The Dynamic Surgical Drape ™

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Introduction

War Surgery



"War is deleterious to your health."

Can contamination under these conditions be reduced ??..

*International Red Cross Committee (Geneve)
https://www.icrc.org/en/doc/assets/files/other/icrc-002-0973.pdf

Background

Surgical Peace Time Considerations

- As of 2015, there were more than 5200 documented emergency departments and rooms in the whole of the country. As we are speaking today, the number is estimated to have increased by more than 25% according to a recent research conducted by the National Emergency Department.

  https://bellaireer.com/how-many-emergency-rooms-are-in-america/#:~:text=As%20of%202015%2C%20there%20were,by%20the%20National%20Emergency%20Department.

- Outpatient procedures averaged $3,800 per patient, while the inpatient facility charge was 350% more expensive at $13,200 per patient (this was about $9,500 in savings).

  https://www.talktomira.com/post/how-much-does-surgery-cost-without-insurance

- Emerging data now indicate that surgery is an essential and cost-effective method of treating a significant portion of the global burden of disease engendered by poverty.

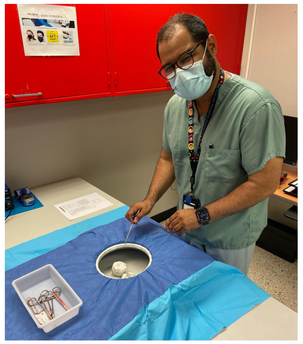
  https://www.ncbi.nlm.nih.gov/books/NBK333494/

Device Description

Structure & Function

The objective of this device is to provide a surgical space that limits contamination from a non-sterile ambient environment. This is accomplished by having a mechanical aperture in the surgical drape that opens when the hands of the surgeon are near the drape and closes when the hands move away from the opening. Activation of the mechanism is accomplished by Radio Frequency Identification (RFID) technology by the surgeon wearing a RFID ring under a sterile glove. This action occurs without touching the opening or the surgical drape. This mechanism is built into a platform that is attached to a movable support such that it can be positioned over the field of surgery of the patient. The platform can then be covered with standard surgical draping to provide an additional sterile environment over the surgical field.





Dr. Zequeira checking the ergonomics of a prototype device.



The device with the aperture closed.



The device with the aperture open.

Product Claims

- Limits the atmospheric contamination in the immediate surgical field.
- Stabilizes the thermal environment over the surgical field.
- Reduces the need to use a standard operating room for minor surgical procedures.
- Lowers the cost of surgical treatment.

Intellectual Property

This device is the subject of US Patent 11,466,505 and PCT pending applications,. This intellectual property is assigned to the University of Puerto Rico.

Future Directions

- The Dynamic Surgical Drape™ will be evaluated by a committee of surgeons under the direction of the Laboratory of Surgical Research of the UP
- This device is made available for situations requiring emergency surgery under contaminated atmospheric in battlefield conditions, as well as, forest fires, earthquakes, volcano eruptions, etc.
- General use of this device made available in trauma centers and emergency rooms where minor surgical procedures can be performed without the need for a dedicated surgical facility.

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