July 8, 2019

Mr. Steve Peters
Chair, Worker's Compensation Advisory Council
Administrator, Wisconsin Worker's Compensation Division
201 East Washington Avenue
Madison, WI 53702

Dear Chair Peters and Members of the Council,

On behalf of Medtronic, I write related to the ongoing process by the Worker's Compensation Advisory Council (WCAC) to draft an "Agreed Upon Bill" for the legislature's consideration.

Medtronic is a global medical technology and services company with a variety of therapies to serve our patients. This includes FDA approved therapies such as spinal cord stimulation (SCS) and implantable drug delivery systems (IDDS) for the treatment of chronic, intractable pain. SCS is a technology implanted under the skin to deliver mild electrical pulses to the spine, modifying pain messages before they reach the brain, and has proven to provide long-term effective pain relief and improve quality of life.[1,2] An IDDS is an implanted pump and catheter, programmed by a physician, that releases prescribed amounts of pain medication directly into the intrathecal space (at a fraction of the oral medication dose), near pain receptors in the spine instead of the circulatory system.

As the WCAC is aware, we are facing an unprecedented opioid crisis. In its guidelines, the U.S. Centers for Disease Control is recommending nonpharmacologic therapy and nonopioid pharmacologic therapy as preferred treatments for chronic pain.[3] Additionally, the Food and Drug Administration's updated opioid education Blueprint includes the use of approved/cleared medical devices for pain management.[4] While SCS and IDDS do not treat opioid addiction, both provide patients a way to manage their chronic pain as an alternative or adjunct to oral opioids when conventional therapies and medications, including oral opioids, provide inadequate pain relief or intolerable side effects.

Given the opioid crisis, the ongoing need to address chronic pain in patients, and the varying recommendations of therapies like SCS and IDDS by national guideline companies, we oppose adoption of the national treatment guideline proposal. For instance, clinical data and studies used for guidelines may vary widely between competing guideline companies, resulting in guidelines that recommend different views of a particular therapy. SCS and IDDS therapies are widely-accepted, FDA approved, evidence-supported medical care that are widely covered by commercial insurers, Medicare and nearly all other state workers' compensation programs. Injured workers in Wisconsin should not be treated differently than patients with other types of insurance, and any process to create, draft, or select treatment guidelines should include significant input from local physicians – particularly those from each medical specialty involved in the workers' compensation system.

As further background, notably, clinical evidence has shown a reduction in the use of oral opioids in managing and treating chronic pain with IDDS.[5] A retrospective claims analysis found that 51% of chronic non-cancer pain patients eliminated oral opioids within one year of IDDS therapy. This elimination resulted in a 10% to 17% reduction in yearly inpatient, outpatient, and drug expenditures.[5] With regard to SCS, earlier consideration of the therapy prior to escalated opioid usage has the potential to improve outcomes in chronic pain where opioids and other treatment options have not provided adequate pain relief.[6] There is also some evidence to suggest that patients treated with SCS may be able to reduce oral opioid consumption.[7] In this forward looking study, 86 patients were evaluated after undergoing SCS surgery for the treatment of chronic pain. Fifty-three patients used opioids before SCS implantation. After surgery, 58.5% reduced or eliminated use. Attached you will find a recent Medtronic white paper related to the opioid epidemic for further discussion of this issue.

Thank you for your consideration of these comments. If you have any questions, please do not hesitate to contact us using the information below.

Sincerely,

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Enclosure

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USING MEDICAL TECHNOLOGY TO RELIEVE PAIN AND DISRUPT THE OPIOID EPIDEMIC

LIFE EXPECTANCY
in the United States has fallen for two years in a row – with systemic opioid overdose a key driver.[10,11]

Misuse Defined[3]
The use of prescription drugs without a prescription or in a manner other than as directed by a doctor, including use without a prescription of one's own; use in greater amounts, more often, or longer than told to take a drug; or use in any other way not directed by a doctor.

