TRIUMPH
MulTi-center pRospectIve stUdy deterMining the sustainability of Pain relief and psychosocial and functional responses wHen utilizing a multiple waveform enabled neurostimulator
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Clinical Investigation Plan (CIP)

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PRINCIPAL INVESTIGATOR SIGNATURE PAGE

I have read and agree to adhere to the clinical investigation plan and all regulatory requirements applicable in conducting this clinical investigation.

Principal Investigator

Printed name:
Signature:
Date:

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1 Introduction

This document is a clinical investigation plan (CIP) to evaluate the sustainability of pain control utilizing a multiple-waveform enabled neurostimulator in patients with chronic, intractable pain of the trunk and/or limbs. This clinical investigation is sponsored by Abbott (formerly St. Jude Medical) and will be conducted in accordance with this CIP.

2 Background and Justification for Clinical Investigation

Spinal cord stimulation (SCS) is a minimally invasive and reversible procedure in which electrical leads are placed into the epidural space, applying stimulation to the large myelinated fibers of the dorsal column. SCS has been used successfully to treat a variety of pain conditions including, diabetic neuropathy [1], failed back surgery syndrome [2,3,4,5], complex regional pain syndrome [6,7], phantom limb pain [8], ischemic limb pain [9], refractory unilateral limb pain syndrome [3], postherpetic neuralgia and acute herpes zoster pain [10].

A systematic review and meta-analysis of SCS in refractory neuropathic back and leg pain [11] documented that SCS reduces pain, improves quality of life, reduces analgesic use, allows some patients to return to work, and may also result in significant cost savings over time with minimal significant adverse events.

Historically, SCS has delivered a tonic stimulation pattern where impulses are delivered at a consistent amplitude, frequency, and pulse width, typically producing paresthesia (tingling sensation) over the patient's area of pain. A variety of amplitudes, frequencies, and pulse widths can be programmed along with an option to turn the stimulation on and off throughout the day (known as Cycle Mode). However, recent technical developments provide expanded stimulation options. St. Jude Medical developed the Prodigy (MRI)™ and Proclaim Elite™ systems, both of which are capable of producing either tonic stimulation (see Figure 1) or BurstDR™ stimulation (Figure 2).

BurstDR stimulation features a series of impulses in rapid succession, known as a burst train, followed by a short silent phase. Programmable parameters include the amplitude of the burst train, the time from onset of one burst train to the onset of the next burst train (burst rate), and the rate of pulses within each train (intra-burst rate) (See Figure 2). BurstDR is thought to improve SCS effectiveness by mimicking the natural burst firing patterns found in the brain [12]. Amplitudes programmed for BurstDR are typically lower than those traditionally used for tonic stimulation, often resulting in pain suppression without paresthesia.

Previous studies using BurstDR have examined the safety and efficacy of the stimulation mode for patients who were already using tonic stimulation [13, 14, 15, 16]. These studies reported favorable outcomes for the new stimulation mode, with many patients achieving greater pain control and experiencing less paresthesia with BurstDR compared to tonic stimulation. Currently, the body of evidence for BurstDR is limited to subjects with prior experience using tonic stimulation. Patients who trial the SCS system with tonic stimulation may be conditioned to associate paresthesia with pain relief. When the patient then switches to BurstDR stimulation, the lack of paresthesia may violate that previous association and reduce the potential benefit of treatment. The SUNBURST trial [16] provides some evidence that this may be the case. In the trial, BurstDR stimulation was shown to provide more pain relief than tonic stimulation, but 22% of the patients who failed to achieve at least 30% pain reduction with BurstDR did achieve clinically relevant pain relief with tonic stimulation. It is possible that these patients would have responded to BurstDR had they not previously been conditioned to tonic stimulation. Data regarding patients who use BurstDR stimulation from the beginning of their exposure to SCS is necessary to fully evaluate any qualitative or quantitative differences in therapy outcomes for the two waveforms.

The SUNBURST trial in the US and PRODIGY I PMCF in Europe demonstrated clinically meaningful pain reduction with BurstDR at one year; however, no studies to date have reported outcomes beyond 12 months. Longer-term follow-up is needed to demonstrate sustainable pain relief over time.

For devices that deliver both tonic and BurstDR waveforms, individual patient characteristics (e.g. pain history, mental/physical health, and sensory experience) may affect the way a patient achieves maximum

benefit from the therapy. After an initial crossover period, SUNBURST allowed patients to select the program mode (tonic or BurstDR) according to individual preference during the follow-up period. Approximately 60% of subjects used BurstDR most frequently at one year, while the other 40% used some combination of tonic and BurstDR programs. The relationships between program usage patterns, patient characteristics, and long-term outcomes have yet to be examined for these multi-waveform SCS devices. Exploring these relationships will likely provide valuable insight into patient needs and enhance clinical care decisions.

Given the evidence gaps described above for BurstDR and multi-waveform devices, the goals of the current study are: to assess pain relief for BurstDR stimulation when presented as the initial SCS experience, assess long-term outcomes for BurstDR, and to explore the relationship between program usage patterns, patient characteristics, and therapy outcomes.

Figure 1: Tonic pattern

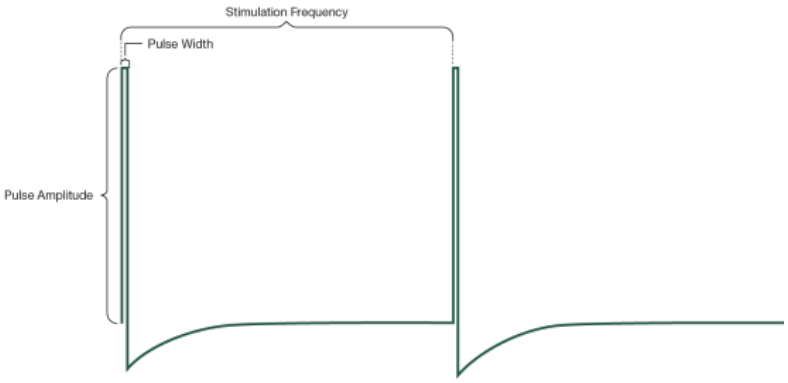
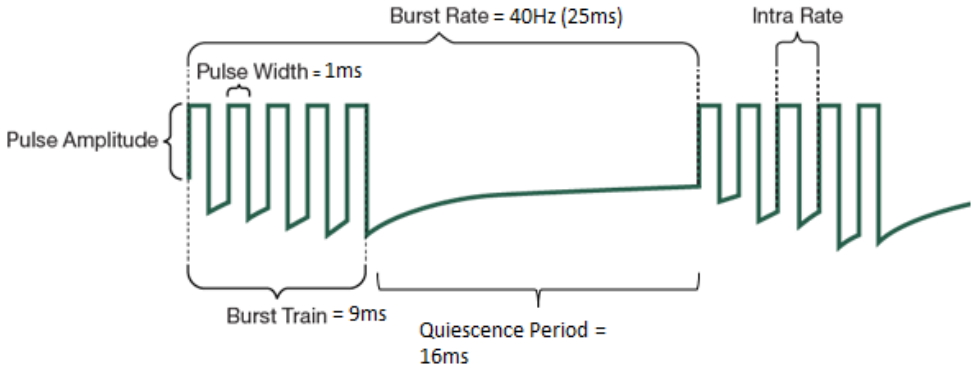


Figure 2: BurstDR pattern



3 Device(s) Under Investigation

3.1 Identification and Description of the Devices under investigation

Table 1: Identification of Devices under Investigation

Device Type	Device name	Model/ Type	Description	Investigational or Market Released
Trial System	SJM Invisible Trial System	3599 & 3032	The SJM Invisible Trial™ System is an external pulse generator (model 3599) with disposable header (model 3032) that connects to, and is compatible with, commercially available SJM trial leads and extensions. It provides electrical stimulation to nerve structures either intraoperatively or post-operatively during a trial system evaluation period. The External Pulse Generator (EPG) can support up to 16 active electrodes. Stimulation settings are wirelessly programmed securely over Bluetooth using the Clinician Programmer and stored on the EPG. Batteries support a 14-day trial system evaluation period and the EPG also supplies diagnostics that can provide the user additional data regarding the neurostimulation trial. A complete description and illustration of use are provided in the External Pulse Generator Clinician's Manual.	Market Released
Trial System	Multiprogram Trial Stimulator® (MTS) - *can only be used for on- the-table trials.*	3510	The Multiprogram Trial Stimulator System (MTS) is a programmable device designed to deliver low-intensity electrical impulses to nerve structures in the dorsal aspect of the spinal cord. The system consists of an external stimulator, one or two trial cables, and percutaneous leads. The stimulator is a small, battery-powered, external device that delivers electrical impulses through the trial cable to the implanted lead(s). It contains electronic circuitry that allows the stimulator to be easily programmed with different stimulation settings for versatile pain control therapy.	Market Released
IPG	Proclaim Elite 5 IPG & Proclaim Elite 7 IPG	3660 & 3662	This Implantable Pulse Generator (IPG) is an electronic device designed to be connected to one or more extensions or leads with up to 16 electrodes in total. It is powered by a hermetically sealed battery within a titanium case and uses microelectric circuitry to generate constant-current electrical stimulation. The IPG can be programmed with multiple stimulation options. Each program can provide stimulation to a single anatomical area or to multiple areas, using either a tonic or BurstDR waveform. The IPG communicates wirelessly with	Market Released

			the system programmer and controller, and IPG's are available in small (3660) and large (3662) sizes to accommodate different power needs. These models can receive software upgrades after implantation to provide patients with additional features as approved by the respective regulatory agencies. A complete description and illustration of use are provided in the Clinician's manual of the Proclaim Elite IPG.	
IPG	Prodigy IPG	3799	The Prodigy IPG is a rechargeable, electronic device designed to be connected to one or more leads. It is powered by a hermetically sealed battery within a titanium case and uses microelectronic circuitry to generate constant current electrical stimulation. The IPG can deliver stimulation with a range of waveforms (called MultiStim™) depending on the individual patient's need. Prodigy is enabled to deliver both tonic and BurstDR stimulation. A complete description and illustration of use are provided in the Clinician's manual of the Prodigy IPG	Market Released
IPG	Prodigy MRI IPG	3772	The Prodigy MRI IPG is a rechargeable, electronic device designed to be connected to one or more leads. It is powered by a hermetically sealed battery within a titanium case and uses microelectronic circuitry to generate constant current electrical stimulation. The IPG can deliver stimulation with a range of waveforms (called MultiStim) depending on the individual patient's need. Prodigy MRI is enabled to deliver both tonic and BurstDR stimulation and is conditionally approved for Magnetic Resonance Imaging (MRI) scans only when they meet the requirements. A complete description and illustration of use are provided in the Clinician's manual of the Prodigy MRI.	Market Released

