

## WEDGEWOOD VIEW. 1<sup>st</sup> QUARTER 2005

### MEDTRONIC: THE BEAT GOES ON

Medtronic is one of the great American success stories. The inventor of the pacemaker, Medtronic is also one of the all-time great growth companies. The company has a 50 year history of reinventing itself and a growing legacy of many medical product “firsts.” Despite Medtronic’s current size (\$9 billion in revenues) the company has stayed true to its innovative form and continues to act and think and grow like a smaller company – but more on that in a bit.

Medtronic created an entire new industry with the invention of the first wearable external pacemaker in 1957 and the first long-term implantable pacemaker in 1960. Founded in 1949 by Earl Bakken and his brother-in-law Palmer Hermundslie, the company’s early years were as a medical equipment repair company in Minneapolis. As the 1950s progressed Medtronic, in addition to medical equipment repair and the selling of other manufacturer’s products, the company increasingly collaborated on the engineering of products of medical research labs throughout the Midwest. During the mid-1950s, Bakken and Medtronic engineers began research with Dr. C. Walton Lillehei, a pioneer in open heart surgery. By 1957, their research led to the discovery that by combining a pulse generator with a wire electrode attached directly to the heart, heart rates could be controlled. Shortly thereafter, Bakken developed a much smaller pacemaker powered by a 9-volt DC battery. In 1960, two doctors and an engineer from Veteran’s Administration Hospital in Buffalo published a research paper entitled, “*A transistorized, self-contained, implantable pacemaker for the long-term correction of complete heart block.*” Before the end of that year, Medtronic had secured the

exclusive rights to manufacture and market the Chardack-Greatbatch implantable pulse generator.

Over the next 40 years, the company expanded from a single line of heart pacing therapies to a multifaceted company with products to treat chronic heart conditions, correct degeneration of the spine, overcome Parkinson's disease, control chronic pain, severe spasticity and debilitating tremors and symptoms of cerebral palsy and spinal cord injury. As mentioned, the company has compiled an impressive "firsts." Here are the company's most notable:

- Multiprogrammable pacemakers
- Rate responsive pacemakers
- "Spring coil" transvenous pacing leads
- Sutureless pacing leads
- Tined pacing leads
- Tiered-therapy implantable cardioverter-defibrillators
- Implantable, programmable neurostimulation devices to control chronic pain and uncontrolled tremor
- Implantable, externally programmable drug delivery systems
- Modular coronary stents
- Distal protection systems
- Wearable continuous glucose monitoring systems
- Multiple basal and bolus programming features in ambulatory external insulin pumps
- Implantable neurostimulators for bladder and bowel control problems
- Transurethral needle ablation for benign prostatic hyperplasia or "enlarged prostate"
- Bi-ventricular pacing/cardiac resynchronization devices for heart failure
- Internet-based system that allows cardiac device patients to transmit data from their implanted devices

Medtronic's five operating segments are Cardiac Rhythm Management (CRM) (47% of revenues), Spinal Ear Nose and Throat (ENT) and Surgical Navigation Technology (SNT) (19% of revenues), Neurological and Diabetes (18% of revenues), Vascular (9% of revenues) and Cardiac Surgery (7% of revenues). In 2004, revenue growth in CRM was 17%, growth in Spinal, ENT and SNT was 31% and growth in Neurological and Diabetes 19%. During the past year, over five million patients have benefited from Medtronic products used to treat chronic and life-threatening conditions such as heart disease, vascular illnesses, diabetes and neurological disorders. As a matter of fact, every 6 seconds someone in the world is saved or their life improved by a Medtronic product or therapy. New product introductions and market

share gains propelled Medtronic's revenues by 19% over 2003 revenues and resulted in earnings per share growth of 23%. Two-thirds of Medtronic's 2004 revenues of \$9 billion can be attributed to products introduced within the last 2 years. The company expects their continued commitment to research and development, strategic acquisitions, their strong pipeline, expanded clinical trials and the addition of 600 people in various sales forces - primarily in CRM and Spinal, ENT and SNT- to provide for future strong revenue and EPS growth. Research and development currently stands at a lofty 9% of revenues, a 14% increase over 2003 as well. Twenty seven new product offerings became available in fiscal year 2004. Access to Medtronic's products is improving for patients with complex and chronic conditions such as sudden cardiac arrest, diabetes and movement disorders - which are in fact only 10 to 20% penetrated.

