INDIANA UNIVERSITY INFORMED CONSENT STATEMENT FOR

Study Title:	**Electroceutical Dressing Technology (EDT) Against Wound Microbial Biofilm Infection**
Principal Investigator:	**Sashwati Roy, PhD**

About this research
You are being asked to participate in a research study. Scientists do research to answer important questions which might help change or improve the way we do things in the future.

This consent form will give you information about the study to help you decide whether you want to participate. Please read this form, and ask any questions you have, before agreeing to be in the study.

Taking part in this study is voluntary
You may choose not to take part in the study or may choose to leave the study at any time. Deciding not to participate, or deciding to leave the study later, will not result in any penalty or loss of benefits to which you are entitled, and will not affect your relationship with Indiana University/Indiana University Health or Sidney & Lois Eskenazi Hospital.

Why is this study being done?
Biofilm (small organisms in cells that stick to each other on a surface) related infections represent a major challenge in wound care due to their resistance to our immune defenses and standard microbial (bacterial) treatments. Currently, there are no available treatments that show anti-biofilm effectiveness. Biofilms account for about 80% of infections, and the associated costs with treatment of these infections exceeds one billion dollars a year. The purpose of this study is to determine the effects of a dressing called **electroceutical dressing technology (EDT_{lo} also known as Procellera and EDT_{hi} also known as Patterned Electroceutic Dressings or PED-10)** on an open wound and in wound bacteria. The dressing may improve the overall healing process of an open wound. The EDT_{hi} dressing (PED-10) uses a small battery in between silk fabric and medical tape that includes a switch that allows you to turn the dressing on or off as desired. The PED-10 Device is investigational, meaning that it has not been approved by the Food and Drug Administration (FDA). The Procellera Device has been cleared by the FDA.

You are being asked to participate in this study because you have an infected chronic trauma or surgical wound.

How many people will take part in this study and how long will I be in this study?
A total of 112 people will take part in this study. If you decide to participate, your total participation may last up to 6 weeks. This includes 4 study visits at weeks 0, 2, 3, and 6. Subjects who have had biopsies will be followed after the procedure for 30 days or until

healing, whichever comes first. We will follow you through your medical records. Each study visit will last approximately 1 hour. You will receive a phone call to perform assessments as well.

What will happen if I take part in this study?
Everything described in this form from this point on refers to the research procedures related to the study. The timeline below explains the study visits to be completed. During each of these visits, the following activities will take place, which will be performed by the research staff or study provider:

You will be randomized (like the flip of a coin) into one group, either standard of care, or standard of care with the use of the electronic dressings.

I. Study Visit 1 (Week 0):

- Informed consent (this document) will be signed
- Demographics (age, sex, race, ethnicity, and insurance status), medical history, current labs and medications, co-morbidities (diseases) and wound data will be recorded
- A patient diary to be filled out by you or study team to document dressing changes
- A questionnaire concerning your quality of life and wound related issues
- We will take pictures of your wound
- Two pairs of wound swabs will be taken from your wound for a culture (a test to grow any bacteria at the wound site)
- Two 3 mm tissue biopsies (surgical removal of tissue at the wound) or sharp debrided (scraping of the wound) tissue may be obtained from your wound(s), by a physician/provider at their discretion. Sharp debridement of wound tissue is considered standard of care. To perform the biopsy or tissue debridement, we may first numb the area around your wound(s) using a local anesthetic agent that will be injected into the wound site. Each biopsy will be a small circular piece of skin removed, this will be roughly 1/8 inch (3mm) large.
- The **PED-10 or PED** will be applied to the area of the wound(s) that were biopsied during this study visit. You should keep the PED (Battery ON) on the wound until study visit 2 unless the wound needs to be cleaned. If you anticipate that the dressing will need to be removed before you return for your next study visit, you will need to request extra dressings to take home with you to re-apply to the wound(s) after they have been cleaned. You will need to return all dressings used on your wound during the study and any un-used dressings at your next study visit. Place your last used dressing in the biohazard bag provided and bring it back to the site at your next study visit. You will not need to use the switch on the device unless you need to change the dressing before your next study visit.
    - If you do need to change the dressing, research staff will show/teach you how to apply the dressing to the wound site and turn it ON. Remove dressing from packaging, apply a thin layer of the research gel

provided (hydrogel) to the area of application, place the silver colored side of the dressing facing the hydrogel coated wound, then cover battery pack with the wound pad provided and secure in place with dressing tape/gauze. For PED-10 dressings, an ON/OFF switch will be located on the battery pack and should be turned to the ON position before securing in place. If you have any issues while applying the dressing at home, you may call the research staff and the research staff will assist with teachings over the phone on how to apply the dressing.

