



Subject Identification
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Protocol Title: Determinants of Incident Stroke Cognitive Outcomes and Vascular Effects on Recovery (DISCOVERY): MRI Sub-Study

Principal Investigator: Natalia Rost, MD, MPH; Steven Greenberg, MD, PhD

Site Principal Investigator: Kelly Sloane, MD

Description of Subject Population: DISCOVERY Participants enrolled at Tier 2 sites and able to undergo MRI scanning

## About this consent form

Please read this form carefully. It tells you important information about a research study. A member of our research team will also talk to you about taking part in this research study. People who agree to take part in research studies are called “subjects.” This term will be used throughout this consent form.

Partners HealthCare System is made up of Partners hospitals, health care providers, and researchers. In the rest of this consent form, we refer to the Partners system simply as “Partners.”

If you decide to take part in this research study, you must sign this form to show that you want to take part. We will give you a signed copy of this form to keep.

Some of the people who are eligible to take part in this study may not be able to give consent to take part because of their medical condition. Instead we will ask the person’s authorized representative to give consent. Throughout the consent form, “you” always refers to the person who takes part in the study.

## Key Information

You have already agreed to take part in the main research study, “Determinants of Incident Stroke Cognitive Outcomes and Vascular Effects on Recovery (DISCOVERY)” which we will call ‘the main study’ in this document. You are being invited to take part in an add-on study that we will call ‘the MRI sub-study.’



Subject Identification
------------------------

Taking part in this MRI sub-study is up to you. You can decide not to take part. If you decide to take part now, you can change your mind and drop out later. You may take part in the main research study even if you are not part of the MRI sub-study. Your decision won't change the medical care you get now or in the future.

The following key information is to help you decide whether or not to take part in this MRI sub-study. We have included more details about the research in the Detailed Information section that follows the key information.

### **Why is this research sub-study being done?**

In this MRI sub-study, we want to learn more about whether markers in the brain and blood are linked to changes in thinking and memory abilities and dementia (decline in memory, thinking, and other mental abilities that significantly affects daily functioning) after having a stroke.

### **How long will you take part in this research sub-study?**

If you decide to join this MRI sub-study, you will complete all activities as an add-on to your regularly scheduled in-person visits for the main study (2 visits total).

### **What will happen if you take part in this research sub-study?**

If you decide to join this MRI sub-study, the following things will happen at each in-person follow-up visit, in addition to the main study procedures: blood sample collection, detailed thinking and memory assessments and MRI scanning.

### **Why might you choose to take part in this sub-study?**

You will not directly benefit from taking part in this MRI sub-study. In the future, other people who have a stroke may benefit from what we learn in this sub-study.

### **Why might you choose NOT to take part in this sub-study?**

Taking part in this research study has some risks and requirements that you should consider carefully.

Important risks and possible discomforts to know about include:

- Bruising or pain at the site of the blood draw
- Nervousness, discomfort or boredom during cognitive assessments
- Claustrophobia or discomfort during MRI scans



Subject Identification
------------------------

A detailed description of side effects, risks, and possible discomforts can be found later in this consent form in the section called “What are the risks and possible discomforts from being in this research study?”

Other things to consider are that it will take approximately 4 hours to complete each in-person follow-up visit (two total visits) if you agree to do the MRI sub-study.

### **If you have questions or concerns about this research study, whom can you call?**

You can call us with your questions or concerns. Our telephone numbers are listed below. Ask questions as often as you want.

Kelly Sloane, MD is the person in charge of this research study. You can call her at 215-349-5481 M-F 9-5. You can also call the study coordinator at 215-615-0561 M-F 9-5 with questions about this research study.

If you have questions about the scheduling of appointments or study visits, call the study coordinator at 215-615-0561.

If you want to speak with someone **not** directly involved in this research study, please contact the Partners Human Research Committee office. You can call them at 857-282-1900.

You can talk to them about:

- Your rights as a research subject
- Your concerns about the research
- A complaint about the research
- Any pressure to take part in, or to continue in the research study



Subject Identification
------------------------

## Detailed Information

### Why is this research study being done?

The purpose of this sub-study is to find out whether changes in the brain and body after a stroke are linked to changes in thinking and memory abilities over time. The goal is to learn what causes some people to develop dementia (decline in memory, thinking, and other mental abilities that significantly affects daily functioning) after having a stroke, and others to not.

