Mount Sinai	Protocol Name:	Pain, Stress, Sleep and Physiology: A Digital Cohort Study
	Principal Investigator:	Girish Nadkarni
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	Date Revised:	12 November 2020
	Study Number:	STUDY 20-00256

HRP-503 Application (Protocol Supplement)

- *This application can only be used in conjunction with a protocol. If this project does not have a protocol from the sponsor or is already included in a grant application then a comprehensive protocol should be developed. A comprehensive template and online wizard is located at: NIH Wizard.*
- *Note that, depending on the nature of your research, certain questions, directions, or entire sections below may not be applicable, or may have been fully covered in the protocol. Provide information if and when applicable. If the answer is found in the protocol please provide a page reference. If the question is not applicable to the study, mark the section "N/A". Do not delete any sections.*
- *Be sure to complete any supplement questions from one or another ancillary office that you receive during the RUTH application process. Please make certain that the protocol, this 503 application and responses to ancillary offices do not contradict each other and the information is incorporated in all documents where appropriate. Be sure to save the Ancillary office responses you provided within RedCap and upload them to Ruth.*
- *Throughout this application are references to checklists. These tools are used by the IRB to make specific regulatory findings. To allow us to do that it is the applicant's responsibility to ensure that your protocol has sufficiently addressed these additional regulatory criteria for approval, and that the applicant identifies those protocol specific findings required by the checklist. how will they do that, here or a separate form?*
- *Keep an electronic copy of this version of the document. You will need to modify this copy when making changes.*

1. Setting of the Human Research:

- *Where within the Mount Sinai health system or its affiliates will research activities take place including subject recruitment?*
- *If there are any differences in the recruitment or study procedures between the sites please highlight them here.*
- *For research conducted outside MSSM and its affiliates under the supervision of the Sinai investigator:*
  - *(1) Site-specific regulations, laws or customs affecting research.*
  - ***(2)** Local scientific and ethical review structure.*

This is a mobile study application and will be done remotely. If a subject wishes to meet in person for help, or to ask questions, we will have a reserved study space to meet with subjects.

2. Resources Available to Conduct the Human Research: (the aim here is to assess if the research is likely to be successful and thus justify the efforts and risks taken by the subjects):

- *Explain the feasibility of meeting the recruitment goals of this project, and demonstrate (e.g., based on retrospective data) a potential for recruiting the required number of suitable subjects within the agreed recruitment period. (For example, how many potential subjects do you have access to? What percentage of those potential subjects do you need to recruit? If this has been reviewed by a committee for recruitment feasibility [e.g. PR&MC], please indicate so.)*
- *For research involving considerable data extraction or mining describe who will be providing those services.*
- *For research conducted outside MSSM and its research affiliates, describe the facilities used for conducting the research.*
- *Describe your process to ensure that all persons assisting with the trial are adequately informed about the protocol, the investigational product(s), and their trial-related duties and functions. If research is being*

carried out in a clinical setting explain how the clinical staff will be informed of the trial and their involvement, e.g. medication administration. If nursing or other services have reviewed and approved this project please upload the documentation.

It is difficult to determine due to remote recruitment how many participants we will consent and enroll: To give it a rough estimate will recruit 250 participants in the first three months of study launch by contacting people engaged with the Mount Sinai Health System via the different methods listed in the recruitment methods. The Digital Discovery Program at HPIMS is equipped with data engineers, doctors, and study personnel with many years of experience, thus making the team fully resourced to handle data management, participant communications, and technical development.

3. Study Design:

a) Recruitment Methods (see PPHS policy):

- *Describe the source of potential subjects.*
- *Describe the methods that will be used to identify potential subjects (e.g. ResearchMatch.org, social media, texting, etc.).*
- *Describe how potential subjects will be approached, the involvement of the treating clinicians, use of letter, emails, calls, or similar, opt-out provisions, etc. Describe materials that will be used to recruit subjects. Include copies of these documents with the application. For advertisements, submit the final copy of printed advertisements. When advertisements are taped for broadcast, provide the final audio/video file. You may submit the wording of the advertisement prior to taping for pre-approval but final audio/video recording has to receive IRB approval before use.*
- *For social media, in addition to providing the content please explain how people will be selected or targeted to receive the ads. For websites used for screening or recruitment, provide details and access. Complete the INFO Sec screening questions and follow up as needed.*

Patients will be identified by running an initial query that checks that they meet the eligibility criteria.
The query will run through MyChart under a study Epic account that has been set up for us by the sinai/mychart team. The initial message to participants (attached in this application) will inform them that they may qualify to participate in a study and will contain the study link that they can click to learn more. The study application, will then bring them through the information about the study, the procedures the official eligibility criteria and it will be up to the user to decide if they want to participate.

