

Once complete, upload this form as a Word document to the IRB Protocol Management System: <https://secure.research.vt.edu/irb>

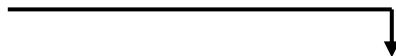
Section 1: General Information

1.1 DO ANY OF THE INVESTIGATORS OF THIS PROJECT HAVE A REPORTABLE CONFLICT OF INTEREST? (<http://www.irb.vt.edu/pages/researchers.htm#conflict>)

- No
 Yes, explain:

1.2 IS THIS RESEARCH SPONSORED OR SEEKING SPONSORED FUNDS?

- No, go to question 2.1
 Yes, answer questions within table



IF YES	
Provide the name of the sponsor [if NIH, specify department]:	
Is this project receiving or seeking federal funds?	
<input type="checkbox"/> No <input type="checkbox"/> Yes	
<p>If yes,</p> <p>Does the grant application, OSP proposal, or “statement of work” related to this project include activities involving human subjects that are <u>not</u> covered within this IRB application?</p> <input type="checkbox"/> No, all human subject activities are covered in this IRB application <input type="checkbox"/> Yes, however these activities will be covered in future VT IRB applications, these activities include: <input type="checkbox"/> Yes, however these activities have been covered in past VT IRB applications, the IRB number(s) are as follows: <input type="checkbox"/> Yes, however these activities have been or will be reviewed by another institution’s IRB, the name of this institution is as follows: <input type="checkbox"/> Other, explain:	
<p>Is Virginia Tech the primary awardee or the coordinating center of this grant?</p> <input type="checkbox"/> No, provide the name of the primary institution: <input type="checkbox"/> Yes	

Section 2: Justification

2.1 DESCRIBE THE BACKGROUND, PURPOSE, AND ANTICIPATED FINDINGS OF THIS STUDY:

An implementation of an anonymization algorithm is being written that takes in wireless network user data and outputs a sanitized synthetic dataset. Most anonymization tools are just implementations from research and those that are have continual development, do not handle trajectory data.

The overall purpose of this research is to facilitate further research with this data (ie network data) without giving researchers the actual raw data. This will protect user privacy while allowing researchers access to rich datasets. This tool will be taking in the raw data then be outputting a de-identified dataset that can be used by others (the exact methods of distribution of this data shall be decided later. This reasearch is just providing a tool).

The purpose of the survey being conducted for this study is to find out the usability of this implementation and the data it produces. This will ensure that the application is usable by potential users. It will also ensure that the potential users of the produced database find the data useful and will be able to use the data effectively in their work/research.

2.2 EXPLAIN WHAT THE RESEARCH TEAM PLANS TO DO WITH THE STUDY RESULTS:

For example - publish or use for dissertation

The study results will be published in conference precedings in a paper about this algorithm. It will may also be used in further journal and conference publications, and will be used in a thesis.

Section 3: Recruitment

3.1 DESCRIBE THE SUBJECT POOL, INCLUDING INCLUSION AND EXCLUSION CRITERIA AND NUMBER OF SUBJECTS:

Examples of inclusion/exclusion criteria - gender, age, health status, ethnicity

This survey will be limited to Virginia Tech faculty, staff, and students, with a goal for around 30 participants. Participants must be 18 years or older.

3.2 WILL EXISTING RECORDS BE USED TO IDENTIFY AND CONTACT / RECRUIT SUBJECTS?

Examples of existing records - directories, class roster, university records, educational records

No, go to question 3.3

Yes, answer questions within table

IF YES

Are these records private or public?

Public

Private, describe the researcher's privilege to the records: **I will use the Graduate listserv and Sona system to distribute the survey, but do not have access to the actual participants in these systems. I may also receive contact information for IT personel through word-of-mouth.**

Will student, faculty, and/or staff records or contact information be requested from the University?

No

Yes, provide a description under Section 14 (Research Involving Existing Data) below.

3.3 DESCRIBE RECRUITMENT METHODS, INCLUDING HOW THE STUDY WILL BE ADVERTISED OR INTRODUCED TO SUBJECTS:

This survey will be sent to everyone within the ITSL (IT Security Lab) and ITSO (IT Security Office). It will also be distributed to further IT offices within the university. It will be added to the Graduate listserv and the Psychology Department's Sona Experiment Management System and may be spread further through word-of-mouth.