PERSPECTIVE SYNOPSIS

Millions of Americans are affected by pain and have been prescribed systemic opioids (typically oral) as part of their treatment plan by healthcare providers.[1] In the pain continuum, chronic pain can start with acute pain. Both pain types prompt an urgency of addressing patients' needs, often with systemic opioids. This is despite the limited evidence on the benefits of long-term systemic opioid therapy and evidence that long-term systemic opioid therapy is associated with increased risk for opioid misuse or addiction.[2] Here's what is known about the misuse of prescription opioids:

- An estimated 11.5 million Americans are misusing opioids with 62% doing so to relieve physical pain.[4]
- An estimated 25% of chronic pain patients are misusing prescription oral opioids.[5]

A CDC review of scientific evidence yielded many mitigation steps to reduce the risks associated with long-term systemic opioid use, including misuse, addiction and overdose.[6] In its guidelines, the CDC is recommending patients with acute pain ask their doctors for treatment options that do not involve prescription opioids, and nonpharmacologic therapy and nonopioid pharmacologic therapy as preferred treatments for chronic pain.[7,8] The FDA's updated opioid education Blueprint includes the use of approved/cleared medical devices for pain management as one of several nonpharmacologic treatment options healthcare providers should be knowledgeable about as part of a multidisciplinary approach to pain management.[9]

As part of the comprehensive efforts in the United States to address the opioid epidemic, device-delivered therapies are being considered as an alternative or adjunct to systemic opioids in the management of acute and chronic pain. Through greater awareness and use of device-delivered therapies, healthcare providers can reduce pain for many patients, reducing their exposure to high dose opioid and/or long-term systemic opioid use that could lead to opioid misuse and addiction. As more patients effectively take control of their pain, these patients may no longer need to turn to misusing opioids to attempt to control their pain. This could help disrupt the opioid epidemic.

Medtronic

MICHELSON TECHNOLOGY AT WORK

Burden of mortality is highest among adults aged 25 to 34 years; in this age group, **1 in 5 deaths in the United States is opioid related.**[17]

Up to **80 percent** of Americans will experience low back pain at some point in their lifetime.[19]

Medtronic Pain Therapies do not treat opioid addiction, but rather offer patients a way of managing their pain as an alternative or adjunct to systemic opioids. Medtronic has already published clinical evidence that shows reduction in the use of systemic opioids in managing and treating chronic pain with Targeted Drug Delivery and acute pain associated to vertebral compression fractures (VCF) using Balloon Kyphoplasty.[12,13] It is important to understand that not every patient experience is the same. We continue to invest in clinical trials designed to generate new evidence to help physicians make more informed pain treatment decisions.

Medtronic supports ongoing efforts by stakeholders across the U.S. – patients, providers, payers, regulators, elected officials, patient advocacy groups, and employers – as they pursue approaches for preventing and treating prescription opioid misuse, addiction, and overdose. Medtronic is playing an important role alongside other stakeholders in helping patients take control of their pain by:

- Informing patients with acute and chronic pain of their options for device-delivered pain relief as an alternative or adjunct to systemic opioids so that patients may have an informed discussion with their doctors.
- Partnering with providers to consider non-systemic opioid pain relief in treatment plans for patients with acute and chronic pain.
- Educating payers, policymakers, and regulators to enable greater patient access to medical devices shown to alleviate pain as an alternative or adjunct to systemic opioids.

SYSTEMIC OPIOIDS AND PAIN MANAGEMENT CRISES

There are two interrelated healthcare crises occurring in this area in the United States, the opioid epidemic, and the ongoing public health problem of pain management.

The Opioid Epidemic

The alarming opioid epidemic has had a devastating impact across the United States with 115 Americans dying every day from an opioid overdose.[14] In 2016, opioids were involved in 42,249 deaths and represented 66.4% of all fatal drug overdoses (63,600).[10,15] As a result, public officials declared the opioid epidemic "the worst drug crisis in American history."[16]

Urgency of this epidemic has drawn the attention of all American elected officials and regulators. One area that regulators were quick to look at was prescription opioid use. In addition to recommendations on prescribing opioids for pain relief, the CDC recommends nonpharmacological therapy and non-opioid pharmacologic therapy as the preferred treatments of chronic pain.[8] If used, prescription opioids should be combined with other therapies, as appropriate.

