



# Medtronic International Ltd

---

Company: Medtronic, Inc.

Industry: Medical Technology

Department: Surgical Technologies

By Kyaw, Soe Hein (A0103612Y)

This report will reflect on the Business Department of Student working for in terms of purpose, values and responsibilities to the company and the community in large. As well as, future standing of its and how it will contribute the growth plan of the company in near future.

## REPORT 3 – The Department TG3001 – Industry Practice

Prepared for: A/Prof Tan Kok Kiong

# The Department

---

By Kyaw Soe Hein, 3<sup>rd</sup> Year B.Tech (Electronics), National University of Singapore

Company: Medtronic, Inc.

Department: Surgical Technologies

Designation: Technical Specialist, ENT, Cranial and Spine

Business: Medical Devices and Therapies

Industry: Medical Technology

## *Abstract*

The organization consists of three core business groups, **Cardiac & Vascular Group**, **Restorative Therapies Group** and **Diabetes Group**. Under **Restorative Therapies Group**, there are 3 departments serving the needs of patients; namely they are **Neuromodulation**, **Spine** and **Surgical Technologies**.

Student is currently employed under **Surgical Technologies** Department which is overseeing the whole ASEAN operation for Sales, Marketing & Support to surgeons, hospitals and patients. It is one of the highest growing divisions in Medtronic ASEAN with huge potentials for success. Currently, Surgical Technologies offers wide ranges of surgical solutions for Operation Theaters and Imaging Facilities. In this report, the purpose of the department and its operations & products, as well as the value of the department to the company to the organization and larger community will be described.

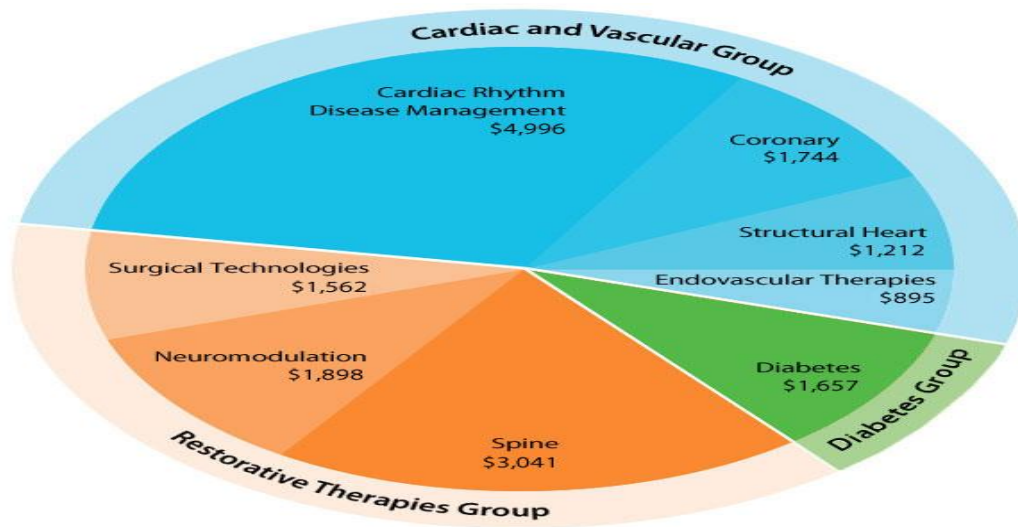
# Department Overview

---

Globally, Surgical Technologies division focuses on (ENT) Ear, Nose & Throat; Neurosurgery and Advanced Energy technologies. The department offers extensive range of applications and products in Operation Theaters and direct assistance to the surgeons and OT staffs. Impacting lives positively and directly to patients.

Surgical Technologies develops products and procedural solutions for surgical applications that include: neuro/spine, cranial and orthopedics; ear, nose and throat; and surgical oncology. We design, develop, manufacture and support healthcare providers with advanced surgical navigation and imaging solutions, powered surgical tools and systems, intraoperative nerve monitoring devices, advanced energy-based devices for hemostatic sealing and tissue dissection, and implantable devices for hydrocephalus management.

