



## Potential Trends using Robotic Surgical Systems: The da Vinci Surgical Technique

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### Description

A robotic surgical system called the da Vinci Surgical System employs a less invasive surgical technique. Intuitive Surgical is the firm that makes the system. The technique is utilised for gynecologic and renal surgery, as well as prostatectomies and a rising amount of heart valve repair. In 2012, it was utilised in over 200,000 operations, primarily hysterectomies and prostate removals. Leonardo da Vinci's research of human anatomy eventually inspired the creation of the first known robot in history, which is one of the reasons the system is known as "da Vinci." da Vinci procedures are performed for a wide range of conditions in specialties including cardiac, urologic, gynecologic, pediatric and general surgery. Roughly three out of four prostate cancer surgeries in the U.S. today are performed using da Vinci Surgery.

When combined with Hyperthermic Intraperitoneal Chemotherapy (HIPEC), CRS significantly prolongs life expectancy and lowers the likelihood of cancer recurrence in various cancer diagnoses. Paul Sugarbaker, who is best known for creating cytoreductive surgery followed by hyperthermic intraperitoneal chemotherapy, or HIPEC, sometimes known as the Sugarbaker Procedure, was its primary creator.

### Medical uses

The following procedures have all been performed with the system: radical prostatectomy, pyeloplasty, cystectomy, nephrectomy, and ureteral reimplantation; hysterectomy, myomectomy, and sacrocolpopexy; hiatal hernia and inguinal hernia repair; gastrointestinal surgeries, including resections and cholecystectomy; and Trans Oral Robotic Surgery (TORS) for head and neck

A patient-side cart with three to four interacting robotic arms (depending on the model) that are operated from

the surgeon's console is part of the da Vinci System. The surgeon's console is normally located in the same room as the patient. The arms can function as scalpels, scissors, bovies, or graspers while holding objects. The last arm is in charge of the 3D cameras. The robotic arms on the patient-side cart are controlled by the surgeon via the console's controls. A human operator is always necessary for the system. Although the use of robotic surgery has been highlighted in advertisements for medical services, there aren't many research that show the long-term outcomes of this procedure are superior to those of laparoscopic surgery. Opponents of robotic surgery claim that the learning curve is steep. The da Vinci system uses proprietary software that can't be changed by medical professionals, which restricts the ability to change the operating system. The system costs \$2 million, making it unaffordable for many universities.

The system's producer, Intuitive Surgical, has come under fire for skipping the 510(k) process in favour of premarket notice, which bypasses the FDA's approval requirements. The business has also been charged of providing insufficient training and pressuring medical professionals to lower the number of supervised procedures necessary before a doctor is permitted to use the system independently.

### da vinci surgical system fast facts

- The FDA first approved the da Vinci Surgical System in 2000 as the first commercially accessible robotic surgical platform in the United States for use in routine laparoscopic surgery.
- More than 1,700 da Vinci Systems have been implemented in hospitals across the world.

da Vinci treatments are carried out for a variety of illnesses in disciplines including cardiac, urologic, gyne-

cologic, paediatric, and general surgery. Over 775,000 patients have undergone da Vinci procedures globally.

- Currently, da Vinci Surgery is used in about three out of every four prostate cancer surgeries in the United States.

Why More American men than any other treatment opt for da Vinci Surgery to treat their prostate cancer.

More women now choose da Vinci Surgery for minimal-

ly invasive hysterectomy than conventional laparoscopy or vaginal surgery.

- According to recent studies, when comparing radiation with surgical removal of the prostate, surgery had the lowest cancer death rate.
- The da Vinci System is used in 86% of urology residency programmes in the United States. The da Vinci System is used by all 42 of the country's fellowship programmes in gynecologic oncology.