Clinician Programmer	SJM Clinician Programmer for Invisible Trial System and Proclaim Elite 5 and 7	3872	The Clinician Programmer is a tablet-based programmer (iPad mini) that controls the creation and adjustment of all programming information for the SJM Invisible Trial EPG and Proclaim Elite IPG. The software is an iPad mini app with model number 3870 (for EPG) and 3874 (for IPG) or subsequent updates that runs on a standard commercial Apple iPad mini. The Clinician Programmer communicates with the EPG and IPG using Bluetooth Low Energy (BLE) technology. As with past SJM programmer models, this Clinician Programmer enables users to create and modify stimulation programs. A complete description and illustration of use are provided in the Clinician Programmer Clinician's Manual.	Market Released
Clinician Programmer	Rapid Programmer System for Prodigy (MRI)	3835 & 3834	The Rapid Programmer™ is intended to help clinicians determine the best performance of a neuromodulation system by leading the physician through a series of parameter combinations for the neuromodulation system and recording the stimulation effects. The device is intended to be used for programming the Prodigy (MRI) device while it is disconnected from an external power source. The clinician programming external device allows activation of BurstDR programs in addition to traditionally available tonic programs. A complete description and illustration of use are provided in the Clinician's manual of the Rapid Programmer system.	Market Released
Patient Controller	Patient Controller (iPod touch) for the Invisible Trial System	3873	The Patient Controller is a simplified controller that enables adjustment of pre-specified programming information for the SJM Invisible Trial System. The software is an iPod touch app with model number 3871 that runs on a standard commercial Apple iPod touch using BLE technology. As with past SJM controller models, this Patient Controller enables users to adjust stimulation programs. A complete description and illustration of use are provided in the Patient Controller User's Guide.	Market Released

Patient Controller	iPod touch Mobile Digital Device for Proclaim Elite 5 & 7	3883	The Patient Controller is a simplified controller that enables adjustment of pre-specified programming information for the Proclaim Elite IPG. The software is an iPod touch app with model number 3875 that runs on a standard commercial Apple iPod touch using BLE technology. As with past SJM controller models, this Patient Controller enables users to adjust stimulation programs. A complete description and illustration of use are provided in the Patient Controller User's Guide	Market Released
Patient Controller	Prodigy (MRI) patient programmer for Prodigy and Prodigy MRI	3855 & 3856	The Prodigy (MRI) patient programmer controls the creation and adjustment of all programming information for the Prodigy IPG (3855) and Prodigy MRI (3856). The device communicates by using radiofrequency (RF) signals from the programming wand to the implanted IPG. The device enables clinicians to create and modify programs for the IPG. It also provides patients with Patient-Controlled Stimulation technology, which enables them to choose between several prescribed programs stored in the device's memory. The Prodigy (MRI) Patient Controller External Device introduces the ability for a patient to select (an) existing BurstDR program(s) in addition to traditionally available tonic program(s). A complete description and illustration of use are provided in the Prodigy (MRI) patient programmer user's guide.	Market Released
	Prodigy (MRI) Charging System	3730	The Prodigy (MRI) Charging System provides the capability to recharge the IPG battery while stimulation is either on or off. The system consists of a charger, antenna, power adapter, and power cable. The charger transmits RF energy through the antenna to the IPG battery to recharge it. A complete description and illustration of use are provided in the Prodigy (MRI) Charging system user's guide.	Market Released
	Leads/Extensions /Accessories		Any compatible and commercially available lead/extension and accessory may be used in the study.	Market Released

3.1.1 Device Description and Intended Purpose

In this study, the commercially available St. Jude Medical Invisible Trial System will be used according to the Instructions for Use (or any other SJM EPG system with BurstDR form functionality when available and approved for use). For on-the-table trials (when the trial system evaluation and permanent implant are done during the same procedure) only, the MTS can be used according to the Instructions for Use.

In this study, any commercially available Prodigy (MRI) neurostimulation system or Proclaim Elite system will be used according to the Instructions for Use (or any other SJM spinal cord stimulation system with both tonic and BurstDR form functionality when available and approved for use).

Both Prodigy (MRI) and Proclaim Elite neuromodulation systems are indicated as an aid in the management of chronic, intractable pain of the trunk and/or limbs.

3.1.2 Device Handling and Storage

The devices used during this study are commercially available and will be handled and stored according to the applicable product manuals and standard site practices.

4 Clinical Investigation Design

4.1 Clinical Investigation Design

The study is designed as a post-market, international, multicenter, interventional, prospective, single-arm study. The purpose of this clinical study is to examine pain relief and other outcomes for subjects with chronic, intractable pain of the trunk and/or limbs who use BurstDR stimulation during the trial evaluation period and at 6, 12, 18 and 24 months after permanent system implant. Furthermore, the study seeks to explore sustainable pain relief, psychological outcomes, and stimulation usage patterns with a device capable of delivering multiple stimulation modes (BurstDR and tonic) through 24 months post-permanent implant. Finally, this study will collect MRI safety information, when available, for enrolled patients.

The investigation will be conducted in approximately 30 centers in EMEA, US, Canada and ANZ. Estimated enrollment duration is approximately 18 months with 24 months follow-up. Approximately 267 subjects will be enrolled in the study. A maximum of 53 subjects can be included per center. The study may continue up to 4 years, dependent on the rate of enrollment (approximately 18 months enrollment + 24 months follow-up + time to close the investigation and provide final report).

4.2 Objectives

4.2.1 Primary Objectives

The primary objective is to evaluate pain relief in subjects with a multiple-waveform enabled neurostimulator.

4.2.2 Secondary Objectives

The secondary objectives are to evaluate the psychosocial and functional responses in subjects with a multiple-waveform enabled neurostimulator.

4.3 Endpoints

4.3.1 Primary Endpoint

The primary endpoint is change from baseline to 6 months post-permanent implant in pain assessed by using the Numeric Rating Scale (NRS).

4.3.2 Secondary Endpoint

- Change from baseline to 6 months post-permanent implant for quality of life measured using the EuroQuol -5 Dimensions (EQ5D) questionnaire.
- Change from baseline to 6 months post-permanent implant for pain catastrophizing measured using the Pain Catastrophizing Scale (PCS).
- Change from baseline to 6 months post-permanent implant for anxiety measured using the State-Trait Anxiety Inventory (STAI).
- Change from baseline to 6 months post-permanent implant for depression measured using the Patient Health Questionnaire-9 (PHQ9).
- Change from baseline to 6 months post-permanent implant for fear avoidance measured using the Tampa Scale for Kinesiophobia (TSK).
- Change from baseline to 6 months post-permanent implant for sleep measured using the Medical Outcome Study (MOS) Sleep Scale.
- Change from baseline to 6 months post-permanent implant for physical function measured using the Patient-Reported Outcome Measure Information System (PROMIS) Physical Function Scale.

4.3.3 Demographic/Baseline Characteristic and Descriptive Endpoint(s)

- Change from baseline to 12, 18 and 24 months post-permanent implant for quality of life measured using the EQ5D questionnaire.
- Change from baseline to 3, 12, 18, and 24 months post-permanent implant for pain catastrophizing measured using the PCS.
- Change from baseline to 12, 18 and 24 months post-permanent implant for anxiety measured using the STAI.
- Change from baseline to 12, 18 and 24 months post-permanent implant for depression measured using the PHQ9.
- Change from baseline to 3, 12, 18 and 24 months post-permanent implant for fear avoidance measured using the TSK.
- Change from baseline to 12, 18 and 24 months post-permanent implant for sleep measured using the MOS Sleep Scale.
- Change from baseline to 12, 18 and 24 months post-permanent implant for physical function measured using the PROMIS Physical Function Scale.
- Change from baseline to End of Trial system evaluation 3, 12, 18, and 24 months post-permanent implant in pain assessed by using the NRS.
- Demographics and baseline characteristics.
- Patient waveform preference (if applicable).
- Patient satisfaction at End of Trial system evaluation 3, 6, 12, 18, and 24 months post-permanent implant.
- Global improvement of the patient by using the Patient Global Impression of Change (PGIC) at End of Trial System Evaluation 3, 6, 12, 18, and 24 months.
- Medication usage measured in decrease in chronic pain related medication intake since baseline at 3, 6, 12, 18, and 24 months post-permanent implant.
- Battery consumption and/or recharging activities.
- Stimulation Assessment measured by using the Stimulation Assessment Form at 3, 6, 12, 18, and 24 months post-permanent implant as well as any unscheduled visit where reprogramming occurs.
- Program information including amplitude, pulse width, frequency and electrode configuration.
- System information including device type, model number, serial number and number of leads.
- Proportion of device, or procedure-related Serious Adverse Events (SAE') s and non-serious adverse events in subjects who receive permanent implant of the SCS system.

4.4 Study Population

The patient population enrolled in this study will be comprised of male and female patients. Patients must meet the specific eligibility criteria to participate in the study.

A patient, who meets all inclusion criteria, and none of the exclusion criteria, is eligible to participate in this study.

4.4.1 Inclusion Criteria

1. Subject has chronic, intractable pain of the trunk and/or limbs, including unilateral or bilateral pain associated with the following: failed back surgery syndrome and intractable low back and leg pain.
2. Subject has a score of 6 or higher on the NRS for average pain specific to the area(s) of chronic pain being treated over the past 24 hours at the baseline visit.
3. Subject is considered by the Investigator as a candidate for implantation of a spinal cord stimulator system according to the system Instructions for Use.
4. Subject is 18 years of age or older at the time of enrollment.
5. Subject is willing to cooperate with the study requirements including compliance with the regimen and completion of all study visits.
6. Subject has signed and received a copy of the Ethics Committee/Institutional Review Board (EC/IRB) approved informed consent.