For the MRI sub-study, we will look at changes as you recover from your stroke in:

- the size, shape, blood flow and connections in your brain using magnetic resonance imaging (MRI) scans;
- “markers” in your blood. Markers are substances that can be measured as a sign of a normal or abnormal process and may show if a disease or condition is present. We will look for markers that may be linked to brain recovery or injury after stroke;
- how your genes are expressed. You inherit your genes from your parents, and some genes might make you more likely to get certain diseases. Your genes do not change over time, but some genes may affect how your body changes after a stroke, including the increase in risk of dementia. We will look at such changes that may affect your recovery from your stroke.

We will compare this information to assessments of how well you are thinking, learning, remembering, being aware of surroundings, and using judgment to determine if markers in the brain and blood may help to identify patients at risk for developing dementia after their stroke.

The National Institutes of Neurological Disorders and Stroke (NINDS) and the National Institute on Aging (NIA), branches of the National Institutes of Health (NIH), are paying for this sub-study to be done.

### Who will take part in this research?

You are being invited to take part in this MRI sub-study because you are enrolled in the main DISCOVERY study and are able to undergo MRI scanning. Approximately 2,000 people participating in the DISCOVERY study will be asked to take part in this sub-study at about 10 hospitals.



Subject Identification
------------------------

## What will happen in this research study?

If you choose to take part in this sub-study, we will ask you to sign this consent form before we do any sub-study procedures.

A notation that you are taking part in this sub-study may be made in your medical record. Information from the research that relates to your general medical care may be included in the record (for example: if there is an abnormal finding on your MRI scan that requires follow-up with a doctor). Please ask your study doctor if you have any questions about what information may be included in your medical record.

The MRI sub-study will occur as an add-on to the two in-person follow-up visits that you will already be attending at 3-6 and 18 months as part of the main study. In total, each in-person visit will take about 4 hours to complete if you take part in the main study and MRI sub-study. In addition to the main study procedures, you will complete the following additional sub-study procedures during each in-person follow-up visit:

**Cognitive Assessments:** If you are able to do so, you will complete an additional set of cognitive (thinking) assessments to measure your ability to reason, concentrate, solve problems, or remember things. These assessments will take about 70 minutes and may be recorded. Some people may not be able to do this because of their medical condition(s).

**Informant Interview:** As part of your participation in the main study, you may have selected someone to help answer questions about your recovery (“an informant”). We may ask your informant to answer some additional questions about your ability to use your memory and perform activities since your stroke.

**Blood Draw:** You will be asked to donate a blood sample of up to 28mL (about 2 tablespoons). If it is possible to collect the blood during a routine clinical blood draw and avoid an additional needle stick, we will try to do so. We will look at markers in your blood and your genes, and changes in how your genes are expressed.

**MRI Scan:** We will take detailed pictures of your brain using an MRI scan. An MRI uses a strong magnet and radio waves to take pictures of your brain. Since MRI uses a large magnet, people who have certain metal implants cannot have this scan. Before you undergo each MRI scan, someone from the study will ask you whether you have any metal in your body to make sure you are safe to go in the scanner. You will also be asked to remove all metal items before the scan.



Subject Identification
------------------------

The MRI scanner is a large machine shaped like a tunnel. You will lie on a table and will be moved into the MRI tunnel. The tunnel is only a little larger than your body. You will be asked to lie still during the scan. The scan will take about 60 minutes.

The MRI makes loud banging noises as it takes pictures. We will give you earphones to reduce the noise. You will be able to hear and speak to the research staff at all times during the scan. We can stop the scan at any time, if needed.

**Repeat MRI Scans:** After each in-person visit, we may offer you the option of returning to complete a repeat MRI scan. We might ask you to complete the repeat scan if the original scan did not get a clear enough picture of the brain to use for our research. You may choose whether or not you would like to return for the repeat scan.

#### **Storage and Use of Your Samples and Health Information**

Additional information collected as part of this sub-study will be combined with the information from the main study and will be stored, used and shared as described in the main study consent form.

Identifying information such as your name and hospital record number will be removed from your data, MRI scans and blood samples, and only a code number will be used to identify you. The key to the code connects your name to your clinical data, MRI scans and samples. This key is kept securely and only known to research staff. When your data, MRI scans and samples are shared with other institutions, they will be labeled with a code and researchers there will not know who you are when they receive them.