$95 BILLION

Economically, the societal harms of opioid overdoses, deaths, and substance use disorders is estimated to exceed $95 billion annually.[18]

Pain Management Problem

The ongoing public health problem of pain management constitutes a crisis of its own.[1] More than 100 million Americans experience chronic pain lasting greater than 3 months, costing the nation approximately $560-635 billion annually in direct medical treatment costs and lost productivity.[1] Millions more experience pain caused by a specific event (i.e. surgery, broken bones, dental work, or childbirth) that may last for 6 months.[20,21] Despite availability of effective pain treatments, barriers to achieving adequate pain relief remain for many Americans.[1]

PAIN affects more Americans and is costlier than diabetes, heart disease, and cancer.[22]

59 percent of Americans who experience persistent pain say it's not under control.[23]

Although research suggests systemic opioids are effective at reducing pain and improving function in the short term, evidence on long-term systemic opioid therapy for relieving pain is limited.[2,6] CDC has identified long-term prescription opioid use and high daily opioid doses as risk factors that could lead to abuse or overdose.[24] An estimated 11.5 million Americans are misusing opioids with 62% doing so to relieve physical pain.[4] Furthermore, risks of prescription systemic opioids are high: prescription systemic opioids contribute to ~40 percent of all U.S. opioid overdose deaths.[25]

Patients with chronic pain have voiced their frustration with the inability to access effective pain relief and the devastating sociological impacts this has had on their lives.[26] These people are victims of chronic pain and the effects of the opioid epidemic on our society. Patients deserve other options for pain management through access to effective alternate and adjunct pain therapies.

INSPIRED TO PROVIDE BETTER PAIN MANAGEMENT

Medtronic has more than a 40-year history of developing innovative medical devices that have been shown to alleviate pain in different disease states.[27] Moreover, we have established expertise to demonstrate clinical outcomes and health economics of these products.

Given the current opioid epidemic and pain management crisis, our work to alleviate pain has never been more critical. That is why we leverage our capabilities and product portfolio in partnership with stakeholders — patients, providers, payers, regulators, elected officials, patient advocacy groups, and employers — to address the unmet needs of pain patients.

An estimated 21% to 29% of patients prescribed opioids for chronic pain misuse them.[5] And, between 8% to 12% of these patients develop an opioid use disorder.[5]

We are aware no single entity can solve America's opioid and pain crises alone. It is when we work in partnership that we expand patient access to non-systemic opioid pain management therapies. Therefore, we are pursuing collaboration with others in pain management to:

Broaden Therapy Awareness and Advocacy

- Increase stakeholder **awareness** of the clinical and economic evidence of device-delivered therapies along with the risks of long-term systemic opioid use to treat pain.
- Leverage social media networks, pain advocacy groups, and local treatment clinics to heighten **patient awareness** to device-delivered options that have been shown to treat pain or painful conditions. Only a physician can decide if these therapies are right for a patient.

Deliver Innovation

- Develop **novel payment models** for private and public payers that will help healthcare providers deploy evidence-based clinical workflows, guidelines, and policies for device-delivered therapies to manage pain or painful conditions.
- Explore with industry partners the **use of medical technology** to track objective patient metrics, coupled with clinical workflows, to deliver and monitor non-systemic opioid pain relief.

Advance Clinical and Economic Evidence

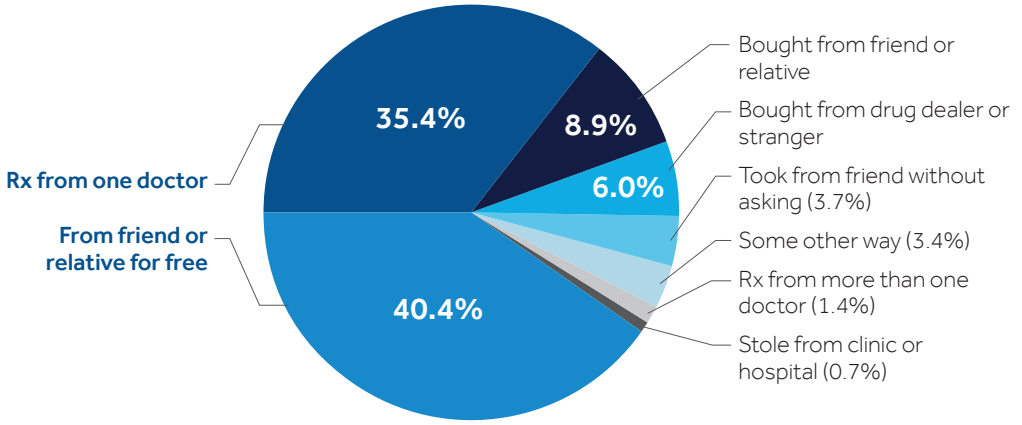
- Expand the body of existing **clinical and economic evidence** (independently and through partnerships with providers and payers) on the ability of Medtronic Pain Therapies — coupled with clinical workflows — to reduce or eliminate systemic opioid usage.
- Educate state and federal government officials about the need for **policies to ensure patient access** to the clinical and economic benefits of device-delivered therapies for pain or painful conditions.