4.4.2 Exclusion Criteria

1. Subject currently has a spinal cord stimulation system implanted.
2. Subject has previously failed SCS therapy (either trial system evaluation or permanent implant).
3. Subject has a primary diagnosis for SCS implantation of Peripheral Vascular Disease (PVD), Angina Pectoris, or Chronic Migraine.
4. Subject has or plans to have a Peripheral Nerve Stimulation system (PNS), Peripheral Nerve field Stimulation system (PNfS), Dorsal Root Ganglion system (DRG), or implantable infusion pump.
5. Subject is currently participating in another clinical investigation with an active treatment arm.
6. Subject is unable to read and/or write.

5 Procedures

The clinical study will be conducted in accordance with the CIP. All parties participating in the conduct of the clinical study will be qualified by education, training, or experience to perform their tasks and this training will be documented appropriately.

The clinical study will not commence until Abbott receives written approval from the IRB/EC and relevant regulatory authorities and all required documents have been collected from the site(s).

The following sections provide a detailed description of procedures required by this CIP.

5.1 Informed Consent Process

The Principal Investigator (PI) or his/her authorized designee will conduct the Informed Consent Process, as required by applicable regulations and the center's IRB/EC. This process will include a verbal discussion with the subject on all aspects of the clinical investigation that are relevant to the subject's decision to participate, such as details of clinical investigation procedures, anticipated benefits, and potential risks of clinical investigation participation. During the discussion, the Principal Investigator or his/her authorized

designee will avoid any improper influence on the subject and will respect subject's legal rights. The subject shall be provided with the informed consent form written in a language that is understandable to the subject and has been approved by the center's IRB/EC. The subject shall have adequate time to review, ask questions and consider participation.

If the subject agrees to participate, the Informed Consent form must be signed and dated by the subject and by the person obtaining the consent. The signed original will be filed in the subject's hospital or research charts, and a copy will be provided to the subject.

The Principal Investigator or his/her authorized designee will document the informed consent process in the subject's hospital and/or research charts. The date of signature will be entered on an applicable Case Report Form (CRF).

Failure to obtain informed consent from a subject prior to clinical investigation enrollment should be reported to Sponsor within 5 working days and to the reviewing center's IRB/EC according to the IRB's/ EC's reporting requirements.
If, during the clinical investigation, new information becomes available that can significantly affect a subject's future health and medical care, the Principal Investigator or his/her authorized designee will provide this information to the subject. If relevant, the subject will be asked to confirm their continuing informed consent in writing.

5.2 Point of Enrollment

Patients are considered enrolled in the study from the moment the patient has provided written Patient Informed Consent (Refer to section 5.1 for the Informed Consent Process).

5.3 Scheduled Procedures

The Principal Investigator is responsible for ensuring all clinical investigation data is collected as required per CIP scheduled procedures.

5.3.1 Baseline

(in clinic, visit must be completed minimum 3 days and max 45 days before the trial system evaluation)

The following activities must occur before any study procedure/visit.

- The Principal Investigator or delegated study personnel is responsible for screening all potential patients to determine patient eligibility for the study.
- If a patient meets all inclusion criteria and does not meet any of the exclusion criteria, he/she is eligible for the study.
- The patient is enrolled in the study when the patient signed the EC/IRB approved Informed Consent form.

Record enrollment information (name of the study, date of consent and Inclusion/Exclusion information) in the hospital records and complete the Baseline CRF electronically preferably within 5 days after enrollment. Notification of enrollment to the Sponsor will take place only when the Sponsor receives the Baseline CRF.

NOTE: As soon as the patient signs the Patient Informed Consent form, all Adverse Device Effects and all Serious Adverse Events need to be reported according to the guidelines mentioned in this CIP (refer to section 8.2).

In case the subject was consented to participate in the study, but does not meet inclusion/exclusion criteria, and was not implanted, the subject should be withdrawn and a withdrawal form must be completed. The patient will resume his/her regular standard of care with his/her physician.

In case the subject was consented to participate in the study and was implanted but does not meet inclusion/exclusion criteria, then this is considered a protocol violation. A protocol deviation form needs to be completed and the Sponsor must be informed. The EC/IRB and Competent Authority (CA), if applicable, should be notified appropriately about any deviations with regards to the violation of inclusion/exclusion criteria.

The following information will be collected at the baseline visit:

- Demographics, Pain History, Pain Primary/Secondary Diagnosis, occupational/lifestyle information
- NRS
- Other Patient Reported Outcome Measures (EQ5D questionnaire, PCS, STAI, PHQ9, TSK, MOS Sleep Scale, PROMIS Physical Function scale, Pain Location).
- Chronic Pain related medication usage
- Adverse Events (if applicable)
- Deviations (if applicable)
- Withdrawal (if applicable)
- Death (if applicable)

5.3.2 Trial System Implant

(In clinic, prior to permanent implantation, within 3-45 days from Baseline visit)

Subjects must undergo a successful trial system evaluation of the SCS system prior to permanent implantation of the SCS system. It is a requirement that the subjects will be trialed with BurstDR and only a BurstDR program will be provided to, and used by, the subject. In case of an on-the-table trial evaluation (aka all-in-one procedure), the pain mapping can be done with tonic. The trial system evaluation procedure will be conducted according to the national standards and guidelines. The SCS Trial System Evaluation visit will include recording the following:

- Trial System implant and system information
- Adverse Events (if applicable)
- Deviations (if applicable)
- Withdrawal (if applicable)
- Death (if applicable)

5.3.3 End of Trial System Evaluation

(In clinic, prior to permanent implantation, timing in accordance with physician standard operation procedures)

If the trial system evaluation is unsuccessful, per standard of care, the subject is considered as a trial system failure and must be withdrawn from the study (withdrawal date is the date when the trial system evaluation ended). The End of Trial System Evaluation visit will include recording the following:

- Trial system evaluation conclusion information, patient reported pain relief and patient satisfaction
- Patient Reported Outcome Measures (NRS, PGIC)
- Programming information and program usage including programming parameters record
- Adverse Events (if applicable)
- Deviations (if applicable)
- Withdrawal (if applicable)
- Death (if applicable)

5.3.4 Permanent System Implant

(In clinic, timing in accordance with physician standard operation procedures)

Implantation of the SCS system will be performed according to standard operating procedures and will occur after a successful trial system evaluation period. Subjects will receive a patient programmer and will be instructed on how to use the system to relieve their pain. Subjects will be able to adjust the stimulation in order to generate the best results. Following system implantation, the stimulator will be activated and programmed by trained personnel and/or an Abbott representative either during post-operative recovery or at an office visit in accordance with the physician's and hospital's standard operating procedures. As of permanent implant, the subject can be stimulated with both tonic and/or BurstDR waveforms. The SCS system implantation will include recording of the following:

- Permanent system implant and system information
- Adverse Events (if applicable)
- Deviations (if applicable)
- Withdrawal (if applicable)
- MRI information (if applicable)
- Death (if applicable)

5.3.5 3-Month Follow-up Visit

± (In clinic, 3 months post-permanent implant +/-30 days)

Enrolled and permanent system implanted subjects will be evaluated at 3 months post-permanent implantation of the SCS system. In case the subject requires reprogramming, it should be performed before the print-out of the current programming parameters record and prior to any study visit assessments. During the visit, the following evaluations and procedures will be performed.

- Occupational/lifestyle information
- NRS, PGIC, patient satisfaction, patient reported pain relief, battery usage
- Other Patient Reported Outcome Measures (PCS, TSK, Stimulation Assessment, Pain Location)
- Programming information and program usage including programming parameters record
- Chronic Pain related medication usage
- Adverse Events (if applicable)
- Deviations (if applicable)
- Withdrawal (if applicable)
- MRI information (if applicable)
- Death (if applicable)

5.3.6 6-Month Follow-up Visit

This visit should be conducted in-clinic 6 months (±30 days) post-permanent implant.

Subjects with a permanent implant will be evaluated 6 months after initial permanent system implant. In case the subject requires reprogramming, it should be performed before the printout of the current programming parameters record and prior to any study visit assessments. During the visit, the following evaluations and procedures will be performed.

- Occupational/life style information
- NRS, PGIC, patient satisfaction, patient reported pain relief, battery usage
- Other Patient Reported Outcome Measures (EQ5D questionnaire, PCS, STAI, PHQ9, TSK, MOS sleep scale, PROMIS physical function scale, Pain Location, Stimulation Assessment)
- Programming information and program usage including programming parameters record
- Chronic Pain related medication usage

- Adverse Events (if applicable)
- Deviations (if applicable)
- Withdrawal (if applicable)
- MRI information (if applicable)
- Death (if applicable)

5.3.7 12-Month Follow-up Visit

This visit should be conducted in-clinic 12 months (±60 days) post-permanent implant

Subjects with a permanent implant will be evaluated 12 months after initial permanent system implant. In case the subject requires reprogramming, it should be performed before the printout of the current programming parameters record and prior to any study visit assessments. During the visit, the following evaluations and procedures will be performed.

- Occupational/life style information
- NRS, PGIC, patient satisfaction, patient reported pain relief, battery usage
- Other Patient Reported Outcome Measures (EQ5D questionnaire, PCS, STAI, PHQ9, TSK, MOS sleep scale, PROMIS physical function scale, Pain Location, Stimulation Assessment)
- Programming information and program usage including programming parameters record
- Chronic Pain related medication usage
- Adverse events (if applicable)
- Deviations (if applicable)
- Withdrawal (if applicable)
- MRI information (if applicable)
- Death (if applicable)

5.3.8 18-Month Follow-up Visit

This visit should be conducted in-clinic 18 months (±60) days post-permanent implant

Subjects with a permanent implant will be evaluated 18 months after initial permanent system implant. In case the subject requires reprogramming, it should be performed before the printout of the current programming parameters record and prior to any study visit assessments. During the visit, the following evaluations and procedures will be performed.

