HENNEPIN COUNTY MEDICAL CENTER
LEVEL 1 TRAUMA CENTER
Minneapolis, MN 55415

CONSENT FOR CLINICAL INVESTIGATION CONDUCTED WITH PATIENTS

180-03913 (4/17) Addressograph / Label

CONSENT FOR CLINICAL INVESTIGATION

Adult Consent to Participate in a Research Study
Epidural Stimulation for Spinal Cord Injury

The purpose of this paper is to give you basic information about a research study. As you read these pages, feel free to ask questions. Being a part of this study is your choice, so please think about the information in this paper carefully. If you choose to be a part of the study, you can sign a consent, or agreement, at the end of these pages.

1. INVESTIGATOR(s) CONDUCTING THIS STUDY
Who will be in charge of this study?

The Principal Investigator of this study is:

- Dr. David Darrow, MD, MPH, Department of Neurosurgery, University of Minnesota, MMC 96, Room D-429, 420 Delaware St SE, Minneapolis, MN 55455

2. SOURCE OF SUPPORT
Who is funding this research study?

A grant from the state of Minnesota called the Spinal Cord Injury and Traumatic Brain Injury Grant Program, managed by the Minnesota Office of Higher Education, is funding this research. St. Jude Medical is also providing devices for use in this study.

HENNEPIN COUNTY MEDICAL CENTER
LEVEL 1 TRAUMA CENTER
Minneapolis, MN 55415

CONSENT FOR CLINICAL INVESTIGATION CONDUCTED WITH PATIENTS

180-03913 (4/17) Addressograph / Label

3. SITE OF THE RESEARCH STUDY

Where will this study be done?

This research study will be conducted at HCMC, University of Minnesota, and Minneapolis VA Health Care System. You will be participating in the study in the HCMC neurosurgery clinic for your non-procedure visits.

4. PURPOSE OF THIS RESEARCH STUDY

Why is this research study being done?

The purpose of the study is to investigate whether epidural spinal cord stimulators (devices that give an electrical boost to your spinal cord) can improve voluntary movement in the legs of patients with paraplegia (paralyzed legs). We will also investigate whether it can help with standing and how it affects your heart, circulation, mood, and urination. This is an experimental use of epidural spinal cord stimulation and is in no way guaranteed to work at all. Other studies have been done that show that it works in similar patients. Fifty people are expected to participate in this study over the course of this study.

5. ELIGIBILITY

Who is being asked to be part of this research study?

You have been asked to participate in this study because you have a non-progressive spinal cord injury between cord levels C6 and T11 (lower neck to lower back injury) classified ASIA A or B (you have no voluntary movement below the injury), you are in a stable medical condition, you have no medical condition that will interfere with standing/step training, you are negative for significant depression or drug abuse, you are not currently taking anti-spasticity medication, you have not received Botox injections in the previous 6 months, you are unable to stand, it has been one year since your injury, you are at least 22 years of age, and you are not pregnant.

CONSENT FOR CLINICAL INVESTIGATION

HENNEPIN COUNTY MEDICAL CENTER
LEVEL 1 TRAUMA CENTER
Minneapolis, MN 55415

CONSENT FOR CLINICAL INVESTIGATION CONDUCTED WITH PATIENTS

180-03913 (4/17) Addressograph / Label

6. PROCEDURES

What procedures will be done for this research study?

If you agree to participate in the study, we would ask you to do the following: complete baseline neurologic testing, undergo surgery to implant the epidural spinal cord stimulator and the neurostimulator (a small machine that makes the electrical signal) in your back and a pocket under your skin, and return for monthly appointments to be tested and complete training. Each appointment will be 1-2 hours long. The following chart is a template of what will happen at each appointment. The epidural spinal cord stimulator placement procedure and the follow-up testing and training regimen are not part of the standard of care for your injury and are entirely experimental.

