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Further, Together

EVOLVING MEDTRONIC IN A TIME OF **HEALTHCARE TRANSFORMATION**

PERSPECTIVE SYNOPSIS: Medtronic is evolving by innovating in new ways and collaborating with new partners globally to bring meaningful innovations to market, finding ways to align value among the system's stakeholders, and increasing access to care around the world. Recognizing that no one can solve the world's healthcare challenges alone, Medtronic is committed to working in partnership with others so that we can all witness the benefits of value-based healthcare.

During the six decades of Medtronic's existence, our Mission has remained the same: to alleviate pain, restore health, and extend life for people around the world. We have worked hard to be at the forefront of medical device innovation, challenging ourselves to develop high-quality therapies that positively impact people's lives. We have accomplished a lot — today more than 62 million people benefit from our technologies each year, equating to two people every second.

But, we also know that we participate in global healthcare systems that are facing intense clinical and economic challenges. If not corrected, these issues may serve to undermine global growth and development and leave millions around the world untreated — for even the simplest diseases. We believe that what got us to the current state of healthcare is not necessarily what will propel us forward. The future of healthcare requires new approaches and new forms of innovation.

HEALTHCARE'S GROWING CHALLENGES

At Medtronic, we believe the history of medicine has been and will be a continuous quest to ensure that people receive the life-saving or life-enhancing treatments they need to return to full life. We also recognize that access to quality healthcare is a fundamental right of all people around the world.

The quest for better healthcare stems from foundational or universal healthcare needs for any healthcare system. The goals of improving clinical outcomes, expanding access, and optimizing cost and efficiency are fundamental to all healthcare systems around the world.

While these universal healthcare needs are fairly clear, our collective ability to deliver on these goals is complicated by a range of challenges, including an aging global population, an increasing burden of chronic disease, legacy payment and delivery systems with misaligned incentives, and government policies and regulatory systems that, at times, can be cumbersome. Healthcare leaders around the world are increasingly acknowledging that our current approaches aren't effective or sustainable.

The future of healthcare requires new approaches and new forms of innovation.

What has made tackling these challenges even more difficult is the disjointed and inefficient nature of how healthcare is delivered. While physicians and healthcare practitioners perform exceedingly well and with the utmost expertise, they operate in healthcare systems that have traditionally rewarded volume of care over value of care. These fee-for-service or procedure-based payment and delivery systems are typically highly fragmented, siloed and disconnected — leading to one of our new challenges: inefficient, uncoordinated care. This is especially true for patients with chronic disease — the most costly patients who routinely traverse our medical systems. Patients may have the same test ordered multiple times by different departments in a hospital or from various specialists they are seeing. Data and information does not follow the patient, and so doctors, nurses and caregivers operate with only a part of the picture of a patient's real status. Coordination between public and private payers, hospitals, and industry can be lacking, contributing to waste and inefficiencies that consume precious healthcare dollars. In fact, it's estimated that 20 to 40 percent of resources spent globally on health are wasted every year.[1]

In short, our current siloed healthcare systems are struggling to deliver on what they were set up to do — deliver quality, affordable patient outcomes that return people to fuller, more productive lives.

DRIVING FOR MORE ALIGNED, VALUE-BASED CARE

Healthcare systems around the world are experimenting with different ways to incentivize health systems to address these problems. In the United States, the Affordable Care Act has served to promote the experimentation with new models of care that promote integration or care coordination across a patient's care continuum. Meanwhile in the United Kingdom, the National Health Service (NHS) in 2013 made a commitment to bring together local authorities, care and support providers, housing services, public health workers, and others to make further steps toward better integrated care.

Additionally, to address underlying payment systems, the Centers for Medicare & Medicaid Services (CMS) is putting into

place new financial incentives that reward the quality of care provided rather than the volume of care. In January 2015, the U.S. Department of Health and Human Services set a goal of tying 50 percent of traditional, or fee-for-service, Medicare payments to quality or value through alternative payment models, such as Accountable Care Organizations or bundled payment arrangements by the end of 2018.[2]

As part of these reform efforts and others seen across the globe, the focus on seamless care and value-based healthcare is a promising attempt to realign health systems toward thinking about what really improves patient care over the long term.