- Occupational/life style information
- NRS, PGIC, patient satisfaction, patient reported pain relief
- Other Patient Reported Outcome Measures (EQ5D questionnaire, PCS, STAI, PHQ9, TSK, MOS sleep scale, PROMIS physical function scale, Pain Location, Stimulation Assessment)
- Programming information and program usage including programming parameters record
- Chronic Pain related medication usage
- Adverse Events (if applicable)
- Deviations (if applicable)
- Withdrawal (if applicable)
- MRI information (if applicable)
- Death (if applicable)

5.3.9 24-Month Follow-up Visit

This visit should be conducted in-clinic 24 months +/- 60 days post-permanent implant

Subjects with a permanent implant will be evaluated 24 months after initial permanent system implant. In case the subject requires reprogramming, it should be performed before the printout of the current programming parameters record and prior to any study visit assessments. During the visit, the following evaluations and procedures will be performed.

- Occupational/life style information
- NRS, PGIC, patient satisfaction, patient reported pain relief
- Other Patient Reported Outcome Measures (EQ5D questionnaire, PCS, STAI, PHQ9, TSK, MOS sleep scale, PROMIS physical function scale, Pain Location, Stimulation Assessment)
- Programming information and program usage including programming parameters record
- Chronic Pain related medication usage
- Subject study completion
- Adverse Events (if applicable)
- Deviations (if applicable)
- Withdrawal (if applicable)
- MRI information (if applicable)
- Death (if applicable)

5.3.10 MRI information (if applicable)

An MRI procedure is not indicated as part of this clinical investigation. If an MRI is performed as part of standard practice after permanent device implant, details related to the MRI parameters, device functionality, and adverse events will be collected to evaluate the safety of the SCS device. Note: Guidelines for performing an MRI are contained in the MRI Procedure Information Clinician's Manual for compatible devices.

5.3.11 Death (if applicable), Revisions, Replacements or Explants (Additional Surgery)

The subject and the implanting physician will collectively make the decision about any possible revision, replacement or explant of the device based upon what is medically safe, what is desired by the subject and what is in the subject's best medical interests. The following information will be collected only for revisions, replacements or explants that occur after the initial permanent procedure:

- Permanent implant and system information (including accessories)
- Reason for revision, replacement or explant
- Adverse Events (if applicable)
- Deviations (if applicable)
- Withdrawal (if applicable)
- Death (if applicable)

If the device is explanted for any reason, and re-implantation is not an option, the subject will be withdrawn from the study. Subjects who undergo a revision or replacement procedure will resume their previous follow-up schedule.

5.4 Patient Reported Outcome (PRO) Measures

The Study Coordinator or designee will give the subject questionnaires to complete on his or her own or apply an interview technique. It is important that the subject understands the meaning of all the words in the questionnaires. The subject should be instructed to ask any questions about the questionnaires if further explanation is needed. Once the subject has completed the questionnaire, the Study Coordinator or designee will review the questionnaire for completeness to verify that all questions have been answered and only one response is chosen for each question unless otherwise noted.

The questionnaires to be completed by the subject will have to be administered in this order;

1. EuroQol 5- Dimensions Questionnaire (EQ5D)
2. Pain Catastrophizing Scale (PCS)
3. State-Trait Anxiety Inventory for Adults (STAI)
4. Patient Health Questionnaire-9 (PHQ9)
5. Tampa Scale for Kinesiophobia (TSK)
6. Medical Outcome Study (MOS) Sleep Scale

7. Patient-Reported Outcome Measure Information System (PROMIS) Physical Function (if available in the country)

The following PRO measures will be collected according to the study requirements.

5.4.1 EuroQol 5- Dimensions Questionnaire (EQ5D) (EuroQol Group, 2009)

EQ5D is a standardized instrument for use as a measure of health outcome applicable to a wide range of health conditions and treatments. It provides a simple descriptive profile and a single index value for health status. The EQ5D-3L descriptive system comprises the following 5 dimensions: mobility, self-care, usual activities, pain/discomfort and anxiety/depression. Each dimension has 3 levels: no problems, some problems, extreme problems. A visual analog scale (VAS) for health is also included in the measure as a patient-reported estimate of overall health status.

5.4.2 Pain Catastrophizing Scale (PCS) (Sullivan, Bishop, & Pivik, 1995)

The PCS is a validated scale that measures the magnitude of catastrophizing (negative thoughts and feelings while a patient is experiencing pain). Subjects answer questions about how they feel and what they think about when they are in pain (i.e., not at the current moment). The scale includes 13 statements concerning pain experiences that are rated on a scale between 0 'not at all' and 4 'always'. The scale is self-administered and takes 5 minutes to complete. A higher score indicates a higher level of catastrophizing.

5.4.3 State-Trait Anxiety Inventory for Adults (Spielberger, 1968)

The State-Trait Anxiety inventory is a self-administered screening for anxiety. Subjects respond to 40 items rated on a scale from 0 to 4. It clearly differentiates between the temporary condition of "state anxiety" and the more general and long-standing quality of "trait anxiety" by providing a score for each. Higher scores suggest greater levels of anxiety.

5.4.4 Patient Health Questionnaire-9 (PHQ-9) (Spitzer, Williams & Kroenke et. al)

The PHQ9 is a multipurpose, validated instrument for screening, diagnosing, monitoring and measuring the severity of depression. The questionnaire consists of 9 questions that rate the frequency of the symptoms of depression. A follow up non-scored question screens and assigns weight to the degree to which depressive problems have affected the patient's level of function. The responses range between 4 choices (0=not at all to 3=nearly every day). Higher scores indicate a higher likelihood of major depression.

5.4.5 Tampa Scale for Kinesiophobia (TSK) (Woby et al, 2005)

The TSK is a 11-item self-report checklist using a 4-point Likert scale that was developed from the original 17-item checklist (Miller, Kopri & Todd, 1991) as a measure of fear or movement or (re)injury. The scale is based on the model of fear avoidance, fear of work related activities, fear of movement and fear of re-injury (Vlaeyan et al., 1995). The TSK has also been linked to elements of catastrophic thinking (Burwinkle et al., 2005). The scale can be useful in measuring unhelpful thoughts and beliefs about pain in people with chronic pain.

5.4.6 Medical Outcome Study (MOS) Sleep Scale (Hays & Stewart, 1992)

The MOS sleep scale is intended to assess the extent of sleep problems and measures 6 dimensions of sleep, including initiation, maintenance, quantity, adequacy, drowsiness and respiratory impairments. It includes 12 questions with the first question assessing how long it takes the subject to fall asleep. The second question asks how many hours each night the subject slept. The remaining 10 questions have a range of 6 responses from 1="all of the time" to 6="none of the time". The scale is self-administered and validated.

5.4.7 Patient-Reported Outcome Measure Information System (PROMIS) Physical Function – Short Form Version 1.2

The PROMIS Physical Function short form is an 8-item instrument designed to measure physical capability rather than actual performance of physical activities. The scale measures universal physical function rather than disease-specific impairment and assesses current function rather than function over a specified time period. Each question has five potential response options ranging in value from one to five to give a total score ranging from 8 to 40. Scores are converted into t-scores where the average for the general US population is 50 and the SD is 10. Higher scores indicate better physical function. This questionnaire is not available in all languages (e.g. Finnish); as such, it is only required at sites where a translation is available.

5.4.8 Pain Numerical Rating Score (NRS)

The pain NRS consists of 1 question that will be asked by interviewing the subjects. Patients will be asked to rate, from 0 (no pain) to 10 (worst imaginable pain), their average pain over the past 24 hours specific to the area(s) of chronic pain being treated. A higher score indicates greater pain intensity.

5.4.9 Pain Location

Pain Location is assessed using a map of the body that is labelled with different numbered quadrants. The subject is asked via interview to indicate the area he/she is feeling pain.

5.4.10 Stimulation Assessment

The Stimulation Assessment Form includes questions to identify the sensations experienced when stimulation is used. Subjects identify the intensity and areas of sensations, if experienced. Intensity is rated on a scale of 0 (no feeling) to 10 (very intense). A map of the body is labeled with different numbered quadrants to identify the areas of sensations. The subject will be requested via interview technique to indicate the area he/she is feeling sensations.

5.4.11 Patient Global Impression of Change (PGIC) (Hurst & Bolton, 2004)

The PGIC is a categorical rating scale used to evaluate the subject's impression of change in his/her condition since the beginning of the study treatment. The subject will be requested to rate their overall change in activity limitations, symptoms, emotions and overall quality of life related to his/her condition on a seven-point categorical scale via an interview technique. The categories are as follows: 1-no change, 2-almost the same, 3-a little better, 4-somewhat better, 5-moderatly better, 6-better, and 7-a great deal better. Although this tool does not specify the area of change (e.g., pain, function, quality of life, etc.), it allows for an overall integrated assessment from the prospective of the subject. PGIC values of 6 or 7 are reported to correlate best with actual change (Amirfeyz et al, 2009).

5.5 Unscheduled Visits

An Unscheduled visit is defined as any visit where an active study subject returns to the participating study site for medical care outside of a specified study visit. Examples of unscheduled visits may include subjects returning to the office for a reportable adverse event, medication adjustment, wound check and/or device programming change after the permanent system implant. During the visit, the following evaluations and procedures will be performed:

- Reason for unscheduled visit
- Programming information and program usage including programming parameters record (after reprogramming if it occurs)
- Stimulation assessment (after reprogramming if it occurs)
- Adverse Events (if applicable)
- Deviations (if applicable)

- Withdrawal (if applicable)

Following an Unscheduled visit, the subject should be seen for the next scheduled study visit within window.