Coded blood samples collected for this study will be sent to a DISCOVERY Biorepository laboratory at the University of California, San Diego (UCSD) or the University of Southern California (USC) to be stored for the research. Coded blood samples will remain under the control of the DISCOVERY Biorepository for the duration of the study and may be directed to additional, affiliated laboratories as necessary. Data, including MRI scans collected for the sub-study, will be entered into a database that is managed by researchers at Massachusetts General Hospital. Audio recordings and data from your cognitive assessments may be shared with researchers at institutions involved in this study who specialize in cognitive testing. Your coded samples and data will be sent to other institutions involved in this research study for analysis.

Your samples and data may be stored indefinitely. If you wish to remove your samples from the study, you must notify the research team in writing. Please refer to the section titled “Your Privacy Rights” for more information.



Subject Identification
------------------------

**How may we use and share your samples and health information for other research?**

The samples and information we collect in this sub-study may help advance other medical research of health and human disease. If you join this sub-study, the researchers will remove all information that identifies you (for example your name, medical record number, and date of birth) and use these samples and data in other research. It won't be possible to link the information or samples back to you. Information and/or samples may be shared with investigators at our hospitals, other universities and hospitals, for-profit commercial entities (companies), and not-for-profit organizations where they can be used for research. You will not be asked to provide additional informed consent for these uses.

Your samples, data and imaging cannot ever be sold for profit; however, it is possible that scientific knowledge gained using your samples, data and imaging could be used in the future to develop products, such as diagnostic tests, that could themselves be used for profit.

In order to allow researchers to share test results, the National Institutes of Health (NIH) and other central repositories have developed special data (information) banks that collect and store samples and/or data from research studies. After your samples, data and imaging have been used for this sub-study, these central banks may store your samples and the results from your research participation including imaging, genetic data and health information, and may share them with other researchers to do more studies.

We do not think that there will be further risks to your privacy and confidentiality by sharing your samples, whole genome information, data and imaging with these banks. However, we cannot predict how genetic information will be used in the future. The samples, imaging and data will be sent with only your code number attached. Your name or other directly identifiable information will not be given to these central banks. While there is a small chance that you could be identified using DNA, researchers must agree not to attempt to identify you, and the risk of identification, while real, is small. There are many safeguards in place to protect your information and samples while they are stored in repositories and used for research.

Research using your samples and whole genome information is important for the study of virtually all diseases and conditions. Therefore, the sample/data banks will provide study data for researchers working on any disease.



Subject Identification
------------------------

**Will you get the results of this research study?**

You and your doctor should not expect to get information about the results of the research study or the results of your individual participation in the MRI sub-study beyond those described in the main study consent form. The tests that we perform are designed to answer research questions. They are not the same as medical tests done to diagnose a problem in the brain or body. If you have a problem in the brain or body, these tests may not show it. The researchers involved in this study will study samples and information from many people. It could take many years before anyone knows whether the results have any meaning. There is a small chance that the researchers involved in the study could find out something from the study that might be important to your health. If this happens, we may contact you to find out if you would like to learn more. However, even if we find something important to your health, we cannot guarantee that you will be contacted.

**What are the risks and possible discomforts from being in this research study?**

**Loss of Confidentiality:** The main risk of allowing us to use your samples and information for research is a potential loss of privacy. We protect your privacy by coding your sample, data and imaging.

**Risks of Blood Draws:** You may have a bruise (black-and-blue mark) or pain where we take the blood samples. There is also a small risk of feeling lightheaded, fainting, or infection.

**Genetic Risks:** Even without your name or identifiers, genetic information is unique to you, making it possible for someone to trace it back to you; however, the chances of this happening are very small. There is a risk that information about taking part in genetic research may influence insurance companies and/or employers regarding your health. There is a Federal law called the Genetic Information Nondiscrimination Act (GINA). Generally, GINA makes it illegal for health insurance companies, group health plans, and most employers to discriminate against you based on your genetic information; however, GINA does not protect you against discrimination by companies that sell life insurance, disability insurance, or long-term care insurance. It also does not prohibit discrimination based on already known disease. If you do not disclose your participation in this research, you will reduce this risk.