We will recruit participants both remotely on at various sites at the Mount Sinai Health System. The study will recruit subjects remotely through MyChart messaging. Those that meet the study criteria based on a MyChart query, will receive a link to the study application and a recruitment message in Mychart (ATTACHMENT). We will recruit with a bulk message in batches up to 10k participants at a time. We will NOT contact anyone that has opted out of messaging through MyChart for research. If participants require some assistance setting up their study and do not wish to do it all remotely, they will be scheduled to meet with a clinical research coordinator (CRC) at a predetermined time and date. Contact information is provided in the message
Research will take place within the Hasso Plattner Institute at Mount Sinai. Any consenting of subjects or data collection or on-boarding will take place in a secure/private office space if anyone prefers doing these activities on site.
We may recycle and re-use language from existing IRB approved documentation (ie. on-boarding screens, consent module) from recruitment. For all advertisements that include language that has not already been reviewed, we will submit to the IRB before use.
Recruitment of participants: We will vary the recruitment strategy and mode of contact for participants in order to effectively onboard those that are interested, allowing their preferences to dictate their consent and on-boarding experience, which will fall into 3 categories of remote (consent + on-boarding), done remotely semi-remote (consent

or on-boarding done remotely) or in person (consent + on-boarding). See "screening, recruitment and consent" for a more detailed workflow.

Strategy 1: Contacting participants through MyChart: We will run a query on eligible participants through MyChart and send bulk messages on a regular schedule (the schedule will be adaptive and partly vary on response rate). They will receive a message through their MyChart account, after they are logged in, which briefly explains the study. A link will be provided to download the study app. The study application will authenticate the user (through a Mychart API) and bring them through a series of consent screens (ATTACHMENT). After the consent process, an on-boarding process will begin in which subjects will be prompted to provide their address to have devices sent to their home. They will hook them up and connect to the app and begin going through the study procedures without the need for a CRC to help them set anything up.
Strategy 2: Contacting participants through Broadcast notifications, which we will discuss with teh Broadcast notification team: We may publish a bulk message about the study through a Mt. Sinai broadcast notification as well. Unlike with the Mychart message, this will not contain a link to the study (ATTACHMENT). The message will lead them to download the study application and then the rest of the steps to consent and onboard into the study are the same as above.

Semi-remotely: There may be some aspects to the on-boarding that a subject is comfortable doing themselves (ie. downloading the study app) and other parts where they are unsure how to set it up without help (ie. connecting the devices). If this is the case. The CRC will set up a meeting location to help with the parts of study on-boarding as requested.

In person: Over the initial phone call or as a result of the Mychart message, the participant may express a wish to have the whole on-boarding done in person and if that is the case, the CRC will agree to meet them at the study location for a full on-boarding session.

In person: remote combinations determined by patient preferences: Patients who express interest in participating in this study will be referred to meet on-site with a CRC either prior to or following the physician visit or by separate appointment. The CRC will meet with the prospective participant and explain order to explain rationale, objectives, procedures, risks and benefits of participating in the study. If they are interested, the research recruiter will answer questions and obtain informed consent from prospective participants and bring them to the study site for the onboarding. They will be led through the download of the study app which will consent them in a private space and will be led through the study onboarding procedures. If the CRC is not present in the clinic and is contacted ia phone, email and the subject would prefer to consent remotely, then they will receive a study link, where they will first have to sign on through Mychart inbox to receive.
We may also utilize SMS text messaging where participants may be initially contacted either through a MyChart message in their inbox or through a text message with a short introduction to the study and a link where they can go for more information

Strategy for MyChart messaging/SMS messaging. We will send the initial MyChart message to as many users as we can one time. If we receive a message back through our study email that the participant would rather not be contacted again, we will put them on a no-contact list. We plan on sending a second message to participants and then a third, spaced a few weeks apart (messages will not exceed 3 messages for this study) and anyone who asks not to receive messages along the way will not receive messages.

b) Inclusion and Exclusion Criteria:

- *Indicate any local changes not specified or differing from the protocol.*
- *Describe how you will screen for eligibility and if you will need a waiver of Informed Consent or HIPA. are using an outside firm to screen or data mine for subjects please provide details here.*

- *Any exclusions based on race, sex/gender, preferred language must be explained.*
  (NOTE: You may not include members of vulnerable populations as subjects in your research unless you indicate this in your inclusion criteria).

Inclusion Criteria:

- 18 years of age or older
- Self-reported issues with stress, pain and/or sleep
- Have an iPhone
- Has received care at the Mount Sinai Health System
- Sufficient English-language ability to participate in informed consent process, complete study assessments and understand the text in mobile phone-delivered interventions
- Have symptoms of pain, stress and or poor sleep that affect your daily life?