5.6 Study Flow Chart

Figure 3: Study Flow Chart

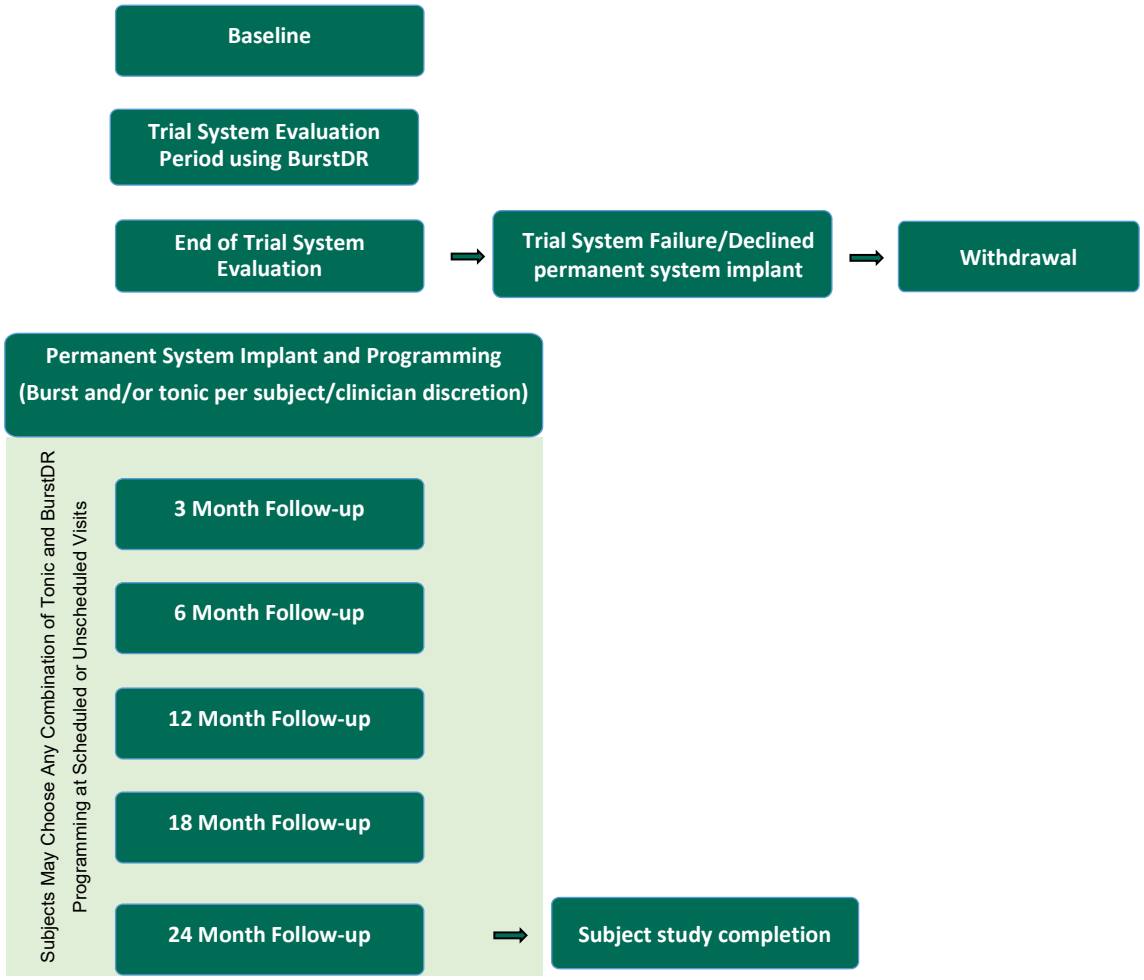


Table 2: List of all clinical investigation specific tests and procedures

Visit / Study Activity	Baseline (must be completed minimum 3 days before the trial procedure)	Trial System Implant (within 3-45 days from Baseline)	End of Trial System Evaluation	Permanent System implant procedure	3 Month (3 months+/- 30 days post - permanent implant)	6 Month (6 months +/- 30 days post - permanent implant)	12 Month (12 months +/- 60 days post - permanent implant)	18 Month (18 months +/-60 days post - permanent implant)	24 Month (24 months +/-60 days post - permanent implant)	Additional surgery (System Revision, Replacement /Explant)	Unscheduled Visit
Informed Consent Process	X										
Inclusion/Exclusion criteria	X										
Demographics, Pain History & Primary diagnosis	X										
Occupational/lifestyle information	X				X	X	X	X	X		
NRS	X		X		X	X	X	X	X		
PGIC, patient satisfaction, patient reported pain relief and battery usage					X	X	X	X	X		
EQ5D questionnaire	X					X	X	X	X		
PCS	X				X	X	X	X	X		
STAI	X					X	X	X	X		
PHQ9	X					X	X	X	X		
TSK	X				X	X	X	X	X		
MOS Sleep Scale	X					X	X	X	X		
PROMIS physical function scale	X*					X*	X*	X*	X*		
Pain Location	X				X	X	X	X	X		
Stimulation Assessment					X	X	X	X	X		(X)
Chronic Pain Related Medication	X				X	X	X	X	X		
Implant procedure and system data		X		X						X	
Trial system evaluation conclusion			X								

Visit / Study Activity	Baseline (must be completed minimum 3 days before the trial procedure)	Trial System Implant (within 3-45 days from Baseline)	End of Trial System Evaluation	Permanent System implant procedure	3 Month (3 months+/- 30 days post - permanent implant)	6 Month (6 months +/- 30 days post - permanent implant)	12 Month (12 months +/- 60 days post - permanent implant)	18 Month (18 months +/-60 days post - permanent implant)	24 Month (24 months +/-60 days post - permanent implant)	Additional surgery (System Revision, Replacement /Explant)	Unscheduled Visit
Programming information and program usage including programming parameters record			X		X	X	X	X	X		(X)
Reason for revision/replacement/ explant										X	
Reason for unscheduled visit											X
Adverse Event	(X)	(X)		(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
Deviation	(X)	(X)		(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
Withdrawal	(X)	(X)		(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
MRI evaluation				(X)	(X)	(X)	(X)	(X)	(X)		(X)
Death	(X)	(X)		(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
Subject study completion									X		

X* if the translated questionnaire is available in the country
(X) if applicable

5.7 Description of Activities Performed by Sponsor Representatives

Trained Sponsor personnel will provide technical expertise and technical guidance on the use of the SCS systems, including training and proctored case coverage.

While Sponsor representatives may perform these activities, the Principal Investigator remains responsible for ensuring all clinical investigation data is collected as required per CIP.

5.8 Subject Study Completion

When the subject's participation in the clinical study has been completed, the subject will return to the medical care as per physician's recommendation.

5.9 Subject Withdrawal

Respecting the subject's right to withdraw, the Investigator should make all reasonable efforts to retain the subject in the clinical investigation until completion of the clinical investigation. Subjects must be informed about their right to withdraw from the clinical investigation at any time and for any reason without sanction, penalty or loss of benefits to which the subject is otherwise entitled. Withdrawal from the clinical investigation will not jeopardize their future medical care or relationship with the Investigator. Subjects will be requested to specify the reason for the request to withdraw. Reasons for subject's withdrawal include, but are not limited to:

- Subject refuses to continue participating in the study.
- Subject does not meet the inclusion/exclusion criteria
- Subject is deceased (cause must be documented).
- Subject's non-compliance.
- Subject's participation is terminated by the PI or Investigator, although the subject consented, since participation is no longer medically appropriate.
- Subject is 'lost to follow up': Subject does not adhere to the scheduled follow up visits but has not explicitly requested to be withdrawn from the clinical study (this does not apply to missed visits). Site personnel should at all times make all reasonable efforts to locate and communicate with the subject in order to achieve subject compliance to the scheduled follow up visits.

  A subject will be considered 'Lost to Follow-up' after 2 consecutive missed visit(s) and a minimum of two unsuccessful phone calls from investigational site personnel to the subject or contact to schedule the next follow-up visit. These two phone calls must be documented in the subject's hospital records. If the subject is deemed lost to follow-up a letter should be sent to the subject's last known address or to the subject's general practitioner (GP) and a copy of the letter must be maintained in the subject's hospital records. This letter serves as a last attempt to bring the patient back into compliance. If the patient does not return to the hospital for the next study visit within 2 weeks after the letter was sent, the subject shall be considered as withdrawn. The date of withdrawal should be the date of the first missed study visit.

When subject withdrawal from the clinical investigation occurs, the subject should be followed up as part of standard care. The status of the subject's condition should be documented at the time of withdrawal.

6 Statistical Considerations

6.1.1 Primary Endpoint

The analysis population will include subjects who complete the NRS at both baseline and 6-month follow-up visit. The primary endpoint will be calculated as follows:

Change in pain = pain at 6 months assessed by NRS – pain at baseline assessed by NRS
Relative Change in pain (%) = (change in pain at 6 months/pain at baseline assessed by NRS)*100%

Change and relative change (%) in pain will be summarized by mean and standard deviation, median, minimum, maximum and a 95% confidence interval. Results will be descriptively compared to data from existing tonic and BurstDR trials to evaluate efficacy.

6.1.2 Secondary Endpoints

The following secondary endpoints will be used to evaluate the relationship between patient characteristics, program usage, and therapy outcomes. Endpoints will be summarized by mean, standard deviation, median, minimum, maximum, and a 95% confidence interval.

6.1.2.1 Change in Quality of life

The endpoint will be measured using the EQ5D questionnaire. The analysis population will include subjects who complete the EQ5D questionnaire at baseline and at the 6-month follow-up visit. The endpoint will be calculated as a raw difference score as well as relative change reported as a percentage change from baseline.

6.1.2.2 Change in Sleep

The endpoint will be measured using the MOS Sleep Scale. The analysis population will include subjects who complete the MOS Sleep Scale at baseline and at the 6-month follow-up visit. The endpoint will be calculated as a raw difference score as well as relative change reported as a percentage change from baseline.

6.1.2.3 Change in Physical Function

The endpoint will be measured using the PROMIS Physical Function Scale. The analysis population will include subjects who complete the PROMIS Physical Function Scale at baseline and at the 6-month follow-up visit. The endpoint will be calculated as a raw difference score as well as relative change reported as a percentage change from baseline.

6.1.2.4 Change in Fear Avoidance

The endpoint will be measured using the TSK. The analysis population will include subjects who complete TSK at baseline and at the 6-month follow-up visit. The endpoint will be calculated as a raw difference score as well as relative change reported as a percentage change from baseline.

6.1.2.5 Change in Anxiety

The endpoint will be measured using the STAI. The analysis population will include subjects who complete the STAI at baseline and at the 6-month follow-up visit. The endpoint will be calculated as a raw difference score as well as relative change reported as a percentage change from baseline.

