“The story of Medtronic is one of men and women who have dedicated their lives and careers to helping real people overcome pain and disability to lead more normal, happy lives. It’s a story I never tire of hearing or telling.”

MEDTRONIC CO-FOUNDER EARL BAKKEN

Over a span of 60 years, Medtronic has grown from a tiny electrical repair shop in a Minneapolis garage to the global leader in medical technology.
Our Founding Spirit

Medtronic was founded by two unlikely heroes from Columbia Heights, Minnesota. One, Earl Bakken, a curious inventor who was fascinated with electricity at an early age. The other, Palmer Hermundslie, a tireless go-getter with an eye for business opportunities.

Did these two men set out to change medical technology and the lives of millions of people? No. But they did have a deep moral purpose and an inner drive to use their scientific knowledge and entrepreneurial skills to help others.

That spirit—combined with our founders’ personal integrity and passion—became our guiding philosophy and, ultimately, the Medtronic Mission.

As a toddler, Earl was already tinkering with wires, cords, and plugs. By age 16, he was experimenting with photographs, creating a series of double-exposed photographs showing “two Earls” or contrived scenes.

Palmer, an innate entrepreneur, set up his own ice business as a teenager. After co-founding Medtronic, he worked days at a lumberyard to make ends meet and nights at his kitchen table doing company business.

A pivotal moment in Earl’s life came at age 8 or 9, as he sat watching a matinee of Boris Karloff’s 1931 Frankenstein. The young inventor was fascinated by the story of a “mad scientist” who brings a man to life using electricity.

After serving in the Army Air Corps, Palmer returned to Minneapolis in 1944, testing aircraft equipment for Honeywell and giving generously to many charitable causes. While serving on the local school board, Palmer oversaw construction of three schools, experience he later used overseeing numerous Medtronic construction projects.

By the time Earl was in high school, the self-described “nerd” was taking care of movie projectors and electrical equipment, and drawing plans for radios and rocket ships.
The History of Medtronic

Medtronic was born of serendipity. As an electrical engineering graduate student, Earl Bakken spent much of his spare time at nearby hospitals, eagerly volunteering to repair malfunctioning medical equipment. When Earl mentioned this to his brother-in-law, the enterprising Palmer Hermundslie recognized a business opportunity. In 1949, the two started a repair business focused on medical electronics. Hence, the name Medtronic.

“As an electrical engineering graduate student, Earl Bakken spent much of his spare time at nearby hospitals, eager to repair malfunctioning medical equipment. When Earl mentioned this to his brother-in-law, the enterprising Palmer Hermundslie recognized a business opportunity. In 1949, the two started a repair business focused on medical electronics. Hence, the name Medtronic.”

JOHN BRAVIS, employee #3

“On a typical day, Earl would come by and give me a schematic drawn on a grocery bag. We’d cut the bags open and have a nice big piece of paper. I don’t think we had a cash register; seems to me we had a cigar box.”

Earl Bakken at work in the Medtronic garage in 1955.

Medtronic employees celebrating the sale of the 100th external pulse generator in 1959.

Our first “office” was two old boxcars at the Hermundslie family’s home in Minneapolis that had served as a garage and woodworking shop. In the summer, Palmer used a garden hose to wet down the roof in an attempt to provide makeshift air conditioning.

A turning point for Medtronic came in 1950 when Earl and Palmer decided to sell medical equipment for the Sanborn Company of Boston, Massachusetts. Palmer built, transported, and set up a trade show booth himself. At the shows, he got a chance to talk with doctors and learn what they wanted and needed from Medtronic.

As the volume of work increased, Earl and Palmer added a handful of employees and upgraded the spartan facility, adding a furnace and bathroom. The common purpose of creating a company from scratch created a sense of camaraderie among the “garage gang,” who ate lunch around a card table, listening to the radio. Shown here are Roger Hanson and Bob Wingrove (left) and Joe Backus and John Bravis (right).
When the lights went out in Minneapolis on Halloween, 1957, Medtronic was in the right place at the right time. Much of our early work was for Dr. C. Walton Lillehei, a pioneering open-heart surgeon at the University of Minnesota Hospitals.