3.4 PROVIDE AN EXPLANATION FOR CHOOSING THIS POPULATION:

Note: the IRB must ensure that the risks and benefits of participating in a study are distributed equitably among the general population and that a specific population is not targeted because of ease of recruitment.

The actual anonymization application is assumed to be most useful to IT departments since they are the ones with access to the majority of trajectory data. Yet, the output of this algorithm would be useful to further departments. Thus we want to get a broad degree of participation. We also want this broad range of participants to find out if the interface is actually usable, even by those who do not use computers as much.

Section 4: Consent Process

For more information about consent process and consent forms visit the following link: <http://www.irb.vt.edu/pages/consent.htm>

If feasible, researchers are advised and may be required to obtain signed consent from each participant unless obtaining signatures leads to an increase of risk (e.g., the only record linking the subject and the research would be the consent document and the principal risk would be potential harm resulting in a breach of confidentiality). Signed consent is typically not required for low risk questionnaires (consent is implied) unless audio/video recording or an in-person interview is involved. If researchers will not be obtaining signed consent, participants must, in most cases, be supplied with consent information in a different format (e.g., in recruitment document, at the beginning of survey instrument, read to participant over the phone, information sheet physically or verbally provided to participant).

4.1 CHECK ALL OF THE FOLLOWING THAT APPLY TO THIS STUDY'S CONSENT PROCESS:

- Verbal consent will be obtained from participants
- Signed consent will be obtained from participants
- Consent will be implied from the return of completed questionnaire. Note: The IRB recommends providing consent information in a recruitment document or at the beginning of the questionnaire (if the study only involves implied consent, skip to Section 5 below)
- Other, describe:

4.2 PROVIDE A GENERAL DESCRIPTION OF THE PROCESS THE RESEARCH TEAM WILL USE TO OBTAIN AND MAINTAIN INFORMED CONSENT:

When volunteers arrive to do the experiment, they will be given and informed consent document. They will be given time to read this and then will have to sign it before continuing. If they wish to not sign it, they can leave and not participate in the study.

4.3 WHO, FROM THE RESEARCH TEAM, WILL BE OVERSEEING THE PROCESS AND OBTAINING CONSENT FROM SUBJECTS?

Caleb Stroud will be overseeing the process.

4.4 WHERE WILL THE CONSENT PROCESS TAKE PLACE?

The experiment will happen within the ITSL so all forms will be filled out and signed there.

4.5 DURING WHAT POINT IN THE STUDY PROCESS WILL CONSENTING OCCUR?

Note: unless waived by the IRB, participants must be consented before completing any study procedure, including screening questionnaires.

As mentioned, the consent will occur first thing once the participant arrive at the ITSL.

4.6 IF APPLICABLE, DESCRIBE HOW THE RESEARCHERS WILL GIVE SUBJECTS AMPLE TIME TO REVIEW THE CONSENT DOCUMENT BEFORE SIGNING:

Note: typically applicable for complex studies, studies involving more than one session, or studies involving more of a risk to subjects.

Not applicable

Section 5: Procedures

5.1 PROVIDE A STEP-BY-STEP THOROUGH EXPLANATION OF ALL STUDY PROCEDURES EXPECTED FROM STUDY PARTICIPANTS, INCLUDING TIME COMMITMENT & LOCATION:

The study participant will receive an email with a link to a sign up poll. At the time they sign up, they will arrive at the ITSL. They will first be given the informed consent document. The rest of the experiment will be guided by a Qualtrics survey at a computer that is already set up. The first question ensures they are aware of the content of the research and any IRB warnings, and there is a check for age. Then there is an entrance survey gauging technical aptitude and knowledge of anonymization. The survey will guide them to complete a few tasks with the software that is open on the same computer. They will then take the exit survey which gauges the usability of the software. It is estimated that the survey will take no more than 30 minutes to take.

5.2 DESCRIBE HOW DATA WILL BE COLLECTED AND RECORDED:

The data will be collected automatically by the Qualtrics system where it is then stored. Start and end time will also be taken with a clock and stored with the data.