Exclusion Criteria:

- <18 years of age
- Does not own an iPhone or know how to handle a mobile phone
- Are unable to read or understand the study materials
- Current pregnancy

c) Number of Subjects:

- *Specify local recruitment numbers if not in the protocol*
- *Indicate the total number of subjects to be accrued locally. This will be the maximum number of subjects that can sign the consent form without additional IRB approval. Please be sure to account for screen failures, drop-outs, etc. If applicable, distinguish between the number of subjects who are expected to be pre-screened, enrolled (consent obtained), randomized, and complete the research procedures (i.e., numbers of subjects excluding screen failures) and between subgroups of subjects (e.g. healthy volunteer, disease cohort).*
- *If this is a multicenter study, indicate the total number of subjects to be accrued across all sites.*

We expect to enroll 1000 remote participants a year on a rolling basis. We hope to reach 240 subjects annually that are robust users, engaged with the research study each year.

d) Study Timelines:

- *If not in the protocol, please clarify the how long an individual subject may be in the protocol, and for how long the protocol will be active at Mount Sinai.*
- *The duration of an individual subject's participation in the study (including follow-up).*
- *The duration anticipated to enroll all study subjects.*
- *The estimated date for the investigators to complete this study (complete primary analyses)*

Participation in the study may range anywhere up to 5 years. We expect to enroll 1000 participants a year on a rolling basis. We hope to reach 240 subjects annually that are robust users, engaged with the research study each year.
We anticipate this study to be ongoing for over 10 years with rolling recruitment for the duration of the study.

e) Specimen Banking for Future Uses Not Part of This Project:

- *If storage will be occur at Sinai and elsewhere (e.g. the sponsor) be sure to answer these questions for both sets of samples as, at the very least, governance of future uses will differ.*
- *If specimens will be banked for future use, describe:*

- *Where the specimens will be stored, what access controls and security systems will be in place?*
- *How long they will be stored?*
- *How will researchers gain access to the specimens? If there is a resource utilization committee please provide a description.*
- *List the information to be stored or associated with each specimen (including how the specimens are labeled/coded).*
- *If the specimens are part of bank where frequently sharing among several or more users is contemplated then a complete set of Standard Operating Procedures for the repository should be submitted.*

Not applicable

f) Data Storage, Transmission and Confidentiality:

Describe the data and specimens to be sent out or received. If storage will occur at Sinai and elsewhere (e.g. the sponsor) be sure to answer these questions for both sets of samples as, at the very least, governance of future uses will differ.

As applicable, describe:

- *How will data be collected?*
- *How will data be transmitted? If clinical trials software or similar is being used provide the names as well as the security/regulatory specifications it complies with (e.g. FDA)*
- *How will data be stored? Provide data standards where known*
- *How long will data be stored?*
- *What are the SOPs that govern data sharing?*
- *If this project is not funded by NIH will a Certificate of Confidentiality be obtained? If not, why not?*

We will collect EHR information in 1 or 2 ways:
The participant could stream information from their MyChart to the app. We will provide instructions on how to do this as an optional step. This step will also ask which categories of health information the participant wants to share, and they can control those choices. During the consent, they will also be informed that consenting to the study means that the study team can obtain access to the EHR even if they don't allow this functionality.

Data will be stored in a coded fashion indefinitely. when a user withdraws, data will be handled based on their preferences, but all data aggregated and analyzed will be kept. Participants' account and identifying information will be kept separated from the research data, will be stored in encrypted form, and will only be accessible to the key investigators. As with any computer system, IT administrators with super-user access privileges could in principle access the data, but their work guidelines will prohibit them from accessing or examining the data except by specific need and request, e.g. for backup and disaster recovery.) The Server will automatically generate a unique random identifier that will be associated with each participant's study data, and will maintain a secure mapping between participant account and participant study data. Researchers will only do analysis on coded data. Thus researchers analyzing the coded study data will not know the identity of the participants.

Use of research data
The research data will be securely transferred over an encrypted connection to a cloud server that will de-identify the data, separating and securely storing personally identifying information and de-identified research data. PII will be stored in a secure storage service. PII will be encrypted before storage within the server. De-identified research

data will be stored separately and will not be back traceable to user registration. De-identifying the research data enhances project security.
Coded data may be shared with other researchers if they have other IRB approved studies that cite our study. We do not share PHI outside the study team. We say the data is coded and ID is separate from identity. That link will be held by Matteo Danieletto on our study team in a separate and secure data environment. This was approved in InfoSec approval documentation. He will release coded data, no identifiers, per IRB approvals. Only our team will be contacting participants about other, available studies.