Lillehei’s patients often needed to be attached to a pacemaker following surgery while they healed. But existing pacemakers were large, bulky boxes wheeled on carts and plugged into an electrical outlet. When the power outage put his patients’ lives in danger, Lillehei asked Earl if Medtronic could create a battery-operated pacemaker.

It took Earl only four weeks to create the revolutionary device and begin saving lives. Thanks to Lillehei’s extensive writing about it, the “wearable” Medtronic pacemaker was soon being shipped to doctors around the world.

Earl’s hand-drawn schematic for the battery-operated external pacemaker was inspired by the circuit for an electronic, transistorized metronome, which he saw in an issue of Popular Electronics.

“We tied it on me on Good Friday, March 27, 1959. That was a day I’ll never forget.”

Warren Mauston, the first patient to benefit from permanent pacing of his heart, became something of a celebrity, showing off his Medtronic pacemaker to surgeons and cardiologists who came to the Minneapolis area to learn about the device. Mauston survived for six years with his pacemaker.

Palmer, an accomplished pilot, flew his Beechcraft Bonanza all over the United States carrying out Medtronic business and delivering pacemakers to customers.
Things were looking good for Medtronic at the start of 1960. Our product line had expanded beyond pacemakers, sales were close to the half-million-dollar mark, and we had a strong reputation around the world.

But a financial crisis nearly bankrupted Medtronic. Heavy spending on research and development, additional staff, and a new headquarters resulted in mounting losses.

The solution? Sell stock in the company to raise capital. A local venture capital company agreed to invest—on the condition, two of its executives join the Medtronic board. They instituted strict financial controls and, more importantly, forced Earl and Palmer to decide where the company was going. It was a transformative moment, resulting in the birth of the Medtronic Mission.

“Bill Dietrich [of venture capital firm Community Investment Enterprises] brought me a bucket with holes in the bottom of it and had me pour water on top. There were so many holes in the bottom that you could never fill the bucket. He said we’ve got to plug a lot of our expenses if we want to have something left in the bucket.”

EARL BAKKEN

In the 1960s, our product line consisted of more than 20 devices, including pacemakers, a gastrointestinal stimulator, an animal respirator, and a vein eraser.

Palmer (shown) and Earl both worked a year without pay during the financial crisis. Palmer frequently put his own money into Medtronic to keep it afloat, and walked along Central Avenue in Minneapolis persuading many friends and local business owners to invest in the fledgling company to avoid bankruptcy.

The cover of Medtronic’s first public offering of convertible subordinated debentures, 1960.
The History of Medtronic

At a meeting of the Medtronic Board in 1960, Earl Bakken first sketched an outline of what became the Medtronic Mission. It didn’t take him long, because he knew that what kept employees from taking better-paying jobs was the sense they were doing something important at Medtronic.

So our focus became devices that restored people to meaningful lives. The words Earl penned are the same set of principles that guide us today. They continue to provide an ethical framework and an inspirational goal, reminding us that our efforts are transforming millions of lives around the world.

Our Mission

To contribute to human welfare by application of biomedical engineering in the research, design, manufacture, and sale of instruments or appliances that alleviate pain, restore health, and extend life.

To direct our growth in the areas of biomedical engineering where we display maximum strength and ability; to gather people and facilities that tend to augment these areas; to continuously build on these areas through education and knowledge assimilation; to avoid participation in areas where we cannot make unique and worthy contributions.

To strive without reserve for the greatest possible reliability and quality in our products; to be the unsurpassed standard of comparison and to be recognized as a company of dedication, honesty, integrity, and service.

To make a fair profit on current operations to meet our obligations, sustain our growth, and reach our goals.

To recognize the personal worth of employees by providing an employment framework that allows personal satisfaction in work accomplished, security, advancement opportunity, and means to share in the company’s success.

To maintain good citizenship as a company.
The History of Medtronic

How did our Mission become the inspiration for everything we do? Early on, our co-founders maintained a strong, direct connection between the everyday work of employees and the life-changing impact our technologies have on people around the world. In the first decade, an engineer built a device from start to finish, so when a patient knocked on the door to meet the people responsible for his or her “miracle,” the engineer and patient could sit down and chat over coffee.