5.3 DOES THE PROJECT INVOLVE ONLINE RESEARCH ACTIVITIES (INCLUDES ENROLLMENT, RECRUITMENT, SURVEYS)?

View the "Policy for Online Research Data Collection Activities Involving Human Subjects" at <http://www.irb.vt.edu/documents/onlinepolicy.pdf>

No, go to question 6.1

Yes, answer questions within table

IF YES

Identify the service / program that will be used:

- www.survey.vt.edu, go to question 6.1
- SONA, go to question 6.1
- Qualtrics, go to question 6.1
- Center for Survey Research, go to question 6.1
- Other

IF OTHER:

Name of service / program:

URL:

This service is...

- Included on the list found at: <http://www.irb.vt.edu/pages/validated.htm>
- Approved by VT IT Security
- An external service with proper SSL or similar encryption (https://) on the login (if applicable) and all other data collection pages.
- None of the above (note: only permissible if this is a collaborative project in which VT individuals are only responsible for data analysis, consulting, or recruitment)

Section 6: Risks and Benefits

6.1 WHAT ARE THE POTENTIAL RISKS (E.G., EMOTIONAL, PHYSICAL, SOCIAL, LEGAL, ECONOMIC, OR DIGNITY) TO STUDY PARTICIPANTS?

There are no major risks anticipated. Smaller risks could include eye strain from looking at a computer screen, finger cramping from using a mouse and typing answers, and frustration while using a computer.

6.2 EXPLAIN THE STUDY’S EFFORTS TO REDUCE POTENTIAL RISKS TO SUBJECTS:

The participant will be given as much time as they need to complete the surveys and tasks.

6.3 WHAT ARE THE DIRECT OR INDIRECT ANTICIPATED BENEFITS TO STUDY PARTICIPANTS AND/OR SOCIETY?

The survey results will show the (expected) demand for trajectory data, which will aid in the publication of results from the designed application. This could lead to the eventual release of said trajectory data to these researchers and thus further research with this type of data.

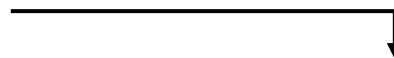
Section 7: Full Board Assessment

7.1 DOES THE RESEARCH INVOLVE MICROWAVES/X-RAYS, OR GENERAL ANESTHESIA OR SEDATION?

- No
- Yes

7.2 DO RESEARCH ACTIVITIES INVOLVE PRISONERS, PREGNANT WOMEN, FETUSES, HUMAN IN VITRO FERTILIZATION, OR INDIVIDUALS WITH MENTAL DISORDERS?

- No, go to question 7.3
- Yes, answer questions within table



IF YES	
This research involves:	
<input type="checkbox"/> Prisoners	
<input type="checkbox"/> Pregnant women	<input type="checkbox"/> Fetuses
<input type="checkbox"/> Individuals with a mental disorder	<input type="checkbox"/> Human in vitro fertilization

7.3 DOES THIS STUDY INVOLVE MORE THAN MINIMAL RISK TO STUDY PARTICIPANTS?

Minimal risk means that the probability and magnitude of harm or discomfort anticipated in the research are not greater in and of themselves than those ordinarily encountered in daily activities or during the performance of routine physical or psychological examinations or tests. Examples of research involving greater than minimal risk include collecting data about abuse or illegal activities. Note: if the project qualifies for Exempt review (<http://www.irb.vt.edu/pages/categories.htm>), it will not need to go to the Full Board.

- No
- Yes

IF YOU ANSWERED “YES” TO ANY ONE OF THE ABOVE QUESTIONS, 7.1, 7.2, OR 7.3, THE BOARD MAY REVIEW THE PROJECT’S APPLICATION MATERIALS AT ITS MONTHLY MEETING. VIEW THE FOLLOWING LINK FOR DEADLINES AND ADDITIONAL INFORMATION: <http://www.irb.vt.edu/pages/deadlines.htm>

Section 8: Confidentiality / Anonymity

For more information about confidentiality and anonymity visit the following link: <http://www.irb.vt.edu/pages/confidentiality.htm>

8.1 WILL PERSONALLY IDENTIFYING STUDY RESULTS OR DATA BE RELEASED TO ANYONE OUTSIDE OF THE RESEARCH TEAM?

For example – to the funding agency or outside data analyst, or participants identified in publications with individual consent

- No
 Yes, to whom will identifying data be released?

8.2 WILL THE RESEARCH TEAM COLLECT AND/OR RECORD PARTICIPANT IDENTIFYING INFORMATION (E.G., NAME, CONTACT INFORMATION, VIDEO/AUDIO RECORDINGS)?