II. **Study visit 2, 3, 4 (Week 2, 3, 6):** You will return for up to 3 additional study visits at week 2, week 3, and week 6. The following activities will take place:

- Review of any changes in health and/or medications since your last study visit
- The EDT_{hi} or PED-10 dressing will be removed. The dressing(s) will be kept for lab analysis. You will be asked to return any remaining dressings that were not used.
- Two 3mm biopsies will be obtained for the wound(s). If your physician decides that a biopsy should not be obtained or you decide that you do not want the biopsy collected, then debrided tissue will be collected, a standard of care procedure.
    - Note: Biopsies and/or debrided tissue will be obtained at visit 3 and 4 if the wound is still open. You will not receive any additional biopsies at study visit 2. Biopsy may be performed at visit 4 if the wound is still open.
- We will take pictures of your wound. After the week 3 visit, the **electroceutical dressing technology (EDT_{lo} or procellera)** will be applied to the wound(s) that were biopsied. You should keep the EDT_{lo} on the wound until your next study visit unless the wound needs cleaned. If you anticipate that the dressing will need removed before you return for your next study visit, you will need to request extra dressings to take home with you to re-apply to the wound(s) after they have been cleaned. The research staff will show you how to apply the dressing. You will need to return all dressings used on your wound during the study and any un-used dressings at your next study visit. Place your last used dressing in the biohazard bag provided and bring it back to the site at your next study visit.
- Two pairs of wound cultures will be taken from your wound, as available, at the third and final study visits
- You will complete a questionnaire at the final visit (visit 4 at 6 weeks). This is the same as previous questionnaires.

III. Note: If the EDT cannot be applied to your wound, per the physician discretion during the study timeline, you will be given the option to return to your standard of care treatment (debridement, wound dressing and treatments without electronic dressings). If you are unable to receive biopsies at the study visits or decide to return to your standard of care treatment, you will not complete any other study visits.

You will not receive the results of any of these study tests or procedures because they are being done only for research purposes.

What are the risks of taking part in the study?

Biopsy Risks: The wound site will be numbed by applying local anesthesia as appropriate to the area being biopsied. There may be some discomfort with the tissue biopsy procedure. The amount of pain that occurs with wound biopsy will vary from person to person, but all reasonable efforts will be made to minimize pain. Your physician/provider will not write a prescription for pain medications specifically for the biopsy. The biopsy procedure is done within the boundaries of the existing wound to avoid giving you a separate new wound. There is a risk of infection related to the biopsy that may lead to serious complications including amputation.

Bleeding is a possible complication, but the risk is low for the small biopsies and is reduced by using silver nitrate sticks that are available in each room to cauterize (seal) biopsy sites as needed.

Debridement Risks: The risk of tissue debridement, or removal of unhealthy tissue on and/or surrounding the wound, will be minimized. This procedure is considered standard of care treatment for patients under the care of a wound specialist. There is a chance that bleeding may occur at the debrided site(s). Your wound care provider will take necessary steps to halt bleeding such as applying silver nitrate sticks to the area of concern and/or holding pressure against the wound using gauze.

Wound Infection Risks: Individuals with wounds, either already infected or suspected to be infected, are eligible to participate in this study. There is a risk that your wound infection may increase during your participation in this study as part of the natural progression of the disease. Wound infection results in one or more of the following symptoms: fever, chills and the presence of or increase in pus or discharge — especially if the wound oozes a yellow or green color or is foul-smelling. Redness, discoloration, swelling and increased pain, warmth at the wound, or red streaking near the wound are also signs of infection. Wound infection can lead to serious complications which include lower extremity amputation. It is important that you follow proper wound care throughout your participation to minimize the risk of infection, which includes your standard of care wound treatment as advised by your wound care provider.