As we grew, the connection was maintained through patient tours and physician visits. Today, the most prominent and poignant connection is our annual Medtronic Holiday Program, where we invite physicians and their patients to come and share their stories.

“[We are restoring people by the millions to full life. That helps people feel positive about their efforts.]”

EARL BAKKEN

Medtronic holiday parties started as the typical corporate affair with dinner, but in the 1980s came to represent a time for us to reconnect with our Mission and the impact we have on people’s lives. Each year, we invite physicians and patients to come and share their stories. Shown above is Stacey Brickson, who shared her story about receiving a Medtronic artificial cervical disc at the 2007 holiday event. Shown below, at the same event, is (left) Earl speaking in the same plaid jacket he has worn to the event every year and (right) the employee choir, the Metronomes, performing.

Earl regularly met with people who benefited from Medtronic therapies, including Lyla Jane Koch in 1986. She received a Medtronic pacemaker when she was only one month old.

John Garry drove from Denver to Minneapolis in 1972, expressly to visit the place where his pacemaker was made. Medtronic tour guide Raeanna Sollin showed him around the St. Anthony, Minnesota, production facility.

Program cover from 1968.
The History of Medtronic

Medical Technology Innovations To Advance Our Mission

We were barely out of the garage in 1961 when we began putting a heavy emphasis on research that continues to this day—because by developing new technologies, we’re able to improve even more lives.

We leveraged our expertise in cardiac stimulation to explore neurostimulation to suppress pain and deep brain stimulation to control the debilitating symptoms of movement disorders.

From there, we continually applied, developed, and acquired many more core technologies that are used in numerous therapies to alleviate pain, restore health, and extend life for millions of people around the world.

The Cardiac Pacemaker Evolution

1958
5800 The first commercially produced, battery-operated, wearable external pacemaker.

1960
Chardack-Greatbatch Our first commercially produced implantable pacemaker was named after the men who pioneered it.

1986
Activitrax We created a revolutionary pacemaker that automatically adjusted the pacing rate to match the patient’s level of physical activity, instead of the usual one-size-fits-all fixed pacing rate.

1990
Micromini The world’s smallest pacemaker—weighing only 17 grams, with dimensions of 40 mm x 32 mm x 7 mm thick—was used for children and adults with low body weight.

2011
Revo MRI SureScan Our latest pacemaker innovation has specially designed electronics that can be used in certain MRI environments, giving pacemaker patients access to the latest diagnostic imaging technology.

A Sampling of Our Innovative Therapies

Deep Brain Stimulation
Our deep brain stimulation systems use a pacemaker-like device implanted in the chest, which sends tiny electrical pulses to carefully targeted areas of the brain to block unwanted symptoms, such as the trembling of movement disorders or the anxiety of obsessive-compulsive disorder.

Insulin Pump with Continuous Glucose Monitoring
People with diabetes must constantly monitor their blood sugar, or glucose, levels to know when and how much insulin they need. We developed a glucose monitor, inserted just under the skin of the abdomen, that automatically measures glucose levels every few seconds and wirelessly sends the data through a transmitter to the patient’s insulin pump display, so the patient can adjust insulin levels if needed.

Surgical Navigation and Imaging Systems
Our surgical imaging and navigation systems help surgeons perform precise tasks with greater accuracy by helping them “see” inside the body. For example, a surgeon can see on a monitor the exact location of an instrument relative to a patient’s anatomy, or to confirm that an implant was positioned correctly. By improving accuracy, our navigation and imaging tools may enable surgeons to improve clinical outcomes and may reduce the need for repeat surgeries.

IMPORTANT SAFETY INFORMATION
Always talk to your doctor about the risks and benefits of any treatment options, and whether a particular therapy is right for you. For more information on the risks and benefits of our therapies, visit www.medtronic.com.

Transcatheter Heart Valve Replacement
Our transcatheter pulmonary heart valves* allow surgeons to replace heart valves with minimal disruption to the patient. The artificial valve is delivered inside a catheter, which is typically inserted into the femoral artery in the groin and threaded up to the heart, where it is expanded into place and immediately begins taking over for the patient’s native heart valve.

* Product approved under a Humanitarian Device Exemption.
Our Therapies

Chronic disease is the leading cause of mortality worldwide and a significant financial burden on society. Our products, therapies, and surgical technologies are used to treat many chronic conditions to help improve quality of life and advance healthcare.

Cardiac Rhythm
1. Atrial Fibrillation
2. Slow Heart Rates (Bradyxcardia)†
3. Fast Heart Rates (Tachycardia)†
4. Heart Failure‡
5. Asymptomatic, Irregular Heart Rates‡

Coronary
6. Coronary Artery Disease

Structural Heart
7. Heart Valve Disease
8. Congenital Heart Disease

Endovascular
9. Peripheral Vascular Disease
10. Aortic Aneurysms

Spinal and Orthopedic
11. Cervical Degenerative Disc Disease†
12. Scoliosis†
13. Degenerative Disc Disease†
14. Spinal Fracture†
15. Lumbar Spinal Stenosis†
16. Tibial Fractures†
17. Orthopedic Trauma†

Ear, Nose, and Throat
18. Sinus Diseases†
19. Thyroid Conditions
20. Otologic Disorders†
21. Sleep-Disordered Breathing
22. Pediatric Conditions†
23. Ménière’s Disease

Neurological
24. Parkinson’s Disease†
25. Essential Tremor†
26. Dystonia†*
27. Hydrocephalus†
28. Obsessive-Compulsive Disorder‡*
29. Severe Spasticity associated with Multiple Sclerosis, Cerebral Palsy, Stroke, and Spinal Cord and Brain Injuries
30. Brain Tumors and Other Lesions†
31. Chronic Pain
32. Subdural Hematomas
33. Cranial Trauma†

Urological/Urogynecological and Gastroenterological
34. Overactive Bladder and Urinary Retention
35. Nausea and Vomiting associated with Gastroparesis‡
36. Fecal Incontinence

Diabetes
37. Diabetes

* The Medtronic therapy for this disorder is available in the United States through a Humanitarian Device Exemption. The effectiveness of the therapy for this disorder has not been demonstrated.
† In addition to devices that treat these conditions, we offer Image-Guided Navigation Surgical Systems to help surgeons.
‡ Remote Monitoring available with select cardiac devices for clinicians to follow patients and their implanted cardiac devices remotely, eliminating the need for some in-office visits.

We also offer advanced energy electrosurgical instruments indicated for use in orthopedic, spinal, thoracic, reconstructive plastic, surgical oncology, ear, nose, and throat (ENT), and general surgery procedures.
Global Expansion Through The Years

1967 - Tinie Haasgma was our first European employee, helping us open our first international office in Amsterdam’s Schiphol Airport.

1968 - We established Medtronic Canada, Ltd.

1969 - We opened our first European regional headquarters in Paris, France. It was moved to Brussels in 1991 and then to Tolochenaz, Switzerland, in 1997.

1970s - We began serving India. During this period, we also made forays into China and other emerging markets, where we learned the importance of providing physician training, and making our technologies more accessible.

1972 - We opened our first European regional headquarters in Kawasaki, Japan. It was moved to Singapore in 1999.

1974 - By the time we celebrated our 25th anniversary, we were serving more than 70 countries. Our Annual Report that year highlighted international growth, with scenes around the world.

1975 - We established our first Asia-Pacific headquarters in Kawasaki, Japan. It was moved to Singapore in 1999.

1977 - We opened a miniature assembly plant in Sao Paulo, Brazil, in part due to growing Latin American demand for pacemakers to treat Chagas disease, a tropical parasitic disease that can lead to serious heart disorders.

1979 - We opened our first European regional headquarters in Paris, France. It was moved to Brussels in 1991 and then to Tolochenaz, Switzerland, in 1997.

1980 - We opened a Greater China regional headquarters in Shanghai that includes an education center where more than 9,000 physicians are training annually.

1981 - We developed our first pacemaker for the European market.

1982 - We opened our first education center in the United States.

1983 - We opened our first medical office building in Minneapolis, Minnesota.

1984 - We opened our first office in Mexico City.

1985 - We opened our first office in Canada.

1986 - We opened our first office in Brazil.

1987 - We opened our first office in Argentina.

1988 - We opened our first office in Australia.

1989 - We opened our first office in India.

1990 - Our first Bakken Education Center opened in Minneapolis, Minnesota, to give physicians hands-on training with our technologies. Today we have education centers around the world.

1991 - We opened a new world headquarters in Fridley, Minnesota. It was more than 10 times larger than our previous headquarters.

1992 - We opened our first office in China.

1993 - We opened our first office in Japan.

1994 - We opened our first office in Korea.

1995 - We opened our first office in Taiwan.

1996 - We opened our first office in Indonesia.

1997 - We opened our first office in India.

1998 - We opened our first office in Russia.

1999 - We opened our first office in Ukraine.

2000 - We opened our first office in China.

2001 - We opened a new world headquarters in Fridley, Minnesota. It was more than 10 times larger than our previous headquarters.

2002 - We opened our first office in South Korea.

2003 - We opened our first office in Taiwan.

2004 - We opened our first office in Indonesia.

2005 - We opened our first office in India.

2006 - We opened our first office in Russia.

2007 - We opened an 820,000-square-foot facility in Mounds View, Minnesota, making it the largest Medtronic complex in the world, housing more than 3,000 employees.

2008 - We opened our first office in Ukraine.

2009 - We opened our first office in China.

2010 - We opened a Patient Care Center in Beijing that offers hands-on education about available therapies.

2011 - We opened a Greater China regional headquarters in Shanghai that includes an education center where more than 9,000 physicians are training annually.

2012 - We developed, manufactured, and marketed our therapies in more than 140 countries. We have more than 200 manufacturing facilities, sales offices, research centers, and education centers around the world.

2013 - We opened a Patient Care Center in Shanghai.
Financial Growth

Medtronic’s first monthly income was a mere $8 for repairing a centrifuge. Like most start-ups, we survived the early years through cash injections from our co-founders and bank loans.

A bankruptcy crisis in the early 1960s was averted, and a renewed sense of purpose from the Medtronic Mission helped turn our financials around in just four years.

In 1977, our stock traded on the New York Stock Exchange. By 1985, we were listed among the Fortune 500 largest publicly held companies in America. By 1991, we reached $1 billion in annual sales. In 2013 annual revenues were more than $16 billion, thanks to continuous innovations and a commitment to our Mission.

“I have to tell you that making money is not our main goal, but we also recognize that if we don’t do a good financial job, the other objectives don’t mean a thing.”

EARL BAKKEN, Special Report to Shareholders, 1976

Back in 1960, before it was expected that companies give back to their communities, the Medtronic Mission included the tenet “to maintain good citizenship as a company.” The holiday blood drives and emergency pacemaker donations of the early years expanded into more proactive efforts around the world. In 1978, we formalized our societal commitment by creating the Medtronic Foundation.

Today, Medtronic Foundation programs are closely aligned with our company focus on improving people’s access to quality healthcare, educating future generations of healthcare innovators, and supporting the efforts of employee volunteers.

A Good Citizen Around The World

Medtronic employee Greg Marik mentored a Tennessee high school team competing in FIRST Robotics, an international competition that challenges students to build a robot to solve a specific problem.

In Malaysia, Medtronic volunteers played games with underprivileged children and delivered toys, books, school uniforms, and groceries.

In Austria, Medtronic employees cooked a meal at a homeless shelter as part of Project 6, a global volunteer program named for the sixth tenet of our Mission, “to maintain good citizenship as a company.”

In the Netherlands, Medtronic volunteers treated people who are chronically ill, disabled, or isolated to an afternoon at a local park, followed by coffee and cake.

3 out of 4 Medtronic employees participated in volunteer projects in 2011.

Helen Jackson gives moral support to Clayton Dorfe during a blood drive at Medtronic’s Rice Creek, Minnesota, plant in 1970.
“Nothing I can say about Medtronic today makes me happier or more optimistic about the future than the fact that the Mission is deeply embedded as a permanent part of the culture.”

EARL BAKKEN