6.1.2.6 Change in Depression

The endpoint will be measured using the PHQ9. The analysis population will include subjects who complete the PHQ9 at baseline and at the 6-month follow-up visit. The endpoint will be calculated as a raw difference score as well as relative change reported as a percentage change from baseline.

6.1.2.7 Change in Pain Catastrophizing

The endpoint will be measuring using the Pain Catastrophizing Scale. The analysis population will include subjects who complete the PCS at baseline and at the 6-month follow-up visit. The endpoint will be calculated as a raw difference score as well as relative change reported as a percentage change from baseline.

6.1.3 Demographic/Baseline Characteristic and Descriptive Endpoints

The following descriptive endpoints will be reported:

- Change from baseline to 12, 18, and 24 months post-permanent implant for quality of life measured using the EQ5D questionnaire will be summarized by mean, standard deviation and 95% confidence interval.
- Change of the PCS score from baseline at 3, 12, 18 and 24 months post-permanent implant will be summarized by mean, standard deviation, and 95% confidence interval.

- Change from baseline to 12, 18 and 24 months post-permanent implant for anxiety measured using the STAI will be summarized by mean, standard deviation, and 95% confidence interval.
- Change from baseline to 12, 18 and 24 months post-permanent implant for depression measured using the PHQ9 will be summarized by mean, standard deviation, and 95% confidence interval.
- Change from baseline to 3, 12, 18 and 24 months post-permanent implant for fear avoidance measured using the TSK will be summarized by mean, standard deviation, and 95% confidence interval.
- Change from baseline to 12, 18 and 24 months post-permanent implant for sleep measured using the MOS Sleep Scale will be summarized by mean, standard deviation, and 95% confidence interval.
- Change from baseline to 12, 18 and 24 months post-permanent implant for physical function measured using the PROMIS Physical Function Scale will be summarized by mean, standard deviation, and 95% confidence interval.
- Change from baseline to End of Trial System Evaluation 3, 12, 18, and 24 months post-permanent implant for pain measured using the NRS will be summarized by mean, standard deviation, and 95% confidence interval.
- Demographics and medical history will be reported. The continuous variable(s) will be summarized by mean and standard deviation. The categorical variable(s) will be summarized by frequencies and percentages.
- Patient waveform preference at 3, 6, 12, 18, and 24 months post-permanent implant will be summarized by frequencies and percentages for participants who had multiple waveforms available to choose from.
- Patient satisfaction at End of Trial System Evaluation 3, 6, 12, 18, and 24 months post-permanent implant will be summarized by frequencies and percentages.
- Global improvement of the patient by using the Patient Global Impression of Change at End of Trial System Evaluation 3, 6, 12, 18, and 24 months will be summarized by frequencies and percentages.
- Medication usage measured in decrease in chronic pain related medication intake since baseline at 3, 6, 12, 18, and 24 months post-permanent implant by frequencies and percentages.
- Battery consumption and/or recharging activities at 3, 6, 12, 18, and 24 months will be summarized by frequencies and percentages.
- Stimulation Assessment measured by using the Stimulation Assessment Form at 3, 6, 12, 18, and 24 months post-permanent implant will examine types of perceived stimulation as well as stimulation coverage and intensity.
- Program information including amplitude, pulse width, frequency and electrode configuration will be summarized.
- System information including device type, model number, lot number, and number of leads will be summarized.
- Device, or procedure-related SAEs and non-serious AEs in subjects who receive permanent implant of the SCS stimulation system will be summarized by frequencies and percentages.

6.1.4 Missing Data

Imputation methods will be used as appropriate to account for missing data, subject dropouts and withdrawals. If spurious data are discovered, these data will be excluded from analyses. Specific methods for handling missing data and reasons for exclusion of any data from analyses will be summarized where appropriate.

6.1.1 Subgroup Analysis

Primary and secondary endpoints will be stratified by the subjects who had an ‘on-the-table trial’ and subjects who had a BurstDR trial.

6.2 Justification of Clinical Investigation Design

The study is designed as a post-market, international, multicenter, interventional, prospective, single-arm study. The investigation will be conducted in approximately 30 centers in EMEA, US, Canada, and ANZ. The international and long-term follow-up study design will provide the real-world experience of multiple waveform enabled neurostimulator in patients with chronic, intractable pain of the trunk and/or limbs.

6.3 Overall Sample Size

The study aims to enroll 267 subjects based on assumptions drawn from experience with the Prodigy I study. Assuming a trial failure rate of 30%, and an attrition rate of 10% between baseline and trial, and 14% from permanent implant to 6-month follow-up, 168 subjects are projected to complete the permanent implant and 145 subjects are projected to complete the 6-month follow-up for primary endpoint evaluation. One hundred forty-five (145) subjects with evaluable NRS data at baseline and 6-month visit provides a 95% confidence interval on the NRS change from baseline to 6-month with half interval width of 0.49 assuming the standard deviation of the NRS change is 3.

6.4 Timing of Analysis

The analysis of primary and secondary endpoints will be conducted when 145 subjects have a permanent system implant and complete the 6-month follow-up endpoint evaluation. The final report will be conducted after all enrolled subjects either complete the 24-month visit or are discontinued from the study prior to the 24-month visit.

6.5 Interim Analysis

An interim analysis of descriptive endpoints will be performed when all enrolled subjects either reach the 12-month visit or are discontinued from the study prior to the 12-month visit.

6.6 Statistical Criteria for Termination

There are no statistical criteria for terminating this clinical investigation.

6.7 Deviations from Statistical Plan

If any deviations from the original statistical plan occur, such deviations will be documented in the clinical study report or statistical report containing the analysis results.

7 Risks and Benefits

There are no additional risks of the clinical study beyond those associated with the implant and use of the CE/FDA-approved trial and permanent neurostimulation systems. Please refer to section 7.1.1 for the list of anticipated adverse events.

7.1 Risks Associated with the Clinical Study Device

7.1.1 Anticipated Adverse Device Effects

The use of a neurostimulation system involves risks. In addition to the risks commonly associated with surgery, below are listed the anticipated potential adverse effects with the use of a neurostimulation system:

- Unpleasant sensations or motor disturbances, including involuntary movement, caused by stimulation at high outputs (if either occurs, turn off your EPG/IPG immediately)
- Undesirable changes in stimulation, which may be related to cellular changes in tissue around the electrodes, or changes in electrode position
- Changes in stimulation or reduced pain relief due to loose electrical connections

- Changes in stimulation or reduced pain relief due to lead failure
- Stimulation in unwanted places or chest wall stimulation
- Changes in stimulation or reduced pain relief due to lead migration
- Epidural hemorrhage
- Hematoma
- Infection
- Spinal cord compression
- Paralysis from placement of a lead in the epidural space
- Cerebrospinal fluid (CSF) leakage
- Paralysis below the level of implant
- Weakness, clumsiness and numbness below the level of implant
- Pain below the level of implant
- Persistent pain at the lead site
- Persistent pain at the IPG site
- Seroma (mass or swelling) at the IPG site
- Seroma at the lead incision site
- Allergic or rejection response to device/implant materials
- Implant migration
- Skin erosion around the implant
- Loss of stimulation due to premature battery depletion/battery failure

The St. Jude Medical™ MRI conditional neurostimulation systems are designed to minimize the potential adverse events that may cause patient harm. The following potential adverse events may occur in the MRI environment:

- Lead electrode heating resulting in tissue damage or serious patient injury
- IPG heating resulting in tissue damage in the implant pocket or patient discomfort or both
- Induced currents on leads resulting in overstimulation or shocking sensations
- Damage to the IPG or leads causing the system to fail to deliver stimulation or causing the system to deliver overstimulation
- Damage to the functionality or mechanical integrity of the IPG resulting in the inability to communicate with the IPG
- Movement or vibration of the IPG or leads

7.1.2 Risks Associated with Clinical Investigation Assessments

7.1.2.1 Residual Risks Associated with the devices in this study, as identified in the risk analysis report

The clinical risks associated with neurostimulation systems are well known. Any potential residual risks are considered to be outweighed by the benefits, and the overall residual risk was determined to be acceptable. Clinical evidence demonstrates acceptable safety and performance of the device under this post-market study.

7.1.2.2 Risks Associated with participation in the clinical study

The risks involved with this study are comparable to those associated with the implant of any other commercially available neurostimulation system.

7.1.2.3 Possible Interactions with Concomitant Medical Treatments and/or concurrent medical interventions

Please refer to the Clinician's Manual for information related to MRI compatibility and any possible interactions with concomitant medical treatment.

7.1.2.4 Steps that will be taken to control or mitigate the risks

The Sponsor will employ measures throughout the course of this study to minimize these risks (e.g. clearly defined inclusion and exclusion criteria to ensure that only appropriate subjects are enrolled, proper consenting process, selection of investigational sites that have a sufficient level of clinical expertise, Investigator selection, appropriate training for all involved in the study activities etc.).

7.2 Anticipated Benefits

The information collected in this clinical study will be added to the current knowledge and understanding of treatment options for patients requiring a SCS treatment.

7.3 Risk-to-Benefit Rationale

Any undesirable side effects, under normal conditions of use, are considered acceptable risks when weighed against the performance of the device and benefits to the subject.

8 Requirements for Investigator Records and Reports

8.1 Deviations from CIP

A deviation is defined as an instance(s) of failure to follow, intentionally or unintentionally, the requirements of the CIP. The Investigator should not deviate from the CIP.

In some cases, failure to comply with the CIP may be considered failure to protect the rights, safety and well-being of subjects; such non-compliance exposes subjects to unreasonable risks. Examples: failure to adhere to the inclusion/exclusion criteria, failure to perform safety assessments intended to detect adverse events. Investigators should seek to minimize such risks by adhering to the CIP.

The PI must maintain accurate, complete, and current records, including documents showing the date of and reason for each deviation from the CIP. Relevant information for each deviation will be documented as soon as possible on the applicable CRF. The site will submit the CRF to the Sponsor.

The PI is required to adhere to local regulatory requirements for reporting deviations to IRB/EC.

Under emergency circumstances, deviations from the CIP to protect the rights, safety and well-being of subjects may proceed without prior approval of the Sponsor and the IRB/EC. Such deviations shall be documented and reported to the Sponsor and the IRB/EC as soon as possible.