Wound tissue biopsies are routinely performed as the standard of care in the Comprehensive Wound Center (CWC) to diagnose wound infection. The biopsy site will be appropriately monitored for infection by the physician/provider managing the wound during routine visits.

To further minimize serious complications due to infection, it is recommended that you contact the study team promptly if you experience any symptoms of infection. If this occurs, you may be asked to visit your routine wound care specialist to assess and treat complications of wound infection.

EDT_{hi} (PED-10 or PED) Dressing Risks: PED will not be used on individuals that have known sensitivity or allergic reaction to silver and should be removed if the subject is undergoing an MRI or CT scan. You may reapply the device after the scan is complete. The dressing contains the patterned layer embedded between specialized material layers (silk fabric and medical tape). The dressing will use fluid from the wound to complete the circuit and allow current to flow into the wound to prevent and or stop bacterial biofilm formation and improve the overall healing process. The PED only utilizes one 3-6 Volt battery. There are a number of small devices that use 9V batteries and are approved by FDA for human use. In addition, necessary safety features have been included in the dressing design as per FDA limits to ensure that it is safe for human use. The safety features involve a switch and a resistor, connected in series between the positive lead of the battery and the positive lead of the dressing. The purpose of the switch is to make the PED easier to use. The battery should be left on at all times. However, it can be turned off for dressing changes or in the case of a medical emergency that requires access to the wound. The purpose of the resistor is to regulate current flow to the dressing if unsafe levels of current are reached. Partial or full thickness skin injury is a possible risk with the use of the Patterned Electrical Dressing. The incorporation of resistor into the dressing should decrease this risk. There is a possibility of discomfort during the use of the dressing which can include a shocking or zapping sensation at the wound location. Please turn off battery in case of any discomfort.

The research staff will teach you how to use the dressing and how to apply the dressing if you need to re-apply at home.

EDT_{lo} (Procellera) Risks: Procellera will not be used on individuals that have known sensitivity or allergic reaction to zinc or silver and should be removed if the subject is undergoing an MRI or CT scan. You may reapply the device after the scan is complete. If an allergic reaction occurs during use of Procellera, you should stop the application immediately and notify research personnel. Signs and symptoms to be associated with an allergic reaction include hives, itching, nasal congestion, rash, watery red eyes, swelling, diarrhea, difficulty breathing and swallowing, redness of the face, nausea or vomiting, abdominal pain, unconsciousness or wheezing. There is a low risk for discoloration of the skin with the use of Procellera. If this occurs, you should stop the use of Procellera.

You may be uncomfortable while answering the questionnaires. While completing the questionnaires, you can skip any questions that make you uncomfortable or that you do not want to answer.

Loss of Confidentiality: There is a risk someone outside the study team could get access to your research or medical information from this study, but we will make every effort to keep your personal information secure.

For Women of Child Bearing Potential:

We are unsure of the risks to a fetus and cannot enroll women who are pregnant or planning to become pregnant. If you are a female of child bearing potential please attest below that you are currently not pregnant or planning to become pregnant and the date of your last menstrual period.

- ☐ I am currently not pregnant and not planning to become pregnant
  Date of last menstrual period (MM/DD/YYYY) _____

What benefits can I expect from being in the study?
You are not expected to receive any direct benefits from this study, although EDT may improve the overall healing process of an open wound. Hopefully the knowledge gained from this study information has the potential of providing benefits to wound care by identifying the important parts in the EDT in wound healing and closure. Such knowledge could help therapeutic (healing) strategies and could provide information for future clinical studies to further understanding in EDT.

What other choices do I have if I do not take part in the study?
You may choose not to participate without penalty or loss of benefits to which you are otherwise entitled. There may be other options for treatment of your chronic wound, such as debridement, topical or oral antibiotics. Please discuss these with your physician.

How Will My Information be Protected?
Efforts will be made to keep your personal information confidential. We cannot guarantee absolute confidentiality. Your personal information may be disclosed if required by law. Your identity will be held in confidence in reports in which the study may be published.

