Seventh Sense Biosystems TAP 20™ Painless Blood Draw Device

Rachel McAteer, *Biomedical Engineering, University of Rhode Island*
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***Abstract* – Seventh Sense Biosystems has developed a "painless" Touch Activated Phlebotomy blood collection device to serve as a safer, more efficient, alternative to intravenous blood collection.**

I. INTRODUCTION

Traditional methods of blood collection often induce feelings of anxiety or discomfort in patients. Seventh Sense Biosystems' TAP 20™ blood draw device was designed with the initial intentions of reducing such feelings and promoting patient compliance. The 'painless', one-step process, is designed to be a safer, portable, and more efficient way of drawing blood.

II. METHODS

The TAP 20™ (Touch Activated Phlebotomy) device is a portable blood draw device that uses microfluidic extraction (the extraction of fluids at the microscale). The device is less than 5 centimeters in diameter, and contains a collection reservoir that can hold up to 20 microliters of blood. Rather than traditional needles, the TAP 20™ uses 16 micro-needles to penetrate the uppermost layers of skin and collect capillary blood, eliminating the need to access a vein. Externally, the device contains a visual indicator that notifies the patient when the collection is complete. To use the device, the patient must first adhere it to the skin. At the tap of the button located in the center, a vacuum begins to carry blood through channels into the reservoir. The process takes approximately two minutes, and leaves a mosquito-bite-like mark upon completion. Blood samples can be tested on location or sent to a lab.

III. RESULTS

To date, Seventh Sense Biosystems has had on-going human testing of their TAP technology, but expects to begin pivotal trials in mid 2013.

IV. DISCUSSION

Because it eliminates the need to access a vein, the TAP 20™ blood draw device is projected to be a safer alternative to traditional methods. The portability of the device allows it to easily be used in homes and hospitals, as well as remote areas. In such cases, it is quicker and less expensive than sending for a doctor. Not only does the device provides a sample efficient enough to allow for a wide range of diagnostic tests, but the containment of the blood sample makes it safe for the testing of HIV and other infectious diseases. Seventh Sense Biosystems has already received a $3.8 million dollar grant from the Bill & Melinda Gates Foundation and, in 2011, received the Edison Gold Medal Award for this project. It is expected to become commercially available within the next 2 to 3 years.

REFERENCES

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