**Risks of Cognitive Assessments:** Memory and thinking assessments are done by trained research staff and pose no major risks. You will be monitored closely and allowed to take breaks at any time. During the assessments, it is possible you will experience nervousness, discomfort



Subject Identification
------------------------

or boredom. You will be permitted to stop at any time should you feel the need to do so. Results from these assessments will be used to answer research questions and are not meant to replace an exam with your doctor.

**Risks of MRI:** MRIs use powerful magnets to make images. There are no known radiation risks associated with MRI. However, persons with metal implants, such as surgical clips, or pacemakers should not have an MRI. All credit cards and other items with magnetic strips should also be kept out of the MRI room. People who feel uncomfortable in confined spaces (claustrophobia) may feel uncomfortable in the narrow tube. The MRI makes loud banging noises as it takes images. Earplugs can be used to reduce the noises. The MRI can be stopped at any time at your request. If you are or suspect you are pregnant, you should tell the study staff and discuss participation in this study with the study doctor. The MRI has the potential, during normal routine use, to cause localized warming of your skin and the underlying tissues. You should inform us immediately if you experience discomfort due to warming and the procedure will be stopped.

Some people experience dizziness or rarely nausea when going into an MRI scanner and these sensations may be more common in scans with higher magnetic fields. In most cases, these symptoms only last a short time. However, some people may experience them throughout the scan and/or continue to experience them for a short period of time after; generally, less than half an hour. No case of permanent problems is known.

### **What are the possible benefits from being in this research study?**

You will not benefit directly from taking part in this sub-study. However, it is possible that the MRI scans or cognitive assessments may provide some additional information about the way your brain is recovering after your stroke. We hope that other people who have a stroke in the future will benefit from what we learn in this sub-study.

### **Can you still get medical care within University of Pennsylvania Health System (UPHS) if you don't take part in this research study, or if you stop taking part?**

Yes. Your decision won't change the medical care you get within UPHS now or in the future. There will be no penalty, and you won't lose any benefits you receive now or have a right to receive.



Subject Identification

We will tell you if we learn new information that could make you change your mind about taking part in this research study.

**What should you do if you want to stop taking part in the study?**

If you take part in this research study, and want to drop out, you should tell us. We will make sure that you stop the study safely. We will also talk to you about follow-up care, if needed.

Also, it is possible that we will have to ask you to drop out of the study before you finish it. If this happens, we will tell you why. We will also help arrange other care for you, if needed.

**Will you be paid to take part in this research study?**

You will be paid for the additional procedures you complete as part of this MRI sub-study. These payments are in addition to any compensation you receive for participating in the main study. The chart below outlines the amounts you will be paid for sub-study procedures completed at each in-person follow-up visit:

<b>3-6 &amp; 18 MONTH IN-PERSON FOLLOW-UP VISITS</b>	
Sub-study assessments, interview & blood draw	\$25.00 per visit
MRI scan	\$50.00 per visit
<b>Total Payment</b>	<b>Up to \$75.00 per visit (\$150 total)</b>

<b>REPEAT SCANS (IF NEEDED)</b>	
Repeat MRI Scan	\$75.00 per scan

You will also receive compensation for main study procedures as described in the main DISCOVERY study consent form.

We may provide coverage for additional travel-related expenses in some cases. The researchers will let you know if this applies to you.

We may use your samples and information to develop a new product or medical test to be sold. The Sponsor, hospital, and researchers may benefit if this happens. There are no plans to pay you if your samples or information are used for this purpose.

**Greenphire ClinCard Reimbursement Program:** Greenphire is a company working together with the University of Pennsylvania to manage your compensation. You will be issued a



Subject Identification
------------------------

Greenphire ClinCard, which works like a debit card. When your participation is complete, funds will be approved and loaded onto your card. The funds will be available within 1 business day and can be used at your discretion. You will be issued one card for the duration of your participation. In order for Greenphire to be able to reimburse you via the ClinCard, Greenphire needs to collect certain information about you from your study doctor, including your name, address and date of birth.

All information about you is stored in a secure fashion and is deleted from Greenphire's system once the study has been completed. Your information will not be shared with any third parties (including the study sponsor) and will be kept completely confidential.

By signing this consent form, you consent to providing all the before mentioned personal information that is needed to set up payments. You agree that the information you provide is used by Greenphire to perform reimbursement payments to you.

