Universidad Veracruzana

social business creation

Universidad Veracruzana
Facultad de Enfermería
Región Veracruz

D.I.P.I.T.S

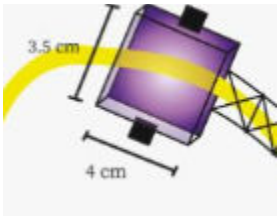
Comprehensive Device for Preventing Bloodstream Infections

Origin:

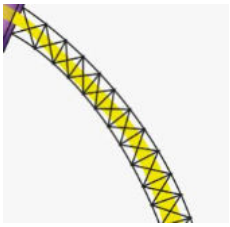
DIPITS emerges through clinical observation and the urgent need for a solution to a global health issue. It addresses the specific problem of bloodstream infections affecting over 5 million people worldwide.

Operation: The device consists of 3 main parts:

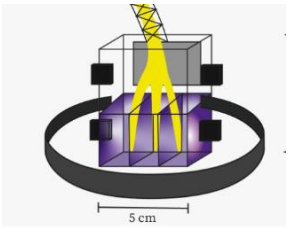
1. Photodesinfection camera for insertion point: This camera operates using LEDs and an ultraviolet light filter as a disinfectant. It emits a specific nanometer wavelength to perform its function without harming the user. The camera is securely attached to the user's skin to prevent movement or misplacement.



2. Cylindrical structure: This component serves as a waterproof cover for the main catheter lumen, keeping it secure and allowing patients to bathe more easily. It functions as a fixator, reducing the risk of catheter movement or wetting by nearly 100%.

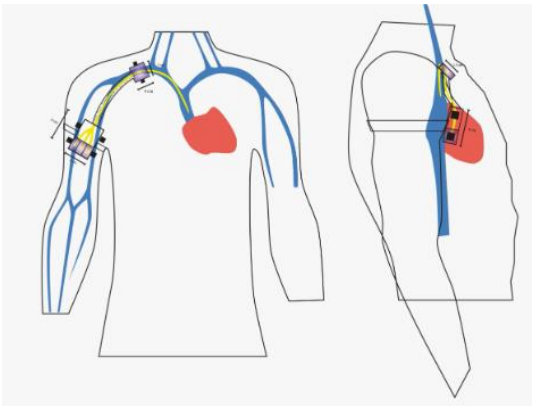


3. Photodesinfection camera for lumens: This camera disinfects the 3 lumens of the catheter after each use, preventing infections and avoiding the use of other potentially harmful disinfection methods. It operates with a vacuum system, ensuring no ingress or egress of agents or gases from the environment.



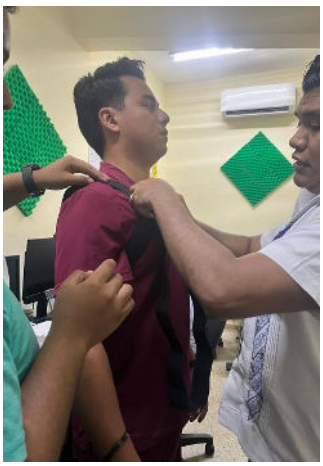
These components are powered by electricity, facilitating easy recharging. Disinfection sessions are performed on the patient every 72 hours, taking only 3 minutes, making device maintenance faster, easier, and more efficient, while also reducing the use of contaminating materials harmful to both patients and the environment.

Installation: Firstly, the device packaging will consist of 3 parts, one for each component. Installation must be performed with sterile and meticulous technique to avoid contamination. After ensuring proper placement of the catheter in the correct location (right atrium of the heart) using diagnostic assistance (X-ray), the device can be installed. First, the photodesinfection camera for insertion point is applied and secured to the user's skin. Next, the cylindrical fixation structure is mounted onto the catheter, attaching it to the first installed camera. The second camera (for lumen disinfection) is installed similarly to the first. Once all parts are in place, the device is activated, and its ultraviolet light aids in skin healing at the insertion point, providing safety features crucial to user well-being. A securing belt is used to provide secondary support and prevent device movement, with each part featuring grip wings to secure the device firmly to the skin using tape, ensuring enhanced safety.



DIPITS is conducting clinical trials with mock-up and clinical designs to provide a clearer overview and address all potential issues that may arise. Initially, laboratory tests were conducted to gather initial observations.

Following this, tests were performed using the mock-up to make necessary infrastructure adjustments.



Finally, clinical trials were conducted to establish the foundations of the device and gain a comprehensive understanding, ensuring all possible needs are addressed.