A sampling of a few of Medtronic's innovative products follows:

Medtronic Cardiac Rhythm Management develops products that restore and regulate a patient's heart rhythm, as well as improve the heart's pumping function. Every 90 seconds cardiac arrest strikes one American and in total, more than one million worldwide each year. Defibrillation, the only proven treatment, is an electric shock to the heart. It is only effective when applied within 3-5 minutes of the event. Medtronic produces the Maximo (released 2004) and Marquis families of implantable cardioverter defibrillators (ICD's) and the LIFEPAK line of automated external defibrillators (AED's). Less than 20% of patients in US who could benefit from ICD's have received the device. The Centers for Medicare and Medicaid Services recently decided to expand reimbursement for ICD's following a New England Journal of Medicine article that reported a 23% reduction in deaths between those heart-failure patients with the ICD's versus those only treated with heart drugs. Under this expanded coverage, the eligible population expands by 300,000 to 750,000 patients for the \$20,000-\$30,000 device. AED's are designed primarily for first responders in law enforcement, utility and military settings and are available for both commercial and consumer markets. Medtronic is the exclusive AED supplier to American Medical Response, the largest provider of medical transportation in the U.S. - with more than 4000 vehicles in 32 states. Medtronic's LIFEPAK CR plus AED's are offered to consumers online through Walgreen's

drugstores and Costco. What is truly good (if not remarkable!) news for a growing number of patients who have ICDs is Medtronic's CareLink Network. This network allows doctors to review their patient's data about implanted cardiac devices in real time and access stored patient and device diagnostics through a secure internet site which is comparable to a review at the doctor's office without having to visit the doctor. Ten thousand implant patients are being monitored through the Network in the U.S., currently, and physicians can now offer the Medtronic CareLink Network to 130,000 ICD patients and nearly 400,000 pacemaker patients.

Medtronic's 2004 introduction of the InSync II Marquis cardiac resynchronization therapy device with defibrillator backup (CRT-D) monitors fluid buildup in the lungs and alerts physicians and patients to changes in fluid accumulation in the chest cavity so they can seek timely treatment and possibly avoid costly hospitalization. Fluid buildup is a common symptom of heart failure. Heart failure afflicts 22 million worldwide. Ninety-five percent of the nearly 3,000,000 who could benefit from Medtronic's Cardiac Resynchronization Therapy (CRT) have not received it.

The Spinal, ENT and SNT operating segment develops and manufactures products that treat a variety of disorders of the cranium and spine. This operation segment will continue to benefit from the Infuse Bone Graft, which is used in conjunction with the LT-CAGE for spinal fusion. This procedure treats certain types of spinal degenerative disc disease, which causes lower back pain. In using the INFUSE Bone Graft, physicians are able to eliminate the need for a second surgery normally required to harvest bone from the patient's hip. This one-of-a-kind product is thought to become the standard of care in place of lumbar-fusion procedures. This product contains recombinant bone protein that promotes the patient to grow new bone. INFUSE was also recently approved for use in open fractures of the tibial shaft. One hundred thirty five thousand cervical spinal fusions occur each year and Medtronic is expected to be the first with an artificial cervical disc for the upper back.

A wonderful product in the Medtronic lineup of Neurological and Diabetes products is a product to treat spinal pain. This division offers therapies for movement disorders, chronic

pain and diabetes. Patients who once needed surgery - sometimes as often as once a year when the batteries of their implantable spine stimulation devices ran down -can now recharge their batteries once a month while watching TV or sleeping. These rechargeable batteries can last up to nine years and sell for about \$18,000. These devices are implanted under the skin of the lower back with wires that deliver electrical pulses to the spine.

Diabetes affects 200 million worldwide and Medtronic has recently introduced their Paradigm 512 and 712 insulin pump systems that calculate insulin dosages for patients and keep track of insulin still active in the body. Recently, the FDA approved a product that can alert patients and parents of children with diabetes to take action when glucose levels become too high or too low. Medtronic's Guardian Continuous Glucose Monitoring System will sound an alarm when treatment is vital.

On the vascular side, Medtronic offers products and therapies that treat a wide range of vascular diseases and conditions. The company is hoping to release its Endeavor Drug-Eluting coronary stent (DES) in Europe this year and in the U.S. when it receives regulatory approval in 2007. Drug-eluting stents are mesh-like metal tubes inserted into arteries that periodically release chemicals into the arteries to reduce the risk of reclogging after vessel-clogging plaque has been removed. Admittedly, Medtronic is behind Johnson and Johnson and Boston Scientific in the DES market, since both companies currently make these products available and control the lion's share of the market, yet the Endeavor stent is promising.

Medtronic has not only been an outstanding growth *company* over many years, but during the 1990s Medtronic was one of the great growth *stocks*. To see chart a chart of Medtronic stock from the early '90s to 2001 will bring tears to an investor's eyes.

Of course, anything that Wall Street does well, it invariably and inevitably does to excess. At Medtronic's valuation peak (re: popularity) in late 2001, the stock was valued at 70X earnings! Since 2001, earnings have doubled and with the stock currently at \$50 per share (17% less than the all-time high posted in 2001) valuations are significantly more reasonable.

Innovation is the life blood at Medtronic. Two-thirds of their revenue comes from products or therapies released over the past two years. Most of their markets in the United States are less than 40% penetrated. Outside of the U.S., market penetration is less than 20%. The company claims that their total market opportunity is as large as \$80 to \$100 billion. We therefore expect Medtronic to grow in the mid double-digits for many years to come.

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