RESHAPING MEDTRONIC TO SUPPORT VALUE-BASED EFFORTS

At Medtronic, we believe that our technologies, the data and insights they create, and our expertise can be combined in partnership with hospitals, payers, and governments to help establish aligned, value-based healthcare models that can deliver better patient outcomes — while maintaining or reducing costs.

We recognized the trend toward increasing value several years ago and committed ourselves to thinking and working in new ways to ensure we are contributing to driving more value in our offerings. We began our evolution by introducing a concept called "economic value," incorporating it as a cornerstone of our business strategy in 2012. In short, we saw a shift in what our customers expected from us. They didn't just need clinical value from our therapy innovations; they needed economic value as well. The product or service we delivered had to provide an economic benefit, such as making care delivery more efficient, minimizing system waste, or expanding patient access to therapies. As part of this initiative, we instituted an economic value training program that, to date, has educated 85,000 Medtronic employees worldwide on the fundamentals of economic value and its importance to the future of our healthcare systems. We have incorporated these principles into our research and development, clinical studies, healthcare reimbursement, market development, and commercialization areas. We have also conducted numerous economic studies on our medical devices over the last three years.

Medtronic's goal is to ensure that the power of technology is considered and leveraged within healthcare systems as a means by which to deliver better patient-centered outcomes.

This strategy expanded in 2013 when we identified an opportunity to increase value not only with our devices but also through our clinical expertise and healthcare system knowledge. That's one of the reasons we created the Medtronic Integrated Health Solutions (IHS) business that moves beyond devices to focus on system-level services and solutions. Today, Integrated Health Solutions is helping hospitals and health systems align value across the care continuum by delivering more efficient and improved care to patients.

Through IHS, we saw an opportunity to use our knowledge of chronic disease and technology to invest in and grow patient care management solutions. In 2013, we purchased CardioCom, a company that utilizes home-based, remote monitoring technologies and telehealth nurse support to manage heart failure patients at home. The CardioCom approach has served to reduce unnecessary hospitalizations, increase patient outcomes and satisfaction, and importantly — lower costs. Medtronic believes we can play a supportive role for providers and clinics by augmenting their care management strategies through our remote monitoring technologies and service offerings.

Finally, Medtronic is also committed to bringing our financial assets and business expertise to bear in our partnerships. We are using our strong financial assets and cash to underwrite pilots and demonstration projects; invest in new technology and service development for tailored needs and applications; and finance patient access and capacity-building efforts around the globe. Furthermore, we are able to offer our health system partners our business expertise in large-scale integrations and consolidations; process improvement and re-engineering; and quality management systems to ensure our new business models and partnerships utilize best-in-class operating principles.

LEADING THE VALUE-BASED HEALTHCARE EVOLUTION

While Medtronic remains focused on developing technologies and services that can drive more value into existing health systems, we are also actively leading and participating in efforts around the globe aimed at re-architecting healthcare delivery and payment systems to better reward patient outcomes in the future. Many around the world refer to this movement as "value-based healthcare." These efforts are in their earliest beginnings and will be defined and evolve over time. Medtronic's goal is to ensure that the power of technology is considered and leveraged within healthcare systems as a means by which to deliver better patient-centered outcomes. We seek to be an engaged and collaborative industry leader committed to seeing that value-based healthcare efforts are successful for patients and caregivers.

At Medtronic, we define value-based healthcare as an effort to develop and deploy products, services, and integrated solutions that improve patient outcomes per dollar

spent by the healthcare system by improving the quality of care and/or reducing the associated expense. Solutions that fit into value-based care typically are characterized by business models in which payment is based on the value created by the solution (e.g., gain-sharing arrangements), or in which payment is contingent upon improved outcomes (e.g., services provided with a guarantee or reduced payment for poor quality).

We are aggressively working with our partners to implement value-based healthcare principles and frameworks into our partnerships. We stand willing to partner with public and private payers, governments, and hospital systems interested in working together to shape and deploy value-based business models.

GOING "FURTHER, TOGETHER"

While we firmly believe Medtronic has a unique role to play in the move toward aligned, value-based care, we know we can do more. We have the ability to create powerful new technologies and services to achieve better outcomes for patients at a reduced cost. And, we fundamentally recognize that no one single entity can completely move the health system in this direction. Only through collaboration and partnership can we all achieve the benefits of value-based healthcare.