By registering with the ClinCard system and using the ClinCard, you consent to participate in the ClinCard program.

Please note: In order to be compensated for your participation in this study, you must provide your Social Security Number. Additionally, please note that the University of Pennsylvania is required to report to the IRS any cumulative payments for participation in research studies that exceed a total of \$600 in a calendar year.

### **What will you have to pay for if you take part in this research study?**

Study funds will pay for certain study-related items and services, including the blood draws, cognitive assessments, and MRI scans that are done only for research. We may bill your health insurer for, among other things, routine items and services you would have received even if you did not take part in the research. You will be responsible for payment of any deductibles and co-payments required by your insurer for this routine care or other billed care. If you have any questions about costs to you that may result from taking part in the research, please speak with the study doctors and study staff. If necessary, we will arrange for you to speak with someone in Patient Financial Services about these costs.



Subject Identification
------------------------

## **What happens if you are injured as a result of taking part in this research study?**

We will offer you the care needed to treat injuries directly resulting from taking part in this research. We may bill your insurance company or other third parties, if appropriate, for the costs of the care you get for the injury, but you may also be responsible for some of them.

There are no plans for the University of Pennsylvania to pay you or give you other compensation for the injury. If you feel this injury was caused by medical error on the part of the study doctors or others involved in the study, you have the legal right to seek payment, even though you are in a study. You do not give up your legal rights by signing this form.

If you think you have been injured as a result of taking part in this research study, tell the person in charge of the research study as soon as possible. The researcher's name and phone number are listed in the consent form.

## **If you take part in this research study, how will we protect your privacy?**

Federal law requires University of Pennsylvania Health System (UPHS) to protect the privacy of health information and related information that identifies you. We refer to this information as "identifiable information."

### **In this study, we may collect identifiable information about you from:**

- Past, present, and future medical records
- Research procedures, including research office visits, tests, interviews, and questionnaires

### **Who may see, use, and share your identifiable information and why:**

- UPHS researchers and staff involved in this study
- The sponsor(s) of the study, and people or groups it hires to help perform this research or to audit the research
- Other researchers and medical centers that are part of this study
- The Partners ethics board or an ethics board outside Partners that oversees the research
- A group that oversees the data (study information) and safety of this study



Subject Identification
------------------------

- Non-research staff within UPHS who need identifiable information to do their jobs, such as for treatment, payment (billing), or hospital operations (such as assessing the quality of care or research)
- People or groups that we hire to do certain work for us, such as data storage companies, accreditors, insurers, and lawyers
- Federal agencies (such as the U.S. Department of Health and Human Services (DHHS) and agencies within DHHS like the Food and Drug Administration, the National Institutes of Health, and the Office for Human Research Protections), state agencies, and foreign government bodies that oversee, evaluate, and audit research, which may include inspection of your records
- Public health and safety authorities, if we learn information that could mean harm to you or others (such as to make required reports about communicable diseases or about child or elder abuse)
- Other researchers within or outside UPHS, for use in other research as allowed by law.

### **Certificate of Confidentiality**

A federal Certificate of Confidentiality (Certificate) has been issued for this research to add special protection for information and specimens that may identify you. With a Certificate, unless you give permission (such as in this form) and except as described above, the researchers are not allowed to share your identifiable information or identifiable specimens, including for a court order or subpoena.

Certain information from the research will be put into your medical record and will not be covered by the Certificate. This includes records of medical tests or procedures done at the hospitals and clinics, and information that treating health care providers may need to care for you. Please ask your study doctor if you have any questions about what information will be included in your medical record. Other researchers receiving your identifiable information or specimens are expected to comply with the privacy protections of the Certificate. The Certificate does not stop you from voluntarily releasing information about yourself or your participation in this study.

Even with these measures to protect your privacy, once your identifiable information is shared outside UPHS, we cannot control all the ways that others use or share it and cannot promise that it will remain completely private.



Subject Identification
------------------------

Because research is an ongoing process, we cannot give you an exact date when we will either destroy or stop using or sharing your identifiable information. Your permission to use and share your identifiable information does not expire.

The results of this research may be published in a medical book or journal, or used to teach others. However, your name or other identifiable information **will not** be used for these purposes without your specific permission.

