

## Women's Health

### What is Robot-Assisted Cancer Surgery?

Robot-assisted surgical systems involve two integral components – the Surgeon's Console and a Patient Cart. During the surgery, the surgeon sits at the console and controls the actions of the robotic arms that reside in the bedside patient cart where the actual cutting takes place.

Through this surgical system, the surgeon's technical expertise, understanding of disease and knowledge of human anatomy are enhanced by the robot's strength, stability, dexterity, and visualisation. The synergy of man and machine results in higher surgical functionality which ultimately translates into better surgical outcomes for the patient.

### Robot-Assisted Versus Traditional Cancer Surgery

Traditionally, cancer surgery requires that a patient's abdomen be opened as this approach allows the surgeon to use his hands naturally and directly while allowing direct visualisation of the structures that the surgeon needs to work with and around to facilitate smooth, efficient and ultimately effective surgery.

However, this method has its disadvantages, the traditional approach leaves a large surgical wound with common complications of pain, infection and the likelihood of poor wound healing and wound infection. This, coupled with a slower return of bowel function, the need for intravenous fluid support and the need for IV medication to provide adequate post-operative pain relief translate into longer hospital stays and slower return to a normal daily functioning.

These shortcomings led to the search for a better alternative - minimally invasive, or key-hole surgery. Through minimally invasive surgery, the same surgical objectives can be achieved without the disadvantages of open surgery. Through key-hole surgery, access to the abdominal cavity is achieved without a large incision, while providing good visualisation with magnification provided by scopes, cameras and optical systems. However, learning to work with key-hole surgery instruments is not an easy task. The surgeon has to learn a whole new set of skills to be able to move and use keyhole surgery instruments within the body cavity. This is a main disadvantage of keyhole surgery as the approach robs the surgeon of the ability to work naturally and directly on the disease with his hands.

Robotic surgery represents the latest iteration in a series of improvements and innovations brought to women's cancer surgery. It combines the advantages of traditional open surgery and minimally invasive or keyhole surgery. The concept of surgery is minimally invasive, which patients will recognise as a benefit in terms of overall experience, speed of recovery and the perceived ease of recovery and return to normal function. It also capitalises on the superior visualisation offered by optics in keyhole surgery and pushes this advantage further by providing higher visual definition and stereoscopic third-dimensional vision in the operative field. The surgeon therefore not only sees the operative field more clearly and in magnification, but in the most natural of ways, in three dimensions with good perception of depth. Finally, robotic surgery through its innovative instrumentation, allows the surgeon to operate naturally within the abdominal cavity and directly and intuitively on diseased tissue. This is made possible by the "wristed" instruments which mimic all the degrees of freedom (and more) of the human hand. Surgeons are no longer limited to working with clumsy and, unyielding graspers and scissors in the abdomen as with key-hole surgery, instead they

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have "hands" *in situ* and not just hands that move and manoeuvre naturally, but are powered to burn, cut, coagulate and grasp.

### **Robotic Surgery to Help More Women Suffering From Gynaecological Cancer**

Endometrial Cancer is on the rise in Singapore. Freedom from this disease and the reassurance of knowing that one can be cured of this disease comes from having definitive surgery done in a timely fashion. Robot-assisted cancer surgery provides this definitive treatment while affording patients a smooth recovery with the same ease as patients delivering a baby.

Endometrial cancer is the 5th most common cancer among Singapore women and the 4th most common cancer among Singaporean Chinese women. The number of patients suffering from endometrial cancer has almost trebled from 4.1 to 11.3 per 100,000, from the 1970s to 2007.

Women suffering from endometrial cancer and early stages of cervical cancer should consult their doctors for an assessment to ascertain their suitability for robot-assisted surgery.