Procedures	Screening	Enrollment	Surgery	Post Op Visit	Follow up 1	Follow up 2	Follow up 3	Follow up 4	Follow up 5	Follow up 6	Follow up 7	Follow up 8	Follow up 9	Follow up 10	Follow up 11	Follow up 12	Closure
Spinal Cord Stimulator Implantation			**X**														
Questionnaires	**X**	**X**			**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
Physical Exam	**X**	**X**		**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
Radiology	**X**																
Electromyography	**X**				**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
Tilt Table Test	**X**																
Home Blood Pressure Test	**X**																
Autonomic Assessments					**O x 3**												
Falls Diary		**X**		**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
Home Training				**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**

Note: All subjects do the **X** procedures. Only subjects selected by results from the Tilt Table Test and Home Blood Pressure test do the **O** procedures.

Here are the procedure categories explained in detail:

Spinal Cord Stimulator Implantation

The epidural spinal cord stimulator is a small device that generates a small electric current that will travel along a paddle electrode (a wire with a flat metal head encased in plastic) within your spinal canal right next to your spinal cord. A small incision will be made in the skin of the back over the spine, bone covering the

HENNEPIN COUNTY MEDICAL CENTER
LEVEL 1 TRAUMA CENTER
Minneapolis, MN 55415

CONSENT FOR CLINICAL INVESTIGATION CONDUCTED WITH PATIENTS

180-03913 (4/17) Addressograph / Label

spinal canal will be removed, and the paddle electrode will be positioned under x-ray guidance. A pocket under your skin will be made where the neurostimulator will be placed. After allowing the incision to heal, a small electric current will be sent through these wires to stimulate the spinal cord.

Questionnaires

You will be asked questions about your identity (such as name, race, gender, occupation) and physical and mental health (such as spinal cord injury history, other health conditions, sleep, and quality of life).

Physical Exam

We will obtain vital signs (such as blood pressure and weight) and perform a neurologic exam up to two times a session.

Radiology

We will try to get your most recent X-Ray and MRI (magnetic resonance imaging) spine scans from your medical record if possible. If we need additional scans, they will be obtained prior to surgery unless there are risks associated with performing them (such as excessive radiation from multiple CT scans or anything that prevents you from being exposed to magnets in the MRI), at which point you will be exempt. All imaging will be done at no cost to you.

Labs

We will try to get your most recent lipid profile bloodwork (fats in your blood) at the start of the study. If we need to obtain it at the start of the study, we will do so at no cost to you.

Electromyography

Surface electrodes will be placed on your skin (stickers with wires attached), which will be connected to a machine that reads electrical signals that come from your muscles. The electrical tests will only measure the electrical signals your muscles make by themselves and will not be painful. During these visits, you will be asked to move your limbs while a physician makes the stimulator runs several

stimulation programs. Some of these programs may not send any signals to your spine – these are called "sham trials." You will get stimulation that sends an electrical signal to your spinal cord during each visit, but you will not be told which of the programs are sham or experimental.

Tilt Table Test

This test determines whether the Autonomic Assessments are done. You will be secured to a flat table with a Velcro belt and blood pressure cuffs will be put on one arm and two fingers. The table will then tilt upwards until it is upright, ten it will tilt back to a flat position. We will monitor your blood pressure during this procedure. If your blood pressure decreases too much, or you feel faint, we will stop the procedure and assign you to the Autonomic Assessments group.

Home Blood Pressure Test

This is another test that determines whether the Autonomic Assessments are done. You will be given a blood pressure cuff you will wear for a full 24 hours. You can go home and do normal activities during this time. The next day, you will return the blood pressure cuff. If the cuff results are very high or very low, we will assign you to the Autonomic Assessments group.

Autonomic Assessments

You will only participate in these tests if you are assigned to them by the two previous tests. These tests consist of multiple parts. First, you'll have a sympathetic skin response test, in which we apply a small electrical signal to your arms and legs and measure the effect. This electrical signal is not painful. Then, we do an orthostatic sit up test. We will have you empty your bladder, then record your blood pressure while you lie down and sit up. If you can't sit up, we will use a special table that moves to help you into an upright position. We will also use an ultrasound machine (an imaging device that looks inside your body using sound waves) to look at your heart and blood vessels during these tests – the ultrasound probe will be placed on your chest and on your head. Finally, we will have you read words on a television screen during this assessment. You will receive a combination of sham or experimental stimulation programs during these tests.