The core technologies applied are Electrical Stimulation, Surgical Navigation & Imaging, Powered & Advanced Energy Instruments and Patient/Device Management.



Surgical Technologies accounted for \$1.4 billion, or 8%, of our \$16.6 billion in total FY2013 revenue. The department is led by Mr. Mark Fletcher. The headquarters of the Surgical Technologies is located in Jacksonville, Florida.

# Department's Products & Services

Products and procedural solutions that encompass a broad variety of surgical applications in following:

- ✓ Neurological
- ✓ Spine
- ✓ Cranial
- ✓ Orthopedics
- ✓ ENT
- ✓ Surgical oncology

Let's look at the featuring products that make Surgical Technologies Department proud and enormously admired by surgeons.

<i>Implantable therapies</i>	Obstructive Sleep Apnea, Hydrocephalus and Cranial Spinal Fluid (CSF) management
<i>Nerve monitoring equipment</i>	Thyroid, Spinal and Cranial surgery
<i>Stealth Station Navigation Solution</i>	REAL time visualization and accuracy in the OR for the surgeon during brain, spine, and ENT procedures
<i>Surgical Imaging: 0-arm 3D Cone Beam CT and Pole Star MRI Devices</i>	World's only integrated imaging solutions for procedural intelligence in various spinal procedures and brain tumor resections
<i>Surgical Instruments</i>	Power Drills and Saws, Hydrodebrider and Advanced Energy solutions

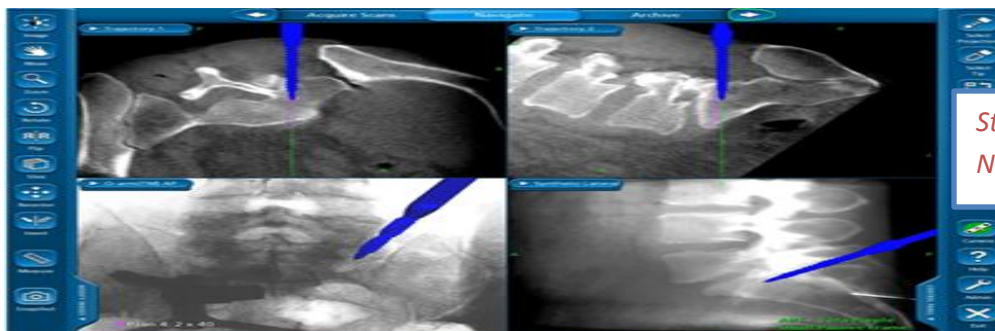


Pulsar Generator

*O-arm (Intra Operative X-ray Machine) for 3D construction*



*Stealth Station S7 for navigation during surgery  
(Apply Optical Tracking Technology)*