MISSION-DRIVEN TECHNOLOGY TO IMPROVE OUTCOMES

With our company mission to alleviate pain, restore health, and extend life, Medtronic strives to be at the forefront of medical device innovation, challenging ourselves to develop high-quality therapies for pain or painful conditions. Our view is that medical technology should not be only for reducing pain, but also for improving quality of life. And at every stage of the process — from technology advancements to physician training — we strive to understand the patient experience through the principles of human-centered design.[28]

The Medtronic Pain Therapies portfolio includes implantable medical devices for Targeted Drug Delivery (TDD) and Spinal Cord Stimulation (SCS) for chronic pain. Our portfolio also includes products indicated for: vertebral augmentation therapies such as Balloon Kyphoplasty (BKP) for vertebral compression fractures (VCF) due to osteoporosis, cancer or benign lesion; Osteocool™ radiofrequency ablation of painful bone tumors; and Sacroplasty for the treatment of pathological sacral fractures. These minimally invasive technologies treat these conditions, which are associated with acute pain. To date, over a million patients have received treatment from Medtronic Pain Therapies.[29] As with any surgery, the medical devices discussed in this paper carry significant risks. Please refer to the important safety information at the end of document.

The source from where Pain Relievers were obtained among people whom misused prescription Pain Relievers[4] *(Year 2016, 11.5 million people age 12 or older)*



While these therapies do not treat addiction, they can help patients manage their pain. Medtronic has invested in clinical evidence that reported reduction in the use of systemic opioids in managing and treating chronic pain with TDD and acute pain associated to VCF with BKP.[12,13] Through our medical education and ongoing clinical support programs, we continuously strive to educate about device therapies as an option in pain management with the hope that fewer patients will need to rely on long-term systemic opioid use.

A retrospective claims analysis (n=389) found that **51 percent of chronic non-malignant pain patients eliminated systemic opioids** within one year of TDD therapy. This elimination resulted in a 10% to 17% reduction in yearly inpatient, outpatient, and drug expenditures.[12]

A smaller, single-center, retrospective chart review (n=99) of patients with chronic non-malignant pain who agreed to transition from systemic opioids to TDD with the goal of eliminating systemic opioids, demonstrated that **84 percent of patients were able to eliminate systemic opioids after 12 months** when using TDD to relieve their chronic pain.[43]

Along with clinical evidence demonstrating pain relief, we have strong coverage and reimbursement in the United States for clinical indications recognized and covered by government and non-government payers. For example:

- TDD and SCS are covered by Medicare under national and local coverage determinations.
- BKP has coverage from all Medicare MAC's via Local Coverage Determinations.
- Most commercial payers have published coverage determinations for all our Medtronic Pain Therapies.

Knowing how and when to use alternative therapies to systemic opioids is more important than ever. That is why, before committing to long-term treatment, physicians will have their patients undergo a "test drive" for some therapies (i.e. TDD and SCS) to experience the therapy.

MEDTRONIC PAIN THERAPIES

Targeted Drug Delivery

Targeted Drug Delivery (TDD) with SynchroMed™ II, also known as a pain pump or intrathecal drug delivery system (IDDS), for the treatment of chronic intractable pain, including intractable cancer pain, provides pain relief at a fraction of the oral medication dose.[30-33] An implanted, programmable pump and catheter releases prescribed amounts of pain medication directly into the intrathecal space, near pain receptors in the spine instead of the circulatory system. The CONTROL Workflow℠ in combination with SynchroMed II encourages systemic opioid elimination and is an alternative to long-term systemic opioids.

Intrathecal drug delivery has been shown to improve patients' ability to function, return to work, and participate in activities of daily living.[30,32,34,35] In addition to effective pain relief, TDD has been shown to reduce or eliminate use of oral pain medication and to reduce side effects compared to systemic pain medication. [12,30-33,36,37]

TDD is often viewed as a "salvage therapy" when high dose systemic opioid therapy has not worked. This is despite success of the therapy as demonstrated in randomized controlled trials, and the demonstrated cost effectiveness of the therapy.[12,31,38-42]

The implanted and physician programmed aspects of TDD allow significantly more physician control compared to systemic opioid therapy. These controls could reduce the opportunity for diversion.

