Group 1

Deliverable B-Needs Identification and Problem Statement

Presented to
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Introduction:

The following document is intended as a technical document to clearly identify the needs and problem statement of the opioid crisis currently in Canada. This document will help break down the different levels of needs, the product requires. After meeting and empathizing with a representative of our clients, many important needs have been identified. The objective of this document is to formulate a problem statement as well as benchmark multiple needs to then be able to move on to the next step in the design process.

Needs identification:

-Alerts paramedics/Police
-Let's the user know that they are having an overdose
-Measure oxygen saturation accurately (under 90%)
-Not too delicate(sturdy enough)
-Discrete
-Will not interfere with everyday life
-Measure respiratory rate
-Aesthetically pleasing
-Unnoticeable
-Possesses a days worth of battery life
-Has a cost between 50-150$ (price of a cheap phone)
-A better solution to what's currently available
-Water resistant

Priority rating:

1.**Necessary**
-Alerts paramedics/Police/family/caretaker
-Measure oxygen saturation(under 90%)
-Let's the user know that they are having an overdose
2.**Important**
-Has a cost between 50-150$ (price of a cheap phone)
-Measure respiratory rate
3.**Useful**
-Possesses at least a day's worth of battery life
-Not too delicate (sturdy enough)
-Discrete
-Will minimize interference with the user (should not interfere with the user's capabilities of using opioid paraphernalia)
4.**Optional**
-Aesthetically pleasing

-Unnoticeable
- Customizability options (to improve the sensitivity of the device based on the user's experience with opioids.)
- Water resistant
- Audio warning before the alerts are sent

Problem statement:

A need exists for opioid users to safely consume opioids without having the risk of overdosing through a portable device designed to activate EMS, effectively measuring blood saturation while being cost effective.

Benchmarking:

	Design specifications	**Relation (=,< or >)**	**Value**	**Units**	**Verification Method**
	Functional requirements				
1	Alerts paramedics/Police /family/caretaker	=	Yes	N.A	Test
2	Measure oxygen saturation	<	90	%	Test
3	Let's the user know that they are having an overdose	=	Yes	N/A	Test
4	Hands free	=	Yes	N.A	Test
	Constraints				
7	Cost	<	150	$	
8	Not too delicate(sturdy enough)				

9	Possesses at least a day's worth of battery life	=	Battery life	Time(hours)	Specs
	Non-Functional requirements				
13	Aesthetically pleasing	=	Yes	N.A	
14	Discrete	=	Yes	N.A	Test
16	Customizability options	=>	User Sensitivity to opioids	N.A	Personal experience
17	Water resistant	=	Yes	N.A	Specs

Conclusion:

In conclusion, the importance of this product lies in the current opioid crisis. The effect it has on the Canadian population is of 13 900 opioid-related deaths between January 2016 - June 2019, with people of all ways of life being affected. Research shows that those affected are 18% employed, 47% unemployed and 33% unknown. Half of the cases of overdoses are between the ages of 25 and 44. This proves that the situation is highly concerning and needs to be dealt with immediately. The vast majority of people consuming opioids reported being alone. This device will target those people by insuring that even if alone that they can still safely consume opioids without fearing the alternative. Finally, this device will help ensure the fraction of opioid related deaths keeps on diminishing and will be engineered as an effective life saving tool.