Note: if collecting signatures on a consent form, select “Yes.”

- No, go to question 8.3
 Yes, answer questions within table

IF YES
Describe if/how the study will utilize study codes: A study code will be given to each participant to be put in the qualtrics survey.
If applicable, where will the key [i.e., linked code and identifying information document (for instance, John Doe = study ID 001)] be stored and who will have access? Three will be no key reference that links the unique identifier with the name of a participant. This is not needed for this study.
<i>Note: the key should be stored separately from subjects' completed data documents and accessibility should be limited.</i>
<i>The IRB strongly suggests and may require that all data documents (e.g., questionnaire responses, interview responses, etc.) do not include or request identifying information (e.g., name, contact information, etc.) from participants. If you need to link subjects' identifying information to subjects' data documents, use a study ID/code on all data documents.</i>

8.3 HOW WILL DATA BE STORED TO ENSURE SECURITY (E.G., PASSWORD PROTECTED COMPUTERS, ENCRYPTION) AND LIMITED ACCESS?

Examples of data - questionnaire, interview responses, downloaded online survey data, observation recordings, biological samples

Besides the Qualtrics system, data will be stored on password protected computers. All consent forms will be stored within the authentication-protected ITSL.

8.4 WHO WILL HAVE ACCESS TO STUDY DATA?

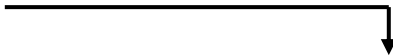
Only the PI and co-investigators will have access to raw data.

8.5 DESCRIBE THE PLANS FOR RETAINING OR DESTROYING STUDY DATA:

Data will be kept on Qualtrics. Informed consent documents will be destroyed when they are allowed to be destroyed.

8.6 DOES THIS STUDY REQUEST INFORMATION FROM PARTICIPANTS REGARDING ILLEGAL BEHAVIOR?

- No, go to question 9.1

Yes, answer questions within table 

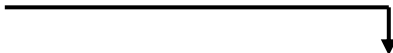
IF YES
<p>Does the study plan to obtain a Certificate of Confidentiality?</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> Yes (Note: participants must be fully informed of the conditions of the Certificate of Confidentiality within the consent process and form)</p> <p><i>For more information about Certificates of Confidentiality, visit the following link:</i> http://www.irb.vt.edu/pages/coc.htm</p>

Section 9: Compensation

For more information about compensating subjects, visit the following link: <http://www.irb.vt.edu/pages/compensation.htm>

9.1 WILL SUBJECTS BE COMPENSATED FOR THEIR PARTICIPATION?

No, go to question 10.1

Yes, answer questions within table 

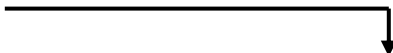
IF YES
<p>What is the amount of compensation?</p>
<p>Will compensation be prorated?</p> <p><input type="checkbox"/> Yes, please describe:</p> <p><input type="checkbox"/> No, explain why and clarify whether subjects will receive full compensation if they withdraw from the study?</p> <p><i>Unless justified by the researcher, compensation should be prorated based on duration of study participation. Payment must <u>not</u> be contingent upon completion of study procedures. In other words, even if the subject decides to withdraw from the study, he/she should be compensated, at least partially, based on what study procedures he/she has completed.</i></p>

Section 10: Audio / Video Recording

For more information about audio/video recording participants, visit the following link: <http://www.irb.vt.edu/pages/recordings.htm>

10.1 WILL YOUR STUDY INVOLVE VIDEO AND/OR AUDIO RECORDING?

No, go to question 11.1

Yes, answer questions within table 

IF YES
<p>This project involves:</p> <p><input type="checkbox"/> Audio recordings only</p> <p><input type="checkbox"/> Video recordings only</p> <p><input type="checkbox"/> Both video and audio recordings</p>

Provide compelling justification for the use of audio/video recording:
How will data within the recordings be retrieved / transcribed?
How and where will recordings (e.g., tapes, digital data, data backups) be stored to ensure security?
Who will have access to the recordings?
Who will transcribe the recordings?
When will the recordings be erased / destroyed?