Organizations that may inspect and/or copy your research records for quality assurance and data analysis include groups such as the study investigator and his/her research associates, the Indiana University Institutional Review Board or its designees, your insurance company (if charges are billed to insurance), The Department of Defense (study sponsor), and (as allowed by law) state or federal agencies, specifically the Office for Human Research Protections (OHRP), and the Food and Drug Administration (FDA), etc., who may need to access your medical and/or research records.

A description of this clinical trial will be available on ClinicalTrials.gov, as required by U.S. law. This website will not include information that can identify you. At most, the website will include a summary of the results. You can search this website at any time.

Will my Information be Used for Research in the Future?
Information or specimens collected from you for this study may be used for future research studies or shared with other researchers for future research. If this happens, information which could identify you will be removed before any information or specimens are shared. Since identifying information will be removed, we will not ask for your additional consent.

What Will You do With My Genetic Information?

This research follows the Genetic Information Nondiscrimination Act (GINA), a federal law that generally makes it illegal for health insurance companies, group health plans, and most employers to request the genetic information we get from this research and to discriminate against you based on your genetic information.

We may use the specimens collected as a part of this study for whole genome sequencing, which involves mapping all of your DNA to identify genes that respond better to treatment for biofilm-related wound infections. All data will be stored as deidentified data and will be used for research purposes only.

What are the costs of taking part in this study?
All costs associated with your wound care will be billed to you or your insurance company as part of standard of care treatment. You or your insurance company will be responsible for the costs of standard of care treatment that may include debridement, wound dressings, antibiotics.

The study team will provide both of the Electronic Dressings to you. The costs of the biopsies are also covered by the study.

If you need transportation to a research visit, we can arrange and cover this cost for you with advance notice.

Will I be paid for taking part in this study?
You will be paid $100 for completion of each of the study visits 1 and 3 if you undergo the biopsy procedure or the tissue debridement wound swab. If you do not undergo the biopsy or tissue debridement, you will be paid $25 for each of these completed study visits. You will be paid $25 for completion of study visit 2 and study visit 4. You could receive a total of up to $250 for the completion of the entire study (including the biopsies and/or tissue debridement wound swab). You will receive this payment by pre-paid debit card. The payment will be uploaded to your card within a few days of your completed study visit. By law, payments to subjects are considered taxable income.

What happens if I am injured because I took part in this study?
If you are injured as a result of participating in this study, necessary medical treatment will be provided to you and billed as part of your medical expenses. Costs not covered by your health care insurer will be your responsibility. Also, it is your responsibility to determine the extent of your health care coverage. No money or funds are set aside to pay for these types of injuries. However, you are not giving up any legal rights or benefits to which you are otherwise entitled.

What financial interest does the researcher have?
The study doctors, Sashwati Roy, PhD and Chandan Sen, PhD, provide consulting services for the manufacturer of the Procellera device, Vomaris, Inc., and may benefit financially from this study. The Institutional Review Board (an ethics committee that helps protect people involved in research) has reviewed the possibility of financial benefit. The Board believes

that the possible financial benefit is not likely to affect your safety and/or the scientific integrity of the study. If you would like more information, please ask the researchers or study staff.

Who can answer my questions about the study?
For questions about the study or a research-related injury, contact the researcher, Sashwati Roy, PhD, at 317-278-2706. After business hours, please call 317-944-5000 and ask for Dr. Roy to be paged.

For questions about your rights as a research participant, to discuss problems, complaints, or concerns about a research study, or to obtain information or offer input, contact the IU Human Subjects Office at 800-696-2949 or IRB@iu.edu.

Can I stop being in the study?
You may leave the study at any time. If you decide to stop participating in the study, there will be no penalty to you, and you will not lose any benefits to which you are otherwise entitled.

You will be provided with any new information that develops during the research that may affect your decision whether or not to continue participation in the study.

Participant's Consent
I have read (or someone has read to me) this form and I am aware that I am being asked to participate in a research study. I have had the opportunity to ask questions and have had them answered to my satisfaction. I voluntarily agree to participate in this study.

I am not giving up any legal rights by signing this form. I will be given a copy of this informed consent statement**.**

_____
Printed Name of Subject

_____ _____
Signature of Subject **Date**

_____
Printed Name of Person Conducting Informed Consent Discussion

_____ _____
Signature of Person Conducting Informed Consent Discussion **Date**