HENNEPIN COUNTY MEDICAL CENTER
LEVEL 1 TRAUMA CENTER
Minneapolis, MN 55415

CONSENT FOR CLINICAL INVESTIGATION CONDUCTED WITH PATIENTS

180-03913 (4/17) Addressograph / Label

Falls Diary

You will be asked to keep a record of events where you fall or nearly fall on a supplied calendar.

Home Training

You will be expected to engage in very simple leg exercises regularly at home with the epidural stimulator on. None of the stimulator programs for home training are sham – all send an electrical signal to your spinal cord. The stimulator can be used for a maximum of 4 hours per day. You will also be given a urinary, bowel, and sexual function diary to record any changes in these habits during the study.

7. RISKS, DISCOMFORTS, AND INCONVENIENCES

What are the possible risks, side effects, discomforts, or inconveniences of this research study?

The study has the following risks. Most of the risks associated with this study have to do with surgery. The chances of these risks are listed here:

Likely (more than 10 out of 100 people):

- The electrical paddle that sends a signal to the spine moves and may have to be repositioned.
- The wire going to the paddle breaks and has to be replaced.

Less Likely (1 to 10 out of 100 people):

- Infection
- Problem with the stimulator device that causes it to be replaced.
- Too much or too little stimulation due to wrong stimulator settings.
- Dead battery
- Discomfort or pain at the paddle or surgery area
- Loose connection of stimulator wires that need to be resecured

Rare (less than 1 out of 100 people or never reported):

- Epidural hematoma: Bleeding into the surgery site

HSR 16-4115 Version: 11/17/2020 , Previous: 01/29/2018, 01/27/2017, 12/21/2016, 11/29/2016, 11/29/2015, 06/02/2017, 08/29/2017

CONSENT FOR CLINICAL INVESTIGATION

- Leakage of fluid in your spinal cord (cerebrospinal fluid)
- Paralysis, weakness, clumsiness, or numbness below the implant
- Allergic reaction
- Skin sores

You may also require future surgery if the device malfunctions, you develop an infection, or you have cerebrospinal fluid leak. If you develop a severe infection you may become ineligible for future participation.

As part of the surgical planning process, you will undergo one thoracic spinal x-ray. This procedure involves exposure to ionizing radiation. The average amount of radiation that the average person would receive from this procedure is less than half of that received from natural sources of radiation (i.e. the sun, air, soil) by a Minnesota resident in one year (300 mrem).

Previous studies of epidural stimulation implantation in people with spinal cord injury have not resulted in major harm to subjects, but since this is a new application with few people tested so far, you must be informed of these theoretical risks of spinal cord stimulation. You may experience paresthesia (a buzzing or tingling sensation) that may feel uncomfortable and painful to you. You may experience involuntary movement. You may have an episode of autonomic dysreflexia (your blood pressure becomes really high). These events have not happened in previous similar studies, but we will closely monitor you for their occurrence should they happen to you.

You may be taken out of the study by the researchers if staying in the study would be harmful - such as if you develop an infection due to device insertion, you fail to follow instructions during follow up, the study is canceled, or the device fails.

In any research study, there may be risks we do not expect. You will be told about any important new information that may change your mind about your participation in this study.

8. REPRODUCTIVE AND PREGNANCY ISSUES

What is important to know about being a part of this study and pregnancy?

There are no known reproductive or pregnancy issues with being in the study.

9. HEALTH BENEFITS

What are the possible health benefits to you or to others from your being part of this research study?

The benefits to study participation are: You may be able to regain voluntary movement while the epidural stimulation is on. You may also be better able to stand. We are not sure if there will be improvements in cardiovascular function, mood, or depression and likely will need to study more patients in the future to know.

10. ALTERNATIVE TREATMENTS

What treatments or procedures are there for you if you decide not to be part of this research study?

You do not have to participate in this trial. Unfortunately, there are no other treatments similar to which we are offering in this trial.

11. CONFIDENTIALITY

Who will know that you are part of this research study?

