GlobalData

The pioneering area of robotic surgery is headline news around the world and buzzing with activity thanks to Intuitive Surgical's da Vinci machine. The company launched the first robotic assisted surgery system in 2000 and have led the way ever since in developing similar products and accessory instruments. GlobalData , a leading data and analytics company, forecast that the global robot assisted surgical systems market for general surgery, excluding accessory instruments, is expected to grow at a Compound Annual Growth Rate of 13.5% over the next seven years to reach a market size of USD 2 billion in 2024. In addition, if all the other therapy areas such as orthopaedic and neurosurgery are considered in which robotic surgical systems and their accessory instruments can carry out surgical procedures, the market size is expected to be much bigger.

Vinie Varkey, Senior Medical Devices Analyst at GlobalData , commented: ''Being first to market, Intuitive Surgical has generated considerable interest from surgeons and industry alike and currently leads the robotic surgery category with the da Vinci product line.''

The company's da Vinci surgical system is regarded as a 'game changer' by surgeons and is used in multiple disciplines including general surgery, urology, gynaecology, thoracic surgery and transoral surgery. The system enables surgeons to perform delicate and complex operations through a few small incisions and consists of a computer console where the surgeon sits while operating, six interactive robotic arms manipulating tiny scissors and pliers and a 3D HD vision system.Â

The da Vinci system is powered by robotic technology that allows the surgeon's hand movements to be scaled, filtered and translated into precise movements of the instruments working inside the patient's body.

There are a number of factors driving growth in the robotic surgical market at this time. Increased competition is driving innovation with new entrants developing prototype products for launch over the next one to two years. Some of these companies include Medtronic, Titan Medical and Verb Surgical. Improved surgical outcomes alongside quicker patient recovery rates are also playing a key role in market performance.

Compared to conventional laparoscopic surgery, robotics enables surgeons to view anatomical details at a much higher resolution and work with more degrees of freedom, improving the surgeon's dexterity and operational outcomes. The use of these systems also contributes to quicker patient recovery time and lower postoperative complications, a primary consideration for surgeons.

Varkey continued: ‘‘In many cases, the use of these systems help to save costs by reducing the time associated with patient’s postoperative hospital stays as well as contribute to a more positive patient experience compared with conventional laparoscopic or open surgical interventions. However, there are limitations posed by these robotic systems primarily among them being the cost of acquisition.’’

The average selling price of a da Vinci system is around $1.5 million*. In a predominantly private health care system like the US, hospitals will also be factoring in the reimbursement associated with every procedure performed using these systems. Currently, surgical procedures carried out using robotic systems are reimbursed at the same rate as those procedures carried out viaÂ open or laparoscopic access. This means long capital payback periods which may be an issue for some hospitals.
In a government funded healthcare system such as the UK’s NHS, the cost of acquisition will be a primary consideration for a healthcare service facing budget cuts and continued pressure on financial resources.

Varkey adds: ‘‘The da Vinci system is a wonder of modern technology with robotic surgical systems undoubtedly offering advanced solutions for surgeons and better outcomes for patients, in some surgical specialities. As more competitor products enter the market over the next few years, costs for these systems should fall stimulating increased demand from healthcare providers and we expect to see double digit market growth
as a result.’’

*Source: Intuitive Surgical’s annual report