Protecting PHI from improper use and disclosure:
Participants' account and identifying information will be kept separated from the research data, will be stored in encrypted form, and will only be accessible to the key investigators. As with any computer system, IT administrators with super-user access privileges could in principle access the data, but their work guidelines will prohibit them from accessing or examining the data except by specific need and request, e.g. for backup and disaster recovery.) The Server will automatically generate a unique random identifier that will be associated with each participant's study data, and will maintain a secure mapping between participant account and participant study data. Researchers will only do analysis on coded data. Thus researchers analyzing the coded study data will not know the identity of the participants. In addition, in the event we randomly audit and find data or features that we consider potentially identifiable we will make every effort to either contact the participant or edit/remove the information prior to aggregating the data. Please see Appendix for Infographic for an infographic of data flow and security measures as well as Data Security Details for additional data security details.
For wearables: The user will need to grant access for wearable data to get written into the app for analysis.
We will be obtaining HIPAA authorization after the user registers their account on the Digital Health Cohort app. This means that they will provide us with their email address, year of birth, and gender before we obtain HIPAA authorization.
To mitigate this, we have included a note before account creation indicating that we are collecting this information for platform analysis and to enhance user experience on the platform. None of their identifiable information will be used for research purposes. Basic contact information is collected as is done for most app/platform-specific projects, studies, and accounts.
Subjects' privacy will be protected through industry-standard electronic security.
Participants' study data and results will be stored and attached to their study ID, which effectively serves as a linking code. Profile/account information will be stored separately from study data and results. De-identifying the research data in this way enhances project security and protects participants' confidentiality.
because the research is ongoing and PHI and results will be kept for as long as the participant has allowed access to the data within the app. Participants will be able to view their own results indefinitely. Should the user decide to remove access to their data, they can do so by deleting their account within the app. Deleting the app from their device will not remove access to their data. This will be made explicitly clear to the user in the consent module.
We will NOT share data generated for this study with German investigators affiliated with HPIMS.

How PHI will be destroyed:
PHI will be kept in the study for 6 years. It will be destroyed at the earliest possible time after 6 years of retention.
When the user withdraws, we will not keep PHI. The study investigators, the sponsor or the institution may stop subjects' involvement in this research study at any time without their consent. This may be because the research study is being stopped, the instructions of the study team have not been followed, the investigator believes it is in the subjects' best interest, or for any other reason. If the data have been stored as part of the research study, they too can be destroyed without participants' consent.
Subjects may also choose to withdraw at any time. When the user withdraws, he will receive a message, "the data collected about you up to the time of dis-enrolling will remain de-identified as part of the study. Your identify will not be kept." At this point, the user may decide to uninstall or keep the app. If the user decides to keep the app, no new data is collected. If a participant wants to request that their old data not be used as well, they have to request this in writing to the Principal Investigator.

g) Data and Safety Monitoring Plan:

- **For projects with a Data Safety Monitoring Board/Data Safety Committee (DMSB/DMC):**
- *If not included in the protocol, attach a description of the DMC/DSMB, including the number, names (if available} and area of professional expertise of the members. The responsibilities of the DSMB/DMC must be clear as well as their powers and their degree of independence. The DSMB charter must be provided to the PPHS before the study may begin. Reports of the DMC/DSMB must be made available to the local PI and the MSSM PPHS. The report need not contain specifics of the study or data, but there should be clear statement if the study can continue as is, or requires changes or termination.*

Not applicable

h) For other projects with greater than minimal risk a monitoring plan must be provided:

1. List the name(s) of the individual(s) at MSSM who will be responsible for data and safety monitoring of this study. For each individual, indicate their role, name, title, and department information. The Principal Investigator may be the only monitor of a study.

2. If the qualifications of an individual to serve as a monitor are not contained in the PPHS application, they must be added to the DSMP either as a narrative description or as a CV.

MSSM Principal Monitor:
Indicate whether this person is the PI, a Team Member, or is Independent:
Last Name:
First Name:
Academic Title:
Department:
Mailing Address:
Phone:
Fax:
E-mail:

MSSM Additional Monitor:
Indicate whether this person is the PI, a Team Member, or is Independent:
Last Name:
First Name:
Academic Title:
Department:
Mailing Address:
Phone:
Fax:
E-mail:

3. Justify your choice of principal monitor in terms of the assessed risk to the research subject's health and wellbeing. In high risk studies when the principal monitor is independent of the study staff, indicate the individual's credentials, relationship to the PI, and the rationale for selection.
4. List the specific items that will be monitored for safety (e.g., adverse events, subject compliance with the protocol drop outs, etc.).

5. Indicate the frequency at which ACCUMULATED safety and data information (items listed in number 3 above and interim analysis of efficacy outcomes) will be reviewed by the monitor(s) or the Data Monitoring Committee (DMC). Although this information must be reviewed at least annually, the higher the study risks, the more frequently reviews must be scheduled.

6. Where applicable, describe rules which will guide interruption or alteration of the study design.

7. Where applicable, indