Trauma Pods and Robotic surgery

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Problem

Currently there is no safe way for medics to treat a wounded solider in battle. The most critical hours for treatment are those immediately following the injury. As of now the medics would have to risk their own lives or the soldier would have to be brought off the battle field to a hospital to preform any type of treatment. The trauma pod intends to a surgery robot that can go into the battle field and allow for the doctor to preform the surgery from behind the scenes.

History

- The first surgical robot was the “arthrobot” created in 1983.
- Other robots around that time were created to preform eye surgery and hand surgeons tools during the process.
- In 1985 a robot, the PUMA 560, was used to place a needle for a brain biopsy using CT guidance
- In 1988, the PROBOT, was used to preform prostatic surgery
- In 1992, the ROBODOC was introduced to mill our precise fittings in the femur for hip replacement.

Continued

- Development was furthered with the da Vinci surgical system and computer motion with the AESOP and ZEUS surgical systems.
- Da Vinci surgical system is comprised of a surgeon's console, a patient-side robotic cart with 4 arms manipulated by the surgeon, and a high definition 3D vision set
  - Approved surgery's include prostate cancer, hysterectomy, and mitral valve repair.

  Trauma pods are fairly new technology based on the robots used for surgery.

Current state of trauma pod

Currently the trauma pods are not in use. They are still in the developmental stages. SRI international is the lead in developing them. The first phase of the project they developed a system that captured 3D patient scans, viewed simulated CT images to diagnose the injury, sutured simulated bowel section, placed a shunt in the groin of the simulated patient. These were all preformed by a surgeon using voice commands with 100% accuracy.

Current state of robotic surgery's

- Most commonly used in urology, gynecology and abdominal surgery. One hospital reported over 70% of their surgeries carried out using it are either prostatectomy and hysterectomy.
- Some benefits are less blood loss, less postoperative pain, better cosmesis, and a faster return to physical activity to the formerly open procedures.

Limitations

- Cost
- Trauma pods are only in very early stages of development
- Additional training is required for use
- Long setup time
- Many procedures have yet to be done by use of a surgical robot

future

- Surgical robots in general will continue to be advanced to do all surgeries not only a select few
- Cots lowered
- Trauma pods made functional

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