5. What are the trigger factors in drug use?
   1. Trigger factors for initiation-transition-escalation and drug use repertoire showing potential touch points for opioid use disorder prevention and intervention
6. What are potential points of intervention?
7. How can we mitigate drug use?

**Techniques**: Advanced AI techniques such as

1. Predictive deep text mining
2. Sentiment analysis
3. Learning classifiers

**Goal**: Ultimately use these insights to facilitate regulatory decision making and policy development towards effective opioid use prevention and intervention

**Challenges**: 1) Drug terminology; 2) How do we define target population unless they explicitly state it? May be able to infer sex/gender based on context but may not be able to tell if “when I was pregnant” is referring to last week or 10 years ago. Majority of authors will not provide sufficient information for this classification