*Stealth Station S7 Software for Navigation*

*Integrated OR furnished with Surgical Technologies Products*





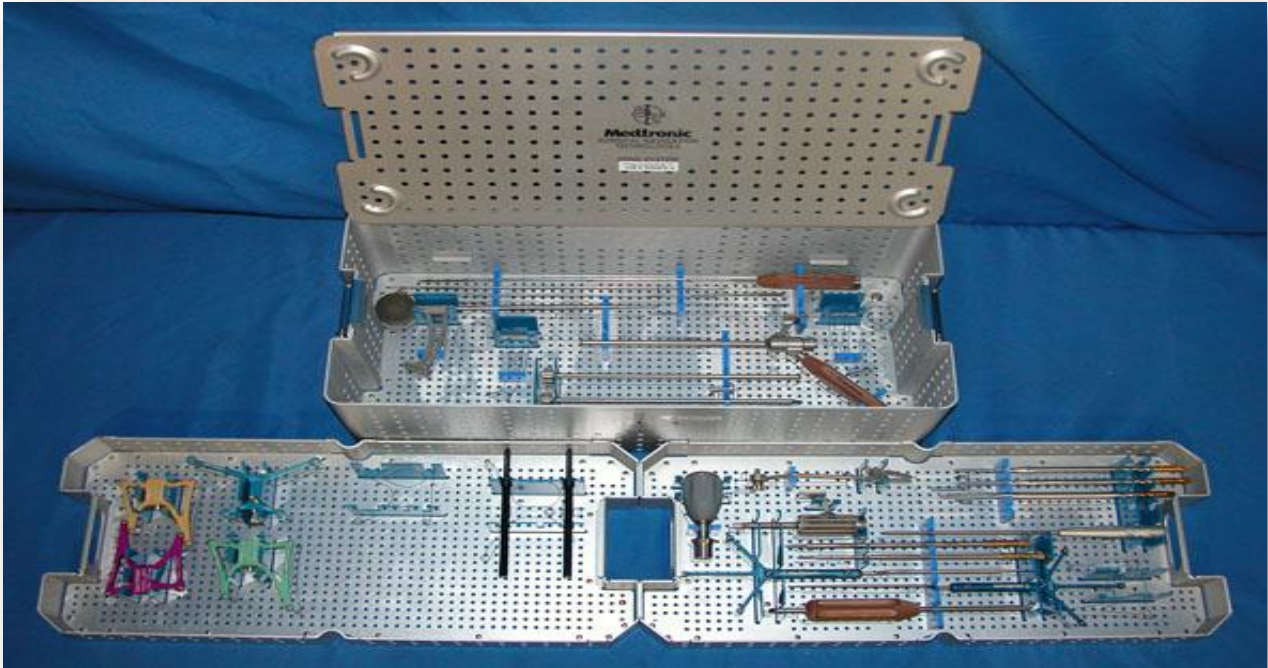
*Integrated Power Console for ENT & NT application*

*(Apply Electromagnetic Tracking Technology)*



*FUSION for ENT navigation*

Not only the systems and equipment, Surgical Technologies offer the numerous surgical instruments as well. These instruments are compatible with the Navigation software and adored by surgeons as it eases the concerns and help them in many great ways.



Above picture is the basic spine navigation sets out of numerous instruments sets in used so that reader would have the idea of how the instruments would look like.

Surgical technologies services are not limited to physical equipment supplying to surgeons, as well as clinical assistance and educational supports to the OT teams. The surgical procedures are developed by researchers and doctors in Medtronic, Inc. research & development facility which in turn offered broadly to the whole world through Surgical Technologies department.

Services are extended to these applications areas:

<p><u>ENT (Ear, Nose, Throat)</u>            Power ENT Surgery Systems            Intraoperative Nerve Monitoring Systems            Image-Guided Surgery System            Powered Sinus Irrigation Systems            Treatments for Sleep-disordered Breathing</p>	<p><u>Neurosurgery</u>            Surgical Navigation &amp; Imaging Systems            Hydrocephalus Valves and Shunts            Powered High-Speed Drill Systems</p>
<p><u>Advanced Energy</u>            Monopolar, Bipolar Sealer            Bipolar Sealer with Cutting            Tissue Dissection Devices</p>	

# Values to Surgeons & Patients as a Community

---

It is with great honor to say that the products & services offered by Surgical Technologies bring up the level of healthcare standard, levitating lives across the globe. The proven clinical results are very satisfying in a way that higher surgery succeeded outcomes, lesser revision rates, and patients' post-surgery recovery improved.

Embracing new technologies, surgeons are said to perform to the best of their ability without any technical constraint. Thanks to imaging devices and intra operative navigations, spinal procedures and tumor (Brain) surgery becomes easier, and most importantly, more accurate. Thus, many patients' lives are saved and lead to the meaningful ways of life.

There are numerous benefits that could be listed here, however, due to the space constraint, only few highlighted values will be discussed here. First of all, it is an add-value to ENT procedures with Surgical Technologies products.

With more than 90 application-specific blades and burs, Medtronic powered surgery systems help facilitate better precision, surgical access, and patient outcomes in a broad variety of ENT procedures.

## Otology, Neurotology, and Lateral Skull Base Surgery

These specialties manage diseases and disorders of hearing, balance, cranial nerves, and the skull base. It's important to have precision tools that can maneuver tight spaces, provide maximum visibility, and help you avoid injuring critical structures. Medtronic offers a broad portfolio of ENT products designed specifically for otology, neurotology, and lateral skull base procedures, from tympanostomy tube placement to advanced skull base surgery requiring a multidisciplinary approach and surgical navigation.