### **Your Privacy Rights**

You have the right **not** to sign this form that allows us to use and share your identifiable information for research; however, if you don't sign it, you can't take part in this research study.

You have the right to withdraw your permission for us to use or share your identifiable information for this research study. If you want to withdraw your permission, you must notify the person in charge of this research study in writing. Once permission is withdrawn, you cannot continue to take part in the study.

If you withdraw your permission, we will not be able to take back information that has already been used or shared with others, and such information may continue to be used for certain purposes, such as to comply with the law or maintain the reliability of the study.

You have the right to see and get a copy of your identifiable information that is used or shared for treatment or for payment. To ask for this information, please contact the person in charge of this research study. You may only get such information after the research is finished.

### **Electronic Medical Records and Research Results**

#### **What is an Electronic Medical Record?**

An Electronic Medical Record (EMR) is an electronic version of the record of your care within a health system. An EMR is simply a computerized version of a paper medical record.

If you are receiving care or have received care within the University of Pennsylvania Health System (UPHS) (outpatient or inpatient) and are participating in a University of Pennsylvania research study, information related to your participation in the research (i.e. laboratory tests, imaging studies and clinical procedures) may be placed in your existing EMR maintained by UPHS.



Subject Identification
------------------------

If you have never received care within UPHS and are participating in a University of Pennsylvania research study that uses UPHS services, an EMR will be created for you for the purpose of maintaining any information produced from your participation in this research study. The creation of this EMR is required for your participation in this study. In order to create your EMR, the study team will need to obtain basic information about you that would be similar to the information you would provide the first time you visit a hospital or medical facility (i.e. your name, the name of your primary doctor, the type of insurance you have). Information related to your participation in the study (i.e. laboratory tests, imaging studies and clinical procedures) may be placed in this EMR.

Once placed in your EMR, your information may be accessible to appropriate UPHS workforce members that are not part of the research team. Information within your EMR may also be shared with others who are determined by UPHS to be appropriate to have access to your EMR (e.g. Health Insurance Company, disability provider, etc.).

## Informed Consent and Authorization

### Statement of Person Giving Informed Consent and Authorization

- I have read this consent form.
- This research study has been explained to me, including risks and possible benefits (if any), other possible treatments or procedures, and other important things about the study.
- I have had the opportunity to ask questions.
- I understand the information given to me.

### Signature of Subject:

I give my consent to take part in this research study and agree to allow my identifiable information to be used and shared as described above.

\_\_\_\_\_  
Subject

\_\_\_\_\_  
Date

\_\_\_\_\_  
Time (optional)



Subject Identification

**Signature of Guardian or Authorized Representative for Adult:**

I give my consent for the person I am authorized to represent to take part in this research study and agree to allow his/her identifiable information to be used and shared as described above.

Print Name (check applicable box below)

- Court-appointed Guardian
- Health Care Proxy
- Durable Power of Attorney
- Family Member/Next-of-Kin

Signature

Date

Time (optional)

Relationship to Subject: \_\_\_\_\_

**Assent**

**Statement of Person Giving Assent**

- This research study has been explained to me, including risks and possible benefits (if any), other possible treatments or procedures, and other important things about the study.
- I have had the opportunity to ask questions, and my questions have been answered.

I agree to take part in this research study and agree to allow my identifiable information to be used and shared as described above.

Adult

Date

Time (optional)



Subject Identification
------------------------

**Signature of Study Doctor or Person Obtaining Consent:**

**Statement of Study Doctor or Person Obtaining Consent**

- I have explained the research to the study subject.
- I have answered all questions about this research study to the best of my ability.

\_\_\_\_\_  
Study Doctor or Person Obtaining Consent                      Date                      Time (optional)

**Consent of Subjects Who Cannot Read or Write or are Physically Unable to Talk or Write**

**Statement of Witness**

I represent that the consent form was presented orally to the subject in the subject’s own language, the subject was given the opportunity to ask questions, and the subject or authorized individual has given meaningful consent and authorization for participation by (check one box as applicable):

- Making his/her mark above
- Other means \_\_\_\_\_  
(fill in above)

\_\_\_\_\_  
Witness    Date    Time (optional)

Consent Form Version Date: 01/09/2026  
Consent Form Version: 4.0  
Template Version: 5.0  
IRB Template Version Date: January 2019