Any information that could be used to identify you will be treated in strict confidence to the extent allowed by law. Nevertheless, some uses and disclosures of your information are necessary to conduct the study. If you agree to be part of this study, you will also be allowing the uses and disclosures of your private health information as needed for the purposes of this study as described in this consent.

"Private health information" means information that identifies you and is collected:

- during this study;
- from your past and current medical records maintained by your regular health care providers (including, if applicable, HCMC), to the extent the information is relevant to this study or to your eligibility for this study; or

- from any payment records relating to items or services furnished to you during this study.

By signing this consent, you are agreeing that your private health information may be disclosed to and used by:

- the doctors and other health care providers involved in this study;
- their staff;
- the research center (Minneapolis Medical Research Foundation);
- members of the HCMC Human Subjects Research Committee/Institutional Review Board;
- the sponsor of this study and its agents; and
- monitors from the United States Government and/or Food and Drug Administration (FDA).

The findings of this study may be used for scientific meetings, written reports, and publications, but no information that could be used to identify you will be disclosed for these purposes.

Once your private health information has been disclosed to a third party, federal privacy laws may no longer protect it from re-disclosure. However, anyone obtaining access to your private health information under this consent must agree to protect your information as required by this consent.

This consent to use your private health information as described above does not expire. However, if you later change your mind, you can revoke this consent by writing to Dr. David Darrow saying that you no longer wish to allow your private health information to be used for this study. If you revoke your consent, you may no longer be able to participate in the study. Moreover, we cannot undo uses or disclosures of your private health information that have already taken place in reliance on your prior consent.

HENNEPIN COUNTY MEDICAL CENTER
LEVEL 1 TRAUMA CENTER
Minneapolis, MN 55415

CONSENT FOR CLINICAL INVESTIGATION CONDUCTED WITH PATIENTS

180-03913 (4/17) Addressograph / Label

12. COSTS ASSOCIATED WITH THE RESEARCH STUDY

Will your insurance provider or you be billed for any costs of any treatments, medicines, or procedures done as part of this research study?

Your surgery and device will be paid for by this study. You are responsible for attending all appointments. You are also responsible for obtaining preoperative authorization with history and physical from your primary care provider. Medications after surgery will also not be paid for. If complications occur, you may be responsible for paying any additional medical bills.

The principal investigator of this study is paid to cover the costs of conducting the research.

13. COMPENSATION AND MEDICAL TREATMENT FOR ANY STUDY-RELATED INJURY

If you are injured from being part of this research study, what should you do and who will pay for it?

If you agree to be part of this study and believe you are sick or have been injured from being in this study, you should call the study doctor, Dr. David Darrow, (612) 873-8701, day or night. Medical care for any study-related sickness or injury will be available to you at Hennepin County Medical Center (HCMC). Financial compensation for lost wages, disability, and discomfort is not routinely available. The cost of this medical care will be billed to you or your insurance company.

14. COMPENSATION FOR PARTICIPATION

Will you be paid for being part of this research study?

You will not receive any payment for participating in this study.

CONSENT FOR CLINICAL INVESTIGATION

HENNEPIN COUNTY MEDICAL CENTER
LEVEL 1 TRAUMA CENTER
Minneapolis, MN 55415

CONSENT FOR CLINICAL INVESTIGATION CONDUCTED WITH PATIENTS

180-03913 (4/17) Addressograph / Label

15. NEW FINDINGS

Will you be told of any new information or new risks that may be found while this study is going on?

In every research study, there may be risks we do not expect. You will be told about any important new information that may cause you to change your mind about being part of this study.

16. FREEDOM TO PARTICIPATE AND WITHDRAW

Is being part of this research study voluntary? Can you decide to stop being in this research study at any time?

Being part of this research study is your choice. You do not have to be part of this study. You can agree to be in the study now and change your mind later. Your decision to stop being in the study will not affect your regular care. Your doctor's attitude toward you will not change.

If you decide to stop being in the study, the study doctor may discuss with you a more limited participation in this study such as still collecting information from your medical records after you stop your direct participation. If you agree at that time, to such continued limited participation, that agreement will be noted in your records.