We call this new approach "Further, Together." "Further," because we will continue to drive progress in innovation, and devise powerful solutions with proven clinical and economic value as the basis of our offerings and value proposition. And "Together," because we will forge new, different, and stronger partnerships to help our customers achieve their goal of delivering more seamless, integrated care across the healthcare continuum.

The main tenets of "Further, Together" focus on developing meaningful innovations at the therapy, procedural, and system levels; leveraging our capabilities and expertise to align value among the various stakeholders in the healthcare system; and expanding global access to healthcare — all while developing new partnerships with those who are committed to transforming healthcare.

CREATING MEANINGFUL INNOVATIONS

Meaningful innovations at the therapy, procedural and system levels are those that deliver better patient outcomes at appropriate costs, lead to enhanced quality of life, and can be validated by clinical and economic evidence. Medtronic is exploring many ways to rethink what this means along the full continuum of care.

This year alone we have invested $1.5 billion in research and development to bring meaningful innovations to market. One area in which we've invested heavily is the diabetes market, where an analysis by the Health Care Cost Institute recently concluded that the per capita healthcare spending for people with diabetes was found to average roughly $10,000 more per year than those without disease.[3]

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To help improve clinical outcomes and decrease the cost associated with this debilitating condition, we're working toward the development of an artificial pancreas. The device, known as a Closed Loop system, is designed to help people with diabetes achieve better glucose control through advanced protection from hypoglycemia. The system will be the first in the world to automatically suspend insulin delivery when sensor glucose levels are predicted to approach a low limit and resume insulin delivery once sensor glucose levels recover. Earlier this year, we started a pivotal study to determine the safety of this Hybrid Closed Loop system, a key step to bringing this meaningful innovation to global markets. When approved for use, the hope for patients is that this technology will be able to reduce hospitalizations and other utilization of healthcare resources, thus setting a new standard of care and reducing costs to the overall system.
Medtronic also has invested heavily in heart failure, where we provide meaningful innovations across the continuum of care to help rein in costs of the most expensive disease in healthcare today.

Every year, about one million patients are hospitalized with heart failure, costing $31 billion in direct and indirect costs.[4,5] At least half of these patients will be readmitted to the hospital within six months with an average cost of $8,184, while the average reimbursement for such a visit is $6,111, meaning hospitals will lose money on every patient that comes in for heart failure-related readmission.[6] This, in part, is why the cost to treat the condition is expected to more than double to $70 billion by 2030.[7] For these reasons, CMS included 30-day readmissions for heart failure patients within its Medicare Hospital Readmissions Reduction Program, which penalizes hospitals for readmissions above the industry average.

Medtronic engineers realized one way to help matters was to allow cardiac resynchronization therapy (CRT) devices to adapt to the individual rhythms of each patient's heart. This was accomplished with a novel algorithm, which was added to our CRT devices. Such minute adjustments ended up yielding significant value, including reducing atrial fibrillation by 46 percent,[8] and overall hospital readmissions by 21 percent.[9] The technology reduced patients' chances of readmission within 30 days by 59 percent.[10] With nearly 60 percent of eligible patients not receiving CRT devices,[11] this meaningful innovation has great potential to significantly help more patients avoid hospitalizations.

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We are going beyond devices, monitoring heart failure patients at risk via telehealth before they have an episode. This effort could also yield tremendous savings, as well as possibly prevent a worsening disease state. For example, one study of patients at the Veterans Health Administration showed the use of telehealth technologies resulted in a 25 percent reduction in bed days of care and a 20 percent reduction in the number of admissions for heart failure.[12]
Another successful example of this was demonstrated by a pilot program at Centura Health in Colorado. The program involved Medtronic's Care Management Service telehealth solution that helps nurses regularly follow up with patients about their recovery plans. The program helped reduce heart failure-related hospitalizations by 62 percent in a 30-day period following the initial hospital stay.[13]

By allowing people to resume their lives or shift a non-emergency process from the hospital to their home, we can offer a patient-centric solution while reducing costs. A report by the Institute of Medicine validated this approach, concluding that Medicare could achieve substantial savings by directing patients to home care — which is more cost-effective than institutional care — when appropriate.[14]

ALIGNING VALUE FOR STAKEHOLDERS

Medtronic is working with the global healthcare community to take our technology, services, and insights and fashion them into solutions that either drive operational efficiency within the healthcare system or augment the delivery of care through better patient care management.

Hospital margins today require systematic efficiencies to be maximized on a daily basis for hospitals not to lose money. Unfortunately, few care providers are successful in their efforts. This was illustrated in a recent report by the Ponemon Institute of more than 400 U.S. healthcare providers. The report found hospitals' and health systems' workflows wasted a significant amount of time because of inefficient communication, costing $1.75 million per hospital and more than $11 billion industry-wide.[15]

Through Medtronic's Integrated Health Solutions business, we are finding new ways to work with and within hospitals to reduce the cost of care within a risk-sharing arrangement. In a pilot program conducted at Maastricht University Medical Center in the Netherlands, Medtronic provided on-site program management to help with hospital staff training. We worked with Maastricht leaders to embed a performance improvement culture and drive improvements in efficiency, quality, clinical outcomes, and patient experience. The outcome was an estimated savings of €4.5 million in the first year of the program.

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A similar program recently was conducted with the Imperial College Healthcare NHS Trust in the United Kingdom, a major teaching hospital recognized as a center of excellence in cardiology and cardiothoracic surgery that annually treats more than 20,000 patients. We renewed aging cath lab equipment with the most innovative medical technology available, optimizing daily cath lab operations in order to improve capacity and reduce waiting lists while improving the focus on core clinical activities. In doing so, Medtronic was able to show significant value creation — including efficiency savings — estimated at £840,000 in the first year.

From a patient care management perspective, we recently took a major step forward for people living with diabetes when we acquired Diabeter, an innovative European care provider. Diabeter currently manages over 1,500 patients, practicing personalized medicine by making use of specially developed technologies, such as an electronic system that links patient and physician. This encourages self-management with diabetes care team support. Diabeter data shows that their patients have achieved significant reductions in HbA1c levels, a key measurement used to assess blood glucose control. More consistent blood glucose control has been shown to reduce long-term complications of diabetes and can reduce healthcare costs over time.

INCREASING GLOBAL ACCESS TO HEALTHCARE

If we are to improve outcomes around the world, global access to quality healthcare is a critical area of focus for the company. Equity is a matter of concern across nearly all indicators in many parts of the world, with at least 400 million people currently lacking access to care.[16]

In developed markets, we're working with governments and providers on care delivery and efficiency, while in emerging markets we're assisting with infrastructure development, therapy awareness and education, and capacity management. One service that stretches across all geographies and is imperative to improving outcomes is physician training. In the past five years alone, we've trained thousands of physicians around the globe. Recently, we completed a yearlong physician training

program in Russia that educated 4,000 physicians on everything from innovations in interventional cardiology to approaches for improving patient outcomes.

In China, a growing diabetes epidemic has been called a "catastrophe" after a report showed 114 million people in the country have the disease[17] — making it the top geography in prevalence on the planet. Medtronic has done significant work in the diabetes space, from commercializing the world's first insulin pump in 1983, to launching the world's first integrated diabetes management system in 2010 that combines insulin pump therapy, continuous glucose monitoring, and diabetes therapy management software. Yet many therapies and devices used to treat people with diabetes globally aren't readily accessible to those in need, either because of affordability or availability.

Last year, Medtronic announced a partnership with the National Institute of Hospital Administration — a think tank under China's National Health and Family Planning Commission — to research ways of building a better system for people with Type 1 diabetes. The collaboration included pilot sites at regional hospitals across the country, where the best ways to integrate care and support people with diabetes through the entire disease state are being studied. The goal is to apply these lessons nationally to reduce common complications that arise among this patient population and then extend our learning to other geographies where diabetes is taking an unprecedented toll on healthcare systems.

Emerging markets face unique obstacles in their quest to stand up and establish sustainable, high-quality, and cost-effective health systems. Access is typically impacted by location and proximity to quality health institutions, a lack of quality trained specialists and healthcare practitioners, and a lack of infrastructure or facilities.

> Medtronic believes everyone should have access to quality, affordable healthcare no matter where they live.

Recognizing these dynamics in emerging markets, Medtronic is focusing on developing market models and partnerships that establish centers of excellence where specialized tasks and procedures are housed in order to increase quality outcomes, develop physician expertise, and minimize expenditures and costs. These centers are then connected to satellite or field entities focused on patient screening, diagnosis, and post-procedure patient management. These total disease-specific patient care pathway models are showing promise around the world.

Medtronic's "Healthy Heart For All" program — which works with local hospitals and physicians to remove barriers to patient access to heart rhythm and vascular treatments — is an early and successful example of our emerging market care pathway approach. The program works to continually evaluate and improve the entire cardiac patient care pathway, and it has worked to resolve issues associated with patient awareness and screening, referral connections between general physicians and specialists, and counseling and financing options for patients who need financing assistance to access therapy options. The program works with more than 120 facilities across more than 22 cities in India. To date, more than 1,200 physicians have been trained, 147,000 patients have been screened, and more than 14,000 of these patients have received treatment.

India has also served as the home of our "Shruti" program. In India alone, an estimated 63 million people have hearing impairments.[18] One of the causes, middle ear infection, can be treated to prevent the disability, yet many individuals don't have access to healthcare. Medtronic, working with partners both local and international, created a program to raise awareness of this issue, offered free community screenings, and set up a referral pathway for patients in need of treatment. The program trained community health workers in Delhi and other areas to use otoscopes and send the images via mobile phone to physicians. Patients with treatable infections were then referred to low-cost options at partner hospitals. Nearly 115,000 people have been screened by this program, and we have identified ear infections and/or hearing loss in more than 43,000 of the people we've screened so far.

In Brazil — which was estimated to lose $49 billion due to premature deaths associated with heart disease, stroke, and diabetes in the last 10 years[19] — we're working with local government officials, leading physicians, emergency care personnel, and hospital systems to put into place the appropriate infrastructure to provide optimal care for heart attack patients. In Sao Paulo, one of the world's busiest cities, patients who suffered from one of the worst forms of heart attacks (i.e., STEMI) have had little chance to reach an appropriate hospital in time to alleviate their heart blockages.

In a program called "LATIN" (Latin America Telemedicine Infarct Network), Medtronic is working with key stakeholders to develop localized protocols and educate both cardiologists and emergency care physicians on the most appropriate care pathway for STEMI patients before they arrive at the hospital through the use of telemedicine technology. Coupled with a large-scale public education initiative to better inform the community, the LATIN program has

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significantly improved outcomes for heart attack patients in Sao Paulo. To date, 1,000 healthcare personnel have been trained on this protocol and 32,000 patients have been screened for STEMI in order to treat diagnosed patients within the acceptable timeframe that allows for their greatest chance of survival. This successful program — which reduced STEMI mortality by 12 percent in just one year — is now in the process of being replicated in geographies where similar STEMI care issues are present, including Colombia and Mexico.

To spur similar advancements in other geographies, we also offer our top employees the chance to work with government and non-government organizations to find ways to improve access to healthcare locally in underserved areas. This program, called Global Innovation Fellows, has helped us better understand why certain hospitals in Vietnam have long wait times, and we have offered suggestions on how to boost diabetes awareness in South Africa, among other initiatives.

Fundamental shifts are occurring [in healthcare] that will change how patients receive care and how we think about what real value means.

THE WAY FORWARD

Now is a truly exciting time to be working in healthcare, as fundamental shifts are occurring that will change how patients receive care and how we think about what real value means. These changes will only come to fruition if we all work together and evolve with the new framework that our healthcare system needs.

We have taken many steps to move our organization in this direction: with our acquisition of Covidien, our bigger portfolio of innovative products, our greater clinical and economic expertise, and larger global footprint, we're positioned as a stronger partner for physicians, hospital systems, patients, payers, and governments around the world. This — along with our "Further, Together" mindset of driving healthcare transformation in partnership with like-minded players across the industry — is a transformative opportunity for Medtronic to improve the value we bring to healthcare and to work with organizations that want to change the future of healthcare with us.

At Medtronic, we believe that our technologies, the data and insights they create, and our expertise can be combined in partnership with hospitals, payers, and governments to help create aligned, value-based healthcare models that can deliver better patient outcomes — while maintaining or reducing costs.

Let's go Further, Together.

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