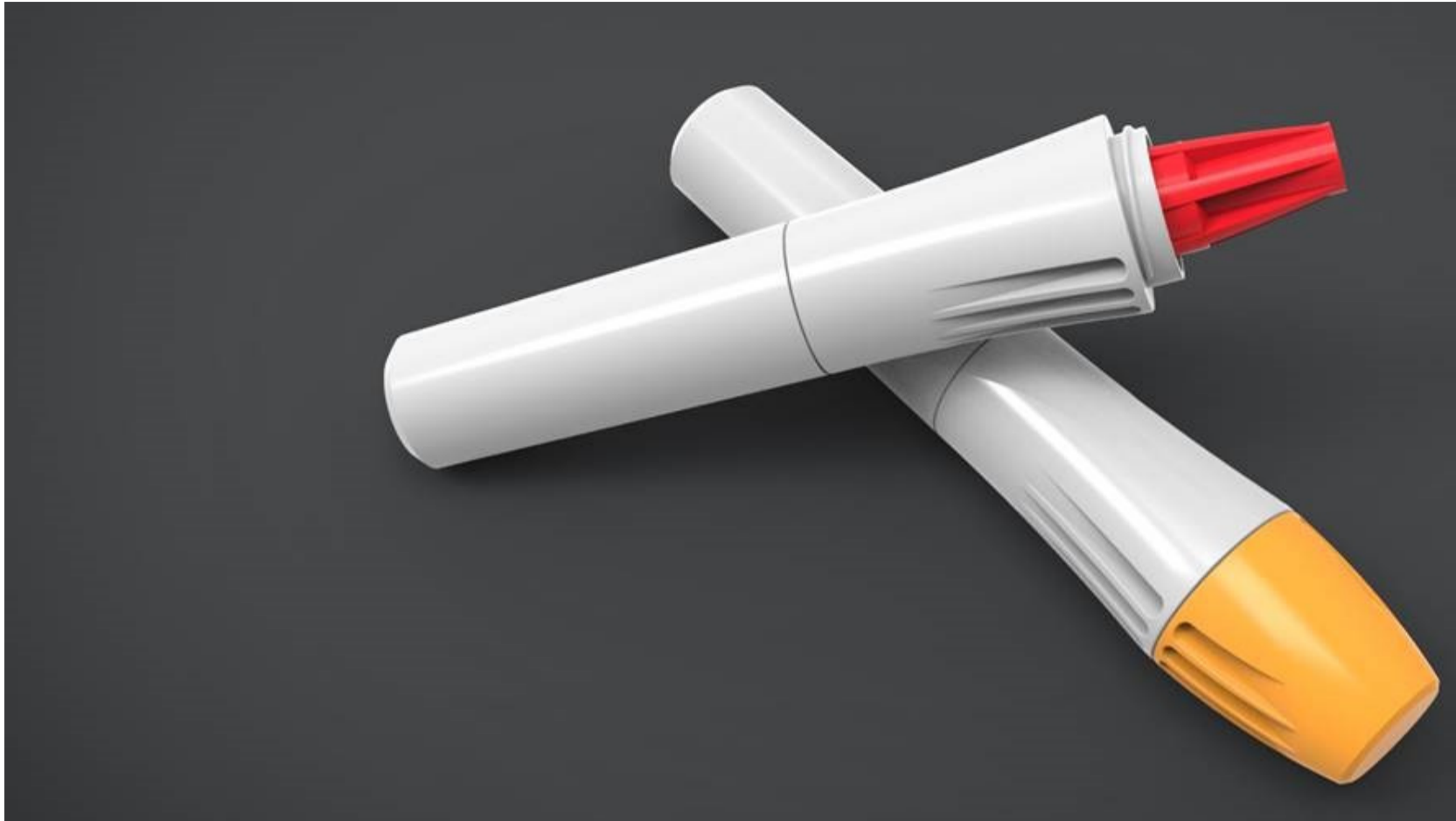


ZibiPen: Adrenaline Auto-injector

An intra-muscular auto-injector with refillable cartridges and variable needle length

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Copyright: UCT

Background

Adrenaline auto-injectors (AAIs) allow the patients to self-administer a dose of adrenaline in times of need, relieving the symptoms of the anaphylactic reaction and providing a life-saving intervention.

A drawback of currently available AAIs is that the adrenaline within the device expires every year and the entire device must be replaced. Additionally, several studies have shown that the current depth to which the needle penetrates is insufficient, and therefore potentially not clinically effective in patients with varying musculoskeletal compositions.

Technology Overview

The University of Cape Town Medical Devices Laboratory has developed a re-loadable AAI, the ZibiPen, that features customisable needle injection depth that caters for the patient's physiology.

ZibiPen also features pre-filled interchangeable cartridges that allow for variable dosages of adrenaline. A re-loadable device makes the treatment of Anaphylaxis affordable by reducing the recurring cost of having to re-purchase a new device on an annual basis. A cartridge with the appropriate ideal needle length could be selected according to their own weight, body fat percentage and age.

UCT has a spin-out company that is focused on the commercialization of the device. The team has established relationships with various local value chain and industry partners and has conducted market research that further validates the need for such a device.

The device is currently at Technology Readiness Level 5 and the inventors have a working prototype that has been demonstrated to inject and deliver dye into porcine blocks when activated. The performance of their minimal viable product was tested in a head-to-head comparison with commercially available AAIs and the results supported the benefits of their design and its benefits.

Benefits

The ZibiPen offers the user the following benefits:

- the re-loadable cartridge feature provides a cost-effective means of managing the availability and treatment of anaphylactic reactions
- the variable needle length provides the user with assurance that the drug will be delivered to the intended muscle tissue and the correct manner
- A safe, ergonomic design that ensures the user deploys it in the right direction.

Applications

During the business development process, it was established that the device is a platform technology that can be used to treat drug overdoses, hypoglycaemia and other emergency intramuscular injections.

Opportunity

UCT and its spin-out company, Impulse Biomedical, are seeking licensees and commercialization partners who are able to complete the human clinical trials and product development for the ZibiPen.

The ideal partner will have a combination of the following attributes:

- an understanding of the value that the ZibiPen delivers and the challenges faced with existing and similar technologies
- an understanding of the market value chains relevant for the commercialization of auto-injectors
- availability of capital to invest resources into the development and trial
- the potential to extend the platform technology's reach into other markets where intra-muscular injectors with replaceable cartridges could be used.

Patents

- PCT: PCT/IB2018/051623

IP Status

- Patent application submitted

Seeking

- Development partner
- Commercial partner
- Licensing