Medtronic developed The Control Workflow℠ for TDD as guidance for eliminating systemic opioids and providing a pain relief option utilizing a low-dose protocol with the SynchroMed™ II intrathecal drug delivery system. This workflow assists physicians with patient selection and includes oral opioid weaning and treatment protocols that can be tailored to individual patients. By having an outlined workflow for physicians, we are working to reduce perceived barriers to the therapy and expand patient access to TDD therapy.

Spinal Cord Stimulation

Medtronic's Intellis™ implantable neurostimulator for Spinal Cord Stimulation (SCS) is the smallest spinal cord stimulator implanted under the skin to deliver mild electrical pulses to the spine. SCS modifies pain messages before they reach the brain and has proven to provide long-term effective pain relief and improve quality of life.[44-46] In addition to pain relief, spinal cord stimulation is more cost-effective than conventional medical management and

reoperation.[47,48] Earlier consideration of SCS before escalated opioid usage has the potential to improve outcomes in chronic pain where opioids and other treatment options have not provided adequate pain relief.[49] Spinal cord stimulation is more effective than repeat surgery for persistent radicular pain after lumbosacral spine surgery.[50]

As a platform technology, Medtronic is providing more than just pain relief with the Intellis neurostimulator. This is the only platform that has embedded measurable activity data through Snapshot™ reporting, which tracks and shares activity, body positions and therapy usage continuously. Snapshot complements patient self-reporting with an objective look at their mobility. By reporting objective activity data, Intellis offers physicians insights into patient treatment beyond patient-reported pain scores. This may enable better treatment personalization to support improvement in function.

Medtronic is currently sponsoring the Vectors PostMarket Clinical Study.[51] The study follows patients with chronic intractable pain who are undergoing spinal cord stimulation treatment managed with the Evolve℠ workflow, which provides standardized guidance that balances the use of high-dose (HD) and low-dose (LD) therapy settings to help physicians optimize patient options. Over a 12-month post implant period, the study will assess SCS's long-term efficacy and impact on quality of life.

The BKP process has been shown to reduce systemic opioid usage: a two-year prospective, randomized, controlled trial (n=300) recently showed that **31 percent fewer Kyphoplasty patients (29.8%) used opioid medications at 6 months** compared to patients treated with non-surgical management (42.9%) (p=0.042).[13, 53]

Interventional Pain

As a minimally-invasive vertebral augmentation technology, Kyphon™ Balloon Kyphoplasty (BKP) uses orthopedic balloons to restore vertebral height and correct angular deformity due to vertebral compression fractures (VCF) from osteoporosis, cancer or benign lesion. After reduction, the balloons are deflated and removed. The resulting cavity (void) allows for a controlled deposition of Kyphon bone cement forming an internal cast and stabilizing the fracture. Risks of the procedure include cement leakage, which may cause tissue damage, nerve or circulatory problems, and other serious adverse events. Studies have shown BKP offers better pain relief and quality of life for patients with acute VCF compared to non-surgical pain management.[13, 52]

TOGETHER TO FIND LASTING SOLUTIONS

Millions of Americans are affected by the opioid epidemic, and their best hope is partners in healthcare coming together to create lasting solutions.[1] Healthcare providers, payers, elected officials, regulators and patient advocacy groups all hold important pieces to the puzzle and must work together. It starts with novel care pathways and personalized treatment options to help these patients break their cycle of misuse or dependency. Solutions must also help the approximately 7.1 million patients who misuse opioids to alleviate pain, and these patients need effective policies and programs that will expand access to medical devices shown to relieve pain as an alternative or adjunct to systemic opioids.[4]

Partnership is the path forward in addressing the systemic opioid and pain management crises. All stakeholders must work together, pursuing effective policies and programs that will expand patient access to medical devices shown to relieve pain as an alternative or adjunct to systemic opioids.

SynchroMed® II Drug Infusion System Brief Statement:

Product technical manuals and the appropriate drug labeling must be reviewed prior to use for detailed disclosure.

Indications: US: Chronic intrathecal infusion of Infumorph® preservative-free morphine sulfate sterile solution in the treatment of chronic intractable pain, Prialt® chronic intrathecal infusion of preservative-free ziconotide sterile solution for the management of severe chronic pain, and chronic intrathecal infusion of Lioresal® Intrathecal (baclofen injection) for the management of severe spasticity. Outside of US: Chronic infusion of drugs or fluids tested as compatible and listed in the product labeling.

Drug Information: Refer to appropriate drug labeling for indications, contraindications, warnings, precautions, dosage and administration, screening procedures, and under-/overdose symptoms and methods of management. Patients should be informed of the signs and symptoms of drug under- or overdose, appropriate drug warnings and precautions, and signs and symptoms that require medical attention.

Contraindications: System implant is contraindicated in the presence of an infection; implant depth greater than 2.5 cm below skin; insufficient body size; and spinal anomalies. Use of the system with drugs with preservatives and drug formulations with pH ≤3. Use of CAP kit for refills or of refill kit for catheter access and use of PTM to administer opioid to opioid-naïve patients or to administer ziconotide.

Warnings: Non-indicated formulations may contain neurotoxic preservatives, antimicrobials, or antioxidants, or may be incompatible with and damage the system. Failure to comply with all product instructions, including use of drugs or fluids not indicated for use with system, or of questionable sterility or quality, or use of non-Medtronic components or inappropriate kits, can result in improper use, technical errors, increased risks to patient, tissue damage, damage to the system requiring revision or replacement, and/or change in therapy, and may result in additional surgical procedures, a return of underlying symptoms, and/or a clinically significant or fatal drug under- or overdose.

An inflammatory mass that can result in serious neurological impairment, including paralysis, may occur at the tip of the implanted catheter. Clinicians should monitor patients carefully for any new neurological signs or symptoms, change in underlying symptoms, or need for rapid dose escalation. Monitor patients appropriately after refill if a pocket fill is suspected. Failure to recognize signs and symptoms of pocket fill and seek appropriate medical intervention can result in serious injury or death. Overinfusion may lead to underdose or overdose symptoms. Strong sources of electromagnetic interference (EMI), can negatively interact with the pump and cause heating of the implanted pump, system damage, or changes in pump operation or flow rate, that can result in patient injury from tissue heating, additional surgical procedures, a return of underlying symptoms, and/or a clinically significant or fatal drug underdose or overdose. The SynchroMed II system is MR Conditional; consult the labeling for MRI information.

Precautions: Monitor patients after pump or catheter replacement for signs of underdose/overdose. Infuse preservative-free saline at minimum flow rate if therapy is discontinued for an extended period of time to avoid system damage. EMI may interfere with programmer telemetry during pump programming sessions. EMI from the SynchroMed programmer may interfere with other active implanted devices (e.g., pacemaker, defibrillator, neurostimulator).

Adverse Events: In addition to procedure-related risks, the following may occur: pocket seroma; hematoma; erosion; infection; pump inversion; post-lumbar puncture risks (spinal headache); CSF leak and rare central nervous system pressure-related problems; radiculitis; arachnoiditis; spinal cord bleeding/damage; meningitis; neurological impairment (including paralysis) due to inflammatory mass; allergic response to implant materials; surgical replacement due to end of service life or component failure; loss of therapy, drug overdose, or inability to program the pump due to component failure; catheter complications resulting in tissue damage or loss of or change in therapy; potential serious adverse effects from catheter fragments in intrathecal space.

For full prescribing information, please call Medtronic at 1-800-328-0810 and/or consult Medtronic's website at www.medtronic.com

Infumorph® is a registered trademark of West-Ward Pharmaceutical. Prialt® is a registered trademark of Jazz Pharmaceuticals plc or its subsidiaries. Lioresal® is a registered trademark of Saol.

USA Rx Only

Rev 0817

Neurostimulation Systems for Pain Therapy

Brief Summary: Product manuals must be reviewed prior to use for detailed disclosure.

Indications: Implantable neurostimulation systems - A Medtronic implantable neurostimulation system is indicated for spinal cord stimulation (SCS) system as an aid in the management of chronic, intractable pain of the trunk and/or limbs-including unilateral or bilateral pain associated with the following conditions:

- Failed Back Syndrome (FBS) or low back syndrome or failed back
- Radicular pain syndrome or radiculopathies resulting in pain secondary to FBS or herniated disk
- Postlaminectomy pain
- Multiple back operations
- Unsuccessful disk surgery
- Degenerative Disk Disease (DDD)/herniated disk pain refractory to conservative and surgical interventions
- Peripheral causalgia
- Epidural fibrosis
- Arachnoiditis or lumbar adhesive arachnoiditis
- Complex Regional Pain Syndrome (CRPS), Reflex Sympathetic Dystrophy (RSD), or causalgia

Contraindications: Diathermy - Do not use shortwave diathermy, microwave or therapeutic ultrasound diathermy (all now referred to as diathermy) on patients implanted with a neurostimulation system. Energy from diathermy can be transferred through the implanted system and cause tissue damage at the locations of the implanted electrodes, resulting in severe injury or death.

Warnings: Sources of strong electromagnetic interference (e.g., defibrillation, electrocautery, MRI, RF ablation, and therapeutic ultrasound) can interact with the neurostimulation system, resulting in serious patient injury or death. These and other sources of EMI can also result in system damage, operational changes to the neurostimulator or unexpected changes in stimulation. Rupture or piercing of the neurostimulator can result in severe burns. An implanted cardiac device (e.g., pacemaker, defibrillator) may damage a neurostimulator, and the electrical pulses from the neurostimulator may result in an inappropriate response of the cardiac device.

Precautions: The safety and effectiveness of this therapy has not been established for pediatric use (patients under the age of 18), pregnancy, unborn fetus, or delivery. To properly assess test stimulation, patients should be detoxified from narcotics prior to lead placement. Clinicians and patients should follow programming guidelines and precautions provided in product manuals. Patients should avoid activities that may put undue stress on the implanted neurostimulation system components. Patients should not scuba dive below 10 meters of water or enter hyperbaric chambers above 2.0 atmosphere absolute (ATA). Electromagnetic interference, postural changes, and other activities may cause shocking or jolting. Patients using a rechargeable neurostimulator should check for skin irritation or redness near the neurostimulator during or after recharging.

Adverse Events: Adverse events may include: undesirable change in stimulation described by some patients as uncomfortable, jolting or shocking; hematoma, epidural hemorrhage, paralysis, seroma, CSF leakage, infection, erosion, allergic response, hardware malfunction or migration, pain at implant site, loss of pain relief, chest wall stimulation, gastrointestinal symptoms (diarrhea, constipation, and leakage of stool), bladder symptoms (urinary retention and frequency and leakage of urine) and surgical risks.

For further information, please call Medtronic at 1-800-328-0810 and/or consult Medtronic's website at www.medtronic.com.

USA Rx Only Rev 0817

Kyphon Balloon Kyphoplasty and Sacroplasty Important Safety Information

Kyphon Xpede™ Bone Cement and Kyphon HV-R™ Bone Cement are indicated for the treatment of pathological fractures of the vertebral body due to osteoporosis, cancer, or benign lesions using a cementoplasty (i.e. kyphoplasty or vertebroplasty) procedure. It is also indicated for the fixation of pathological fractures of the sacral vertebral body or ala using sacral vertebroplasty or sacroplasty. Cancer includes multiple myeloma and metastatic lesions, including those arising from breast or lung cancer, or lymphoma. Benign lesions include hemangioma and giant cell tumor. Pathologic fracture may include a symptomatic vertebral body microfracture (as documented by appropriate imaging and/or presence of a lytic lesion) without obvious loss of vertebral body height.

Risks of acrylic bone cements include cement leakage, which may cause tissue damage, nerve or circulatory problems, and other serious adverse events, such as: cardiac arrest, cerebrovascular accident, myocardial infarction, pulmonary embolism, or cardiac embolism.

Osteocool Important Safety Information

The OsteoCool™ RF Ablation System is intended for the palliative treatment in spinal procedures by ablation of metastatic malignant lesions in a vertebral body. It is also intended for coagulation and ablation of tissue in bone during surgical procedures, including palliation of pain associated with metastatic lesions involving bone in patients who have failed or are not candidates for standard therapy.

Risks of the system include damage to surrounding tissue through iatrogenic injury as a consequence of electrosurgery; pulmonary embolism; nerve injury including thermal injury, puncture of the spinal cord or nerve roots potentially resulting in radiculopathy, paresis, and paralysis.

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