Implantable Single-Use Drug Delivery Device for Opioid Overdose

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According to the National Institute on Drug Abuse, over 569,000 people died from drug overdose between 1999 and 2015, of which over 216,000 people died from prescription opioid overdose. An FDA approved anti-overdose drug, naloxone, counteracts the action of opioids. Although naloxone's availability has improved in recent years with legislation allowing for over-the-counter purchase of the drug, patients often are incapacitated and unable to administer the potential life-saving drug on themselves in a timely manner. There is a need for a single-use anti-overdose drug delivery method that allows drug users to administer an antidote to combat the effects of an overdose.

Researchers from Purdue University have developed an implantable drug delivery device that injects a single dose of naloxone or another anti-opioid overdose drug. The device will inject under the skin of at-risk patients of opioid misuse and activate upon detection of an overdose event. When an overdose occurs, the body reacts with a sudden increase in temperatures and other abrupt changes to normal body function. Such sudden changes trigger the implanted device, allowing the anti-opioid overdose drug to diffuse the overdose before lethal effects occur. The device will facilitate delivery of the antidote for caretakers or emergency responders. In future iterations, incorporating feedback control allows for the automatic release of the antidote upon overdose detection.

Advantages:
- Facilitates delivery of antidote
- Eliminates overdose
- Wireless
- Implantable
Potential Applications:
- People at risk for drug overdose
- Drug delivery
- Implantable devices

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Intellectual Property:

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