

**МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ
СУМСЬКИЙ ДЕРЖАВНИЙ УНІВЕРСИТЕТ
КАФЕДРА ІНОЗЕМНИХ МОВ
ЛІНГВІСТИЧНИЙ НАВЧАЛЬНО-МЕТОДИЧНИЙ ЦЕНТР**

**МАТЕРІАЛИ
VIII МІЖВУЗІВСЬКОЇ НАУКОВО-ПРАКТИЧНОЇ
КОНФЕРЕНЦІЇ
ЛІНГВІСТИЧНОГО НАВЧАЛЬНО-МЕТОДИЧНОГО ЦЕНТРУ
КАФЕДРИ ІНОЗЕМНИХ МОВ**

“TO LIVE IN A SAFER WORLD”

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NO KNIFE OPERATIONS: THE NEXT GENERATION OF SURGERIES

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If I asked you to think of the riskiest, most serious surgery you can imagine, there's a good chance the operation that first came to mind would fall into one of two categories: heart surgery or brain surgery. When these organs are damaged by an injury or disease, the effects may be severe – and the implications of performing surgery on these organs can be grave.

Medical breakthroughs are allowing doctors to treat conditions that once required risky surgeries with non-surgical procedures. From catheters to ultrasound beams, these new devices and techniques make real impacts on patients.

For skeptics, surgery without knives probably sounds circumspect. At best, it sounds like a concept pulled from a work of science fiction. Sure, robotic surgeries once seen only in movies are now part of real-life hospital settings, but even at the onset, that idea seemed less far-fetched than surgery without knives.

In knifeless operations, surgeons swap their traditional cutting tools for beams and waves. Focused ultrasounds and radiation beams eliminate tumors and cysts in ways that seem magical, but it's all based in science. These techniques and devices are helping patients around the world survive cancer, end life-altering disorders, and preserve body parts that would be harmed or removed if treated with traditional surgery.

Ultrasounds

Ultrasounds have long been used to view the inside of the body. Doctors use them regularly to produce images of unborn babies throughout the mother's pregnancy as well as to diagnose medical conditions. In recent years, it has even become common to use ultrasounds to guide needles for biopsies and surgical anesthesia.

Radiosurgery

Like ultrasound surgery, radiosurgery is non-invasive. It delivers beams of radiation precisely to the desired location, so that

cancer patients get all the benefits that traditional radiation treatments have on tumors without the side effect of extensive damage to healthy cells. Although each beam causes no damage to the tissue en route, when they all meet at the target, the resulting dose destroys the tumour.

Heart to Heart: Swapping Invasive Operations for Catheters and Tubes

While no one likes the sound of invasive tubing, the minimal amount of discomfort of having a small tube inserted into the arm or leg surely beats the prospect of having your chest sliced open, your breast bone sawed apart, your rib cage opened, and your heart literally stopped.

Researchers are even investigating the use of catheter-based “surgeries” to treat high blood pressure, a prevalent disorder across the globe that boosts patients’ risk of suffering heart attacks. Think about that idea for a second.

The Future of Surgery

The process of recovering from knifeless surgical procedures can greatly benefit patients. When individuals are confined to a bed for long periods of time – even a few weeks – the body undergoes changes that are not easily reversed. As new, game-changing technologies like focused ultrasound surgeries, heart-repairing catheters, and radiosurgical devices continue to emerge and their uses continue to grow, will we ever see the day when surgeons lay down their scalpels completely?

I hope that someday, all cancers can be treated with this type of precision and thoroughly eliminated without causing undue, and sometimes insurmountable, damage to the rest of the patient’s body. Imagine the implications that these knifeless operations have for patients who are forced to undergo emergency surgery like those in the midst of suffering cardiac arrest. For trauma patients, no-knife surgeries could allow doctors to stabilize patients more quickly and without adding further stress to already broken bodies. The technology of knifeless surgeries has the potential to change healthcare as we know it, lengthen lives, ease pain, and give patients the precious gift of time.