8.2 Safety Reporting

Safety surveillance within this study and the safety reporting both performed by the Investigator and the Sponsor, starts as soon as the subject is enrolled in this study (date of signature of the informed consent).

Safety surveillance and the safety reporting will continue until the last investigational visit has been performed, the subject is deceased, the subject/Investigator concludes his participation into the clinical investigation or the subject withdrawal from the clinical investigation.

All adverse event data including deaths will be collected throughout the clinical investigation and will be reported to the Sponsor on a CRF.

Adverse events will be monitored by the Investigator until they are adequately resolved or the subject has ended his/her participation in the trial, whichever comes first. The status of the subject's condition should be documented and reported to the Sponsor at each visit.

Per the CIP, the applicable reportable adverse event data including deaths will be collected throughout the clinical study and will be reported to the Sponsor through the EDC system. The Sponsor will ensure that all applicable events are reported to the relevant authorities as per regulations. The Investigator must notify the IRB/EC, if appropriate, in accordance with national and local laws and regulations, of the AEs reported to the Sponsor.

Reportable events to Sponsor are considered:

- All non-Serious Adverse Device Effects (procedure/device related)
- All Serious Adverse Events (whether or not the event is considered device or procedure related)
- Adverse events related to MRI scan

All the above events will be reported to the Sponsor, as soon as possible, but no later than 3 calendar days from the day the site personnel became aware of the event, or as per the investigative site's local requirements if that requirement is more stringent. The date the site staff became aware that the event met the criteria for an SAE must be recorded in the source documents.

For unexpected failure modes or unexpected adverse events, the site should follow their standard reporting practices for medical device reporting (MDR)/Vigilance reporting for medical devices per the regulations.

8.2.1 Subject Death

Subject deaths will be documented and reported to the Sponsor on the applicable CRF as soon as possible after becoming aware of the event. It is the Investigator's responsibility to notify the IRB/EC per the IRB/EC policy.

Should death occur, the Investigator is requested to record death information in the hospital records and immediately document the information on the Death CRF and submit to Sponsor through the electronic data capture (EDC) system deployed by Abbott.

- All efforts to obtain the details about the circumstances surrounding the patient death should be made by the Investigator.
- If a death event is an outcome of an adverse event, an AE CRF must be completed in addition to the Death CRF.
- The subject's death is an early conclusion of the subject's participation in the study. Therefore, the Investigator is requested to complete the Withdrawal form.

8.2.2 Complaints

During the study, the Investigator will be responsible for reporting all complaints. A complaint is defined as any written, electronic or oral communication that alleges deficiencies related to the identity, quality, durability, reliability, safety, effectiveness or performance of a device after it is released for distribution.

If the complaint does not involve an AE, the Investigator must notify the Abbott Post Market Surveillance Department by submitting the information on the device via email to NMD CCoordinators@sjm.com or by phone +1 972-309-8000 as soon as possible after becoming aware of the complaint. This information will not be collected on a CRF for the study.

If the complaint involves an AE, the Investigator must complete an AE CRF, including the information on the complaint and submit to Abbott as soon as possible and in accordance with the local laws and regulations.

8.3 Source records

Source documents will be created and maintained by the investigational site team throughout the clinical investigation. The data reported on the CRFs will be derived from, and be consistent with, these source documents, and any discrepancies will be explained in writing.

8.4 Records Retention

The Sponsor and the Principal Investigators will maintain the clinical investigation documents as required. Measures will be taken to prevent accidental or premature destruction of these documents. The Principal Investigator or the Sponsor may transfer custody of records to another person/party and document the transfer at the investigational site or the Sponsor's facility, as appropriate.

These documents must be retained by the investigational site for a period of 2 years after the conclusion of the clinical investigation and made available for monitoring or auditing by the Sponsor's representative or representatives of the applicable regulatory agencies.

All original source documents must be stored for the maximum time required by the regulations at the hospital, research institute, or practice in question. If original source documents can no longer be maintained at the site, the Investigator will notify the Sponsor.

9 Clinical Data Handling

The Sponsor will be responsible for the data handling. The Sponsor and/or its affiliates will be responsible for compiling and submitting all required reports to governmental agencies. Data will be analyzed by the Sponsor and may be transferred to the Sponsor's locations worldwide and/or any other worldwide regulatory authority in support of a market-approval application.

9.1 Protection of Personally Identifiable Information

Abbott respects and protects personally identifiable information collected or maintained for this clinical investigation. The privacy of each subject and confidentiality of his/her information will be preserved in reports and when publishing any data. Confidentiality of data will be observed by all parties involved at all times throughout the clinical investigation. All data will be secured against unauthorized access.

9.2 Data Management Plan

A Data Management Plan (DMP) will describe procedures used for data review, database cleaning, and issuing and resolving data queries. If appropriate, the DMP may be updated throughout the clinical investigation duration. All revisions will be tracked and document controlled.

Subject data will be captured in a validated electronic data capture (EDC) system hosted by the Sponsor. Only authorized site personnel will be permitted to enter the CRF data through the EDC system deployed by Abbott. An electronic audit trail will be used to track any subsequent changes of the entered data.

9.3 Document and Data Control

9.3.1 Traceability of Documents and Data

The Investigator will ensure accuracy, completeness legibility and timeliness of the data reported to the Sponsor on the CRFs and in all required reports.

9.3.2 Recording Data

The CRF will be reviewed by the authorized site personnel. An appropriate comment will be provided to explain changes to data reported on the CRF.
Source documents will be created and maintained by the investigational site team throughout the clinical study. The data reported in the EDC will be derived from, and be consistent with, these source documents, and any discrepancies will be explained in writing.

10 Monitoring

Centralized monitoring will occur through routine internal data review. This monitoring is designed to identify missing and inconsistent data, data outliers, and potential CIP deviations that may be indicative of site non-compliance. On-site monitoring may occur at the discretion of the Sponsor.

11 Compliance Statement

11.1 Statement of Compliance

This clinical investigation will be conducted in compliance with the most current regional and local laws and regulations. Principles of Good Clinical Practice will be followed as based on the most current version of the World Medical Association (WMA) Declaration of Helsinki.

The Investigator will sign a Clinical Trial Agreement and agrees to be compliant with it. The Investigator will not start enrolling subjects or requesting informed consent from any subject prior to obtaining IRB/EC approval and relevant Regulatory Authority approval, if applicable, and authorization from the Sponsor in writing for the clinical investigation. If additional requirements are imposed by the IRB/EC or relevant Regulatory Authority, those requirements will be followed. If any action is taken by an IRB/EC or a relevant Regulatory Authority with respect to the clinical investigation, that information will be forwarded to the Sponsor.

For OUS sites; As the Sponsor, Abbott has taken up general liability insurance in accordance with the requirements of the applicable local laws. An appropriate Abbott country representative will be utilized to understand the requirements for the type of insurance that will be provided for subjects, and such information will be incorporated into the site informed consent, as applicable. If required, additional subject coverage or a clinical investigation specific insurance will be provided by the Sponsor.

11.2 Quality Assurance Audits and Regulatory Inspections

The Investigator and/or delegate should contact the Sponsor immediately upon notification of a regulatory authority inspection at the site. A monitor or designee will assist the Investigator and/or delegate in preparing for the audit. The Sponsor may perform quality assurance audits, as required.

The Principal Investigator or institution will provide direct access to source data during and after the clinical investigation for monitoring, audits, IRB/EC review and regulatory authority inspections, as required. The

Principal Investigator or institution will obtain permission for direct access to source documents from the subject, hospital administration and national regulatory authorities before starting the clinical investigation.

11.3 Repeated and Serious Non-Compliance

In the event of repeated non-compliance or a one-time serious non-compliance, as determined by the Sponsor, a monitor or designee will attempt to secure compliance by one or more of the following actions:

- Visiting the Investigator
- Contacting the Investigator by telephone
- Contacting the Investigator in writing
- Retraining of the Investigator

If an Investigator is found to be repeatedly non-compliant with the signed agreement, the CIP or any other conditions of the clinical investigation, the Sponsor will either secure compliance or, at its sole discretion, terminate the Investigator's participation in the clinical investigation. In case of termination, the Sponsor will inform the responsible regulatory authority, as required, and ensure that the IRB/EC is notified, either by the Principal Investigator or by the Sponsor.

12 Suspension or Premature Termination of the Clinical Investigation

The Sponsor reserves the right to terminate the clinical investigation at any stage, with appropriate written notice to the Investigators, IRB/ECs and relevant Regulatory authorities, if required.

A Principal Investigator, IRB/EC or regulatory authority may suspend or prematurely terminate participation in a clinical investigation at the investigational sites for which they are responsible. The Investigators will follow the requirements specified in the Clinical Trial Agreement.

If suspicion of an unacceptable risk to subjects arises during the clinical investigation or when so instructed by the IRB/EC or regulatory authority, the Sponsor may suspend the clinical investigation while the risk is assessed. The Sponsor will terminate the clinical investigation if an unacceptable risk is confirmed. If the Sponsor completes an analysis of the reasons for the suspension, implements the necessary corrective actions, and decides to lift the temporary suspension, the Sponsor will inform the Principal Investigators, IRB/EC, or regulatory authority, where appropriate, of the rationale, providing them with the relevant data supporting this decision. Approval from the IRB/EC or regulatory authority, where appropriate, will be obtained before the clinical investigation resumes. If subjects have been informed of the suspension, the Principal Investigator or authorized designee will inform them of the reasons for resumption.

If the Sponsor suspends or prematurely terminates the clinical investigation at an individual investigational site in the interest of safety, the Sponsor will inform all other Principal Investigators.

If suspension or premature termination occurs, the Sponsor will remain responsible for providing resources to fulfill the obligations from the CIP and existing agreements for following up the subjects enrolled in the clinical investigation, and the Principal Investigator or authorized designee will promptly inform the enrolled subjects at his/her investigational site, if appropriate.

13 Clinical Investigation Conclusion

The clinical investigation will be concluded when:

- All sites are closed AND
- The final report has been provided to Investigators or the Sponsor has provided formal documentation of clinical investigation closure

14 Publication Policy

Publications or presentations of clinical investigation methods or results will adhere to Abbott's publication policy, which is based on Good Publication Practices and International Committee of Medical Journal Editors (ICMJE) guidelines. A copy of the policy will be provided upon request of the Investigator.