Section 11: Research Involving Students

11.1 DOES THIS PROJECT INCLUDE STUDENTS AS PARTICIPANTS?

- No, go to question 12.1
 Yes, answer questions within table

IF YES
<p>Does this study involve conducting research with students of the researcher?</p> <p> <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes, describe safeguards the study will implement to protect against coercion or undue influence for participation: </p> <p><i>Note: if it is feasible to use students from a class of students not under the instruction of the researcher, the IRB recommends and may require doing so.</i></p>
<p>Will the study need to access student records (e.g., SAT, GPA, or GRE scores)?</p> <p> <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes </p>

11.2 DOES THIS PROJECT INCLUDE ELEMENTARY, JUNIOR, OR HIGH SCHOOL STUDENTS?

- No, go to question 11.3
 Yes, answer questions within table

IF YES
<p>Will study procedures be completed during school hours?</p> <p> <input type="checkbox"/> No <input type="checkbox"/> Yes </p> <p>If yes,</p> <p style="text-align: center;">Students not included in the study may view other students' involvement with the research during school time as unfair. Address this issue and how the study will reduce this outcome:</p> <p style="text-align: center;">Missing out on regular class time or seeing other students participate may influence a student's decision to participate. Address how the study will reduce this outcome:</p>
<p>Is the school's approval letter(s) attached to this submission?</p>

- Yes
- No, project involves Montgomery County Public Schools (MCPS)
- No, explain why:

You will need to obtain school approval (if involving MCPS, click here: <http://www.irb.vt.edu/pages/mcps.htm>). Approval is typically granted by the superintendent, principal, and classroom teacher (in that order). Approval by an individual teacher is insufficient. School approval, in the form of a letter or a memorandum should accompany the approval request to the IRB.

11.3 DOES THIS PROJECT INCLUDE COLLEGE STUDENTS?

- No, go to question 12.1
- Yes, answer questions within table

IF YES

Some college students might be minors. Indicate whether these minors will be included in the research or actively excluded:

- Included
- Actively excluded, describe how the study will ensure that minors will not be included: **There is a question on the survey that asks if the participant is a minor. If so, the survey ends. There will be a statement in the advertisements and informed consent document requiring the participants to be 18 or older.**

Will extra credit be offered to subjects?

- No
- Yes

If yes,

What will be offered to subjects as an equal alternative to receiving extra credit without participating in this study?

Include a description of the extra credit (e.g., amount) to be provided within question 9.1 ("IF YES" table)

Section 12: Research Involving Minors

12.1 DOES THIS PROJECT INVOLVE MINORS (UNDER THE AGE OF 18 IN VIRGINIA)?

Note: age constituting a minor may differ in other States.

- No, go to question 13.1
- Yes, answer questions within table

IF YES

Does the project reasonably pose a risk of reports of current threats of abuse and/or suicide?

- No
- Yes, thoroughly explain how the study will react to such reports:

Note: subjects and parents must be fully informed of the fact that researchers must report threats of suicide or suspected/reported abuse to the appropriate authorities within the Confidentiality section of the Consent, Assent, and/or Permission documents.

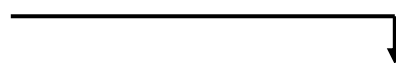
<p>Are you requesting a waiver of parental permission (i.e., parent uninformed of child's involvement)?</p> <p><input type="checkbox"/> No, both parents/guardians will provide their permission, if possible.</p> <p><input type="checkbox"/> No, only one parent/guardian will provide permission.</p> <p><input type="checkbox"/> Yes, describe below how your research meets all of the following criteria (A-D):</p> <p>Criteria A - The research involves no more than minimal risk to the subjects:</p> <p>Criteria B - The waiver will not adversely affect the rights and welfare of the subjects:</p> <p>Criteria C - The research could not practicably be carried out without the waiver:</p> <p>Criteria D - (Optional) Parents will be provided with additional pertinent information after participation:</p>
<p>Is it possible that minor research participants will reach the legal age of consent (18 in Virginia) while enrolled in this study?</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> Yes, will the investigators seek and obtain the legally effective informed consent (in place of the minors' previously provided assent and parents' permission) for the now-adult subjects for any ongoing interactions with the subjects, or analysis of subjects' data? If yes, explain how:</p> <p><i>For more information about minors reaching legal age during enrollment, visit the following link:</i> http://www.irb.vt.edu/pages/assent.htm</p> <p><i>The procedure for obtaining assent from minors and permission from the minor's guardian(s) must be described in Section 4 (Consent Process) of this form.</i></p>