17. PROCEDURES FOR ORDERLY WITHDRAWAL OR REMOVAL FROM THE STUDY

What would happen if you decide to stop being part of this study or if you are removed from this study?

You may be taken out of the study by the researchers if:
- staying in the study would be harmful;
- you fail to follow instructions; or
- the study is canceled.

If you do decide to withdraw your consent, we ask that you contact Dr. David Darrow and let him know that you are withdrawing from the study. If you wish to

CONSENT FOR CLINICAL INVESTIGATION

withdraw your authorization as well you must contact Dr. David Darrow in writing.

Remember that withdrawing your authorization only affects the use and sharing of information after your written request has been received, and you may not withdraw your authorization for uses or disclosures that we have previously made or must continue to make to complete analyses or report data from the research. The Principal Investigator or another member of the study team will discuss with you any considerations involved in discontinuing your participation in the study. You will be told how to withdraw from the study.

You may choose to have the spinal cord stimulator and neurostimulator removed at any time and for any reason. If you want to have the device removed, please contact Dr. Darrow or the other investigators listed on this study. An appointment will be scheduled to perform the surgery necessary for removal. The cost for removal will be billed to your preferred payment / insurance method. The removal of the device may halt or withdraw your participation in the study.

18. CONTACT INFORMATION FOR QUESTIONS

Who should you contact if you have questions?

A description of this clinical trial will be available on http://www.ClinicalTrials.gov (NCT Number: NCT03026816), as required by U.S. law. This Web site will not include information that can identify you. At most, the Web site will include a summary of the results. You can search this Web site at any time.

If you have any problems, concerns, or questions about the study or your rights as a subject in this research study, want to obtain information, or want to offer input, and want to talk to someone other than the study doctor, you can call the Office of Human Subjects Research at Hennepin County Medical Center at (612) 873-6882.

If you have any questions before signing this consent, please be sure to ask them now. During the study, if you have any questions, concerns, or complaints for the study doctor, please call Dr. David Darrow at (612) 217-4290.

HENNEPIN COUNTY MEDICAL CENTER
LEVEL 1 TRAUMA CENTER
Minneapolis, MN 55415

CONSENT FOR CLINICAL INVESTIGATION CONDUCTED WITH PATIENTS

180-03913 (4/17) Addressograph / Label

19. EMPLOYEES AND STUDENTS

Are you affected from participating in this research?

All students or employees that wish to participate will not have their academic status or grades, or employment be affected by their decision to participate in this study. Record of their participation cannot be linked to an academic or employee record.

20. DECLARATION OF INTEREST

Are there any relevant relationships between the Investigators and this study?

St. Jude Medical has given Dr. Darrow's research team epidural spinal cord stimulator devices for use in this study. The agreement between Dr. Darrow and St. Jude Medical is limited to reporting study progress to St. Jude Medical. Dr. Darrow does not receive any financial benefit dependent on the results of the study.

CONSENT FOR CLINICAL INVESTIGATION

HENNEPIN COUNTY MEDICAL CENTER
LEVEL 1 TRAUMA CENTER
Minneapolis, MN 55415

CONSENT FOR CLINICAL INVESTIGATION CONDUCTED WITH PATIENTS

180-03913 (4/17) Addressograph / Label

CONSENT FOR CLINICAL INVESTIGATION

VOLUNTARY CONSENT FORM

- I have either read the attached consent or it has been read to me.
- By signing this form, I do not give up any of my legal rights or release anyone involved in this research study from their responsibility for negligence.
- By signing this form, I agree to be part of this research study and consent to the use of my private health information as described in Section 11 ("Confidentiality") of the attached consent.
- A signed copy of this consent will be given to me.

_____
Subject's / Legally Authorized Representative's Signature

_____
Subject's / Legally Authorized Representative's Printed Name

_____
Date

I certify that a copy of this form has been provided to the above-named subject.

_____
Explained by (Signature)

_____
Explained by: (Printed Name, Title)

_____
Date

HSR 16-4115 Version: 11/17/2020 , Previous: 01/29/2018, 01/27/2017, 12/21/2016, 11/29/2016, 11/29/2015, 06/02/2017, 08/29/2017

14