15 Reporting Results on ClincalTrials.gov Website

The clinical investigation will be registered on ClinicalTrials.gov. A full report of the pre-specified outcomes, regardless of the results, will be made public through the ClinicalTrials.gov website no later than 12 months after clinical investigation completion, as required by section 801 of the Food and Drug Administration (FDA) Amendments Act.

Appendix A: ABBREVIATIONS

Abbreviation	Term
ADE	Adverse Device Effect
AE	Adverse Event
ANZ	Australia – New Zealand
BLE	Bluetooth® Low Energy
CA	Competent Authority
CIP	Clinical Investigational Plan
CRF	Case Report Form
CSF	Cerebrospinal Fluid
DMP	Data Management Plan
DRG	Dorsal Root Ganglion
EC	Ethics Committee
eCRF	Electronic Case Report Form
EDC	Electronic Data Capture
EMEA	Europe, Middle East, Africa
EPG	External Pulse Generator
EQ5D	Euro Qol 5- Dimensions
FDA	Food and Drug Administration
GP	General Practitioner
ICMJE	International Committee of Medical Journal Editors
IFU	Instructions for Use
IPG	Implantable Pulse Generator
IRB	Institutional Review Board
ISB	Investigator Site Binder
MOS	Medical Outcome Study
MP	Monitoring Plan
MRI	Magnetic Resonance Imaging
MTS	Multiprogram Trial Stimulator
NRS	Numeric Rating Scale
OUS	Outside United States
PCS	Pain Catastrophizing Scale
PGIC	Patient Global Impression of Change
PHQ-9	Patient Health Questionnaire - 9
PI	Principal Investigator
PNfS	Peripheral Nerve field Stimulation System
PNS	Peripheral Nerve Stimulation
PRO	Patient Reported Outcome
PROMIS	Patient-Reported Outcome Measurement Information System
PVD	Peripheral Vascular Disease
SADE	Serious Adverse Device Effect
SCS	Spinal Cord Stimulation
SJM	St. Jude Medical
SAE	Serious Adverse Event
STAI	State Trait Anxiety Inventory
TSK	Tampa Scale for Kinesiophobia
WMA	World Medical Association

Appendix B: CIP Revision History

This CIP may be amended as appropriate by the Sponsor. Rationale will be included with each amended version in the revision history table below. The version number and date of amendments will be documented.

The acknowledgement of the amended CIP by the Coordinating Investigator (if applicable) and the Principal Investigators will be collected on the signature pages.

IRB/EC and relevant Regulatory Authorities, if applicable, will be notified of amendments to the CIP.

Revision History				
Amendment Number	Version	Date	Rationale	Details
Not Applicable	A	24 May 2015	First release of CIP	NA
Amendment 1	B	14 Nov 2016	Amended version to included changes mentioned in the 'details' section.	- Implementation wording new CIP template - The Patient Reported Outcomes are no longer requested at every study visit. - The visit windows were adapted as of the 6-month visit (60 days) - There no longer a maximum timeframe between the end of trial system evaluation and permanent implant - There is no longer a need to printout the programming parameters record after the permanent implant procedure - US region included - Inclusion/Exclusion criteria changed and/or re-worded - Sample size increased to 267 - Use of MTS is added for on-the-table trials only - The use of the Global Pain Scale

				is no longer applicable - The NRS changed to 1 question only - The risk section has been reworded - There will be a sub analysis by subjects who had 'on-the-table trials, tonic trials and Burst trials. - In case the subject requires reprogramming during follow-up visits, it should be performed prior to printout of the programming parameters record and any study visit assessments.
Amendment 2	C	15 Dec 2017	Amended to improve readability and clarity of measures used in the study. Additionally, MRI data collection was added (if scan conducted as standard of care)	- Revised introduction to clarify study rationale - Clarified description of collected measures - Added language regarding MRI data collection - Reformatted references - Changed SJM to Abbott where appropriate
Amendment 3	D	10 OCT 2018	Amended to include measure collection at 18 months.	- EQ-5D, PCS, STAI, PHQ-9, TSK, MOS Sleep Scale, and PROMIS physical function scales have been added to 18-month visit - Reference to a tonic-trial subgroup analysis removed because no such

				group can exist according to protocol rules - 3-day timeframe for SAE reporting specified - Various administrative corrections and clarifications
Amendment 3.1	E	19 NOV 2018	Addition prior to implementing Amendment 3 includes programming information and stimulation assessment at unscheduled visit.	- Programming information and stimulation assessment will be collected at unscheduled visit if reprogramming occurs.

Appendix C: Definitions

Non-study Specific Definitions

Adverse Event (AE)

Any untoward medical occurrence, unintended disease or injury, or untoward clinical signs (including abnormal laboratory findings) in subjects, users or other persons, whether or not related to the medical device under clinical investigation.

This definition includes events related to the medical device or procedures.

Serious Adverse Event (SAE)

An adverse event that led to:

- Death
- A serious deterioration in the health of the subject, that either resulted in:
  - A life-threatening illness or injury OR
  - A permanent impairment to a body structure or a body function OR
  - An in-patient or prolonged hospitalization OR
  - A medical or surgical intervention to prevent life-threatening illness or injury or permanent impairment to a body structure or a body function OR
  - A malignant tumor
- Fetal distress, fetal death or a congenital abnormality or birth defect

A planned hospitalization for a pre-existing condition, or a procedure required by the CIP is not considered a serious adverse event.

Adverse Device Effect (ADE)

An adverse event related to the use of a medical device.

This definition includes adverse events resulting from insufficient or inadequate instructions for use, deployment, implantation, installation, or operation, or any malfunction of the medical device.

This definition includes any event resulting from the use error or from intentional misuse of the medical device.

Serious Adverse Device Effect (SADE)

Adverse device effect that has resulted in any of the consequences characteristic of a serious adverse event.

Appendix D: Bibliography

1. de Vos CC, Rajan V, Steenbergen W, van der Aa HE, Buschman HP. Effect and safety of spinal cord stimulation for treatment of chronic pain caused by diabetic neuropathy. *J Diabetes Complications*. 2009; 23(1): 40-45.

2. Duyvendak W. Spinal cord stimulation with a dual quadripolar surgical lead placed in general anesthesia is effective in treating intractable low back pain and leg pain. *Neuromodulation*. 2007; 10(2): 113-119.

3. Kumar A, Felderhof C, Eljamel Ms. Spinal cord stimulation for the treatment of refractory unilateral limb pain syndromes. *Stereotact Funct Neurosurg.* 2003; 81(1-4); 70-74.

4. Leveque JC, Villavicencio AT, Bulsara K, Rubin L, Gorecki J. Spinal cord stimulation for failed back surgery syndrome. *Neuromodulation*. 2001; 4(1); 1-9.

5. North RB, Kidd DH, Olin J et al. Spinal cord stimulation for axial low back pain: a prospective, controlled trial comparing dual with single percutaneous electrodes. *Spine*; 30(12); 1412-1418.

6. Forouzanfar T, Kemler MA, Weber WE, Kessels AG, van Kleef M. Spinal cord stimulation in complex regional pain syndrome: cervical and lumbar devices are comparably effective. *Br J Anaesth.* 2004: 92(3); 348-353.

7. Kemler MA, de Vet HC Barendse GA, van den Wildenberg FA, van Kleef M. Effect of spinal cord stimulation for chronic complex regional pain syndrome Type I: five-year final follow-up of patients in a randomized controlled trial. *J Neurosurg.* 2008; 108(2); 292-298.

8. Katayama Y, Yamamoto T, Kobayashi K, Kasai M, Oshima H, Fukaya C. Motor cortex stimulation for phantom limb pain: comprehensive therapy with spinal cord and thalamic stimulation. *Stereotact Funct Neurosurg*. 2001; 77(1-4): 159-162.

9. Amann W, Berg P, Gersbach P, Gamain J, Raphael JH, Ubbink DT. Spinal cord stimulation in the treatment of non-reconstructable stable critical leg ischemia: results of the European Peripheral Vascular Disease Outcome Study (SCS-EPOS). *Eur J Vasc Endovasc Surg.* 2003; 26(3): 280-286.

10. Harke H, Gretenkort P, Ladleif HU, Koester P, Rahman S. Spinal cord stimulation in postherpetic neuralgia and in acute herpes zoster pain. *Anesth Analg.* 2002; 94(3): 694-700.

11. Taylor RS. Spinal cord stimulation in complex regional pain syndrome and refractory neuropathic back and leg pain/failed back surgery syndrome: results of a systematic review and meta-analysis. *J Pain Symptom Manage.* 2006; 31: S13-S19.

12. De Ridder D, Vanneste S, Plazier M, Vancamp T. Mimicking the brain: evaluation of St Jude Medical's Prodigy Chronic Pain System with Burst Technology. *Expert Rev Med Devices*. 2015; 12(2): 143-150.

13. Courtney P, Espinet A, Mitchell B et al. Improved pain relief with burst spinal cord stimulation for two weeks in patients using tonic stimulation: results from a small clinical study. *Neuromodulation.* 2015; 18(5): 361-366.

14. De Ridder D, Plazier M, Kamerling N, Menovsky T, Vanneste S. Burst spinal cord stimulation for limb and back pain. *World Neurosurg*. 2013; 80(5): 642-649.

15. de Vos CC, Bom MJ, Vanneste S, Lenders MWPM, De Ridder D. Burst spinal cord stimulation evaluated in patients with failed back surgery and painful diabetic neuropathy. *Neuromodulation.* 2014; 17: 152-159

16. Deer T, Slavin KV, Amirdelfan K et al. Success using neuromodulation with burst (SUNBURST) study: results from a prospective, randomized controlled trial using a novel burst waveform. *Neuromodulation.* 2017; E-pub ahead of print. doi: 10.1111/ner.12698

Appendix E: Case Report Form

The CRF's will be kept under a separate cover and are available upon request.

Appendix F: Sample Informed Consent

The study specific informed consent will be kept under a separate cover and is available upon request