Section 13: Research Involving Deception

For more information about involving deception in research and for assistance with developing your debriefing form, visit our website at <http://www.irb.vt.edu/pages/deception.htm>

13.1 DOES THIS PROJECT INVOLVE DECEPTION?

- No**, go to question 14.1
- Yes**, answer questions within table



IF YES
Describe the deception:
Why is the use of deception necessary for this project?
Describe the debriefing process:
<p>Provide an explanation of how the study meets <u>all</u> the following criteria (A-D) for an alteration of consent:</p> <p>Criteria A - The research involves no more than minimal risk to the subjects:</p> <p>Criteria B - The alteration will not adversely affect the rights and welfare of the subjects:</p> <p>Criteria C - The research could not practicably be carried out without the alteration:</p> <p>Criteria D - (Optional) Subjects will be provided with additional pertinent information after participation (i.e., debriefing for studies involving deception):</p> <p><i>By nature, studies involving deception cannot provide subjects with a complete description of the study during the consent process; therefore, the IRB must allow (by granting an alteration of consent) a consent process which does not include, or which alters, some or all of the elements of informed consent.</i></p> <p><i>The IRB requests that the researcher use the title "Information Sheet" instead of "Consent Form" on the document used to obtain subjects' signatures to participate in the research. This will adequately reflect the fact that the subject cannot fully consent to the research without the researcher fully disclosing the true intent of the</i></p>

research.

Section 14: Research Involving Existing Data

14.1 WILL THIS PROJECT INVOLVE THE COLLECTION OR STUDY/ANALYSIS OF EXISTING DATA DOCUMENTS, RECORDS, PATHOLOGICAL SPECIMENS, OR DIAGNOSTIC SPECIMENS?

Please note: it is not considered existing data if a researcher transfers to Virginia Tech from another institution and will be conducting data analysis of an on-going study.

- No, you are finished with the application
 Yes, answer questions within table

IF YES

From where does the existing data originate? The data is comes from the Division of IT LAA (Log Archiving and Analysis) system, which collects server and network device logs from systems across campus. In order to access this data, ITSL researchers sign a non-disclosure agreement from the University IT Security Officer.

Provide a detailed description of the existing data that will be collected or studied/analyzed: The data being used in this research is Virginia Tech wireless (IEEE 802.11) authentication data. These logs contain various data fields. The most notable identifying fields are: access point location (roughly where the user was), timestamp (when the use connected to an access point), MAC address (identifier of the device that is connecting), and PID username (the owner of the device connecting to the wireless network). None of these are classified as personal information requiring notification (PIRN) but together, could be used to identify the location of wireless devices owned by individual users of the VT network at specific times. Specifically, a user's PID can be associated with a mobile device's (MAC address) location on campus and when it was there. This is only true for devices that are configured to use the university WiFi network (eduroam).

Is the source of the data public?

- No, continue with the next question
 Yes, you are finished with this application

Will any individual associated with this project (internal or external) have access to or be provided with existing data containing information which would enable the identification of subjects:

- **Directly** (e.g., by name, phone number, address, email address, social security number, student ID number), or
- **Indirectly through study codes** even if the researcher or research team does not have access to the master list linking study codes to identifiable information such as name, student ID number, etc or
- **Indirectly through the use of information that could reasonably be used in combination to identify an individual** (e.g., demographics)

- No, collected/analyzed data will be completely de-identified
 Yes,

If yes,

Research will not qualify for exempt review; therefore, if feasible, written consent must be obtained from individuals whose data will be collected / analyzed, unless this requirement is waived by the IRB.

Will written/signed or verbal consent be obtained from participants prior to the analysis of

collected data? No, requesting waiver from IRB

This research protocol represents a contract between all research personnel associated with the project, the University, and federal government; therefore, must be followed accordingly and kept current.

Proposed modifications must be approved by the IRB prior to implementation except where necessary to eliminate apparent immediate hazards to the human subjects.

Do not begin human subjects activities until you receive an IRB approval letter via email.

It is the Principal Investigator's responsibility to ensure all members of the research team who interact with research subjects, or collect or handle human subjects data have completed human subjects protection training prior to interacting with subjects, or handling or collecting the data.

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