The Sandy Hill Community Health Center has assigned us the task of designing a product that will be able to detect when a drug user is having an opioid overdose.

Needs:

- Must detect an opioid overdose
- Must be able to notify someone that the person is having an overdose
- Should be discreet so that users will wear it
- Should allow them to wear it for long periods of time
- Should be durable
- Must be able to detect within 3 minutes
- Price range between 100-200
- Should work hands-free
- The device should not interfere with the hands of the user
- Measure the respiratory rate
- Measure blood oxygen level
- Can't respond when people are not overdosing
- Resistant to water
- Affordable for a middle-class person

Problem Statement:
We need to design a discreet and cost-efficient product for people who consume opioids. This device will be able to detect an overdose and alert someone so healthcare professionals can be notified.

- Additional Problems (?)
  - Increase in harm reduction efforts (take-home naloxone and overdose prevention sites/supervised consumption sites) responsible for a decrease of opioid deaths (NOT overdoses) in BC
  - Opioid-related fatalities are now over-represented in small/rural communities, with the greatest number of people dying at home
  - Stigma/discrimination – barriers to accessing existing services
  - Harm reduction resources not distributed equally across Canada
  - **How do we reduce overdose death for people who use alone?**

Prioritized List of Needs
Ranked on a scale from 1 to 5. **5** being **most** important, and **1** being the **least** important.

Need: Should be discreet so that users will wear it
Justification: This device should be indistinct, since the target customer is an everyday working man who does not want to be noticed wearing this device. The stigma around this device would be high so to get customers this need should be met.
Rank: 4

Need: Should work hands-free
Justification: This device needs to work hands-free, the user will not use it otherwise. This is because most people who use are alone and often need both hands at the time. If the person is alone and starts to overdose it will be too late for them to reach over and put on the device.
Rank: 5

Need: Price range between 100-200
Justification: The device should be in the price range of 100-200$. Our target customer is the middle-class tradesmen, so anything more would be too expensive.
Rank: 3

Need: Measure blood oxygen level
Justification: The optimal way of detecting an opioid overdose is by measuring the blood oxygen level. The device should be able to detect when someone's blood oxygen level is less than 90%.
Rank: 5