## Fusion ENT Navigation System

Fusion ENT Navigation System is an electromagnetic image-guided surgery system that offers reliable accuracy, ease of use, and expandability. Image-guided surgery with the Fusion system can help you navigate each patient's unique anatomy for safer, more thorough otology, neurotology, and lateral skull base procedures when operating near structures such as the brain, orbit, or carotid artery. The Fusion system allows customization for each surgeon, including procedure-specific pathways for lateral or anterior skull base, as well as surgeon-specific room setup.



### *NIM Nerve Monitoring Systems*

The facial nerve and other cranial nerves are often at risk during otologic and skull base surgery. Our intraoperative NIM<sup>®</sup> Nerve Monitoring Systems enable surgeons to identify and confirm motor nerve function and monitor major motor nerves during otology, neurotology, and skull base surgeries, as well as other procedures. The NIM Systems may provide visual and audible warnings if there is a change in nerve function, helping reduce the risk of nerve damage during surgery. With the NIM-Neuro<sup>®</sup> system, surgeons can monitor up to 8 channels of nerve-muscle combinations during complex and delicate surgeries, such as glomus or acoustic tumor removals. A convenient microscope overlay feature imports the NIM-Neuro 3.0 signal through select high-end microscopes as the surgeon operates for easy access to information.

### *Surgical Navigation and Imaging Systems*

During cranial, neurological, spinal, and orthopaedic procedures, our surgical navigation and imaging solutions enable surgeons to visualize the patient's anatomy, track the location of their surgical instruments in relation to the anatomy, navigate therapy placement, and confirm tumor resection. This helps surgeons navigate more precisely, perform less invasive procedures, and potentially improve clinical outcomes.

The StealthStation<sup>®</sup> S7<sup>®</sup> can be used during a wide range of medical procedures, its main advantages are:

- 1) Better pre – operative localisation, meaning neurosurgeons can make a smaller incision and opening in the skull, resulting in shorter scars for patients.
- 2) A lower error rate as improved localisation means that damage to healthy tissue can be avoided. This leads to decreased incidence of postoperative neurological deficits
- 3) More complete resection of tumours
- 4) A decreased length of surgical procedure time
- 5) A shorter hospital stays for our patients

# Conclusion

---

Contributing to the growth of the “Medtronic” organization, the Surgical Technologies department has more potential to make more revenues. As one can see, the department offers high technology products and serving customers’ needs with efficient service. There is great opportunity to keep in lines with competitors as the department is technical savvy and service oriented. In terms of customer support cultivating, no other department can beat the “Surgical Technologies”. It is more of “value-creating” than other sales intensive – implant products. Directly serving the community and organizing technology transfer to the hospitals and local medical organizations, the department is not short of its admirers.

All in all, the most ultimate task of the department is about “helping patients to improve their livelihood” while making fair profits which in terms contribute to the organization to sustain the department activity. Thus, it is here proudly presented the “Surgical Technologies” department’s products and services and how it contributes to the surgeons and patients as the whole.

## “Every 3 Seconds

Improving lives is part of our Mission, but what does it mean to improve a life? For the patients you’ll meet below, it means they can go back to doing the things that make them who they are – enjoying their families, performing, running, working, saving lives and even, in turn, changing the lives of thousands of others.

Last year, more than 10 million people around the world benefitted from Medtronic products or therapies.

That’s one person – one life improved – every 3 second” from Medtronic, Inc.

## *References*

- Medtronic Employee Information Handbook
- Medtronic Surgical Technology Department Products Catalogue
- Medtronic Surgical Technology Department Products Training (Internal)
- Medtronic New Employee Orientation Program
- <https://www.youtube.com/watch?v=tDGma56Zm3I>

(Medtronic Navigation on Today in America with Terry Bradshaw)

- <http://www.medtronic.com/about-us/businesses/surgical-technologies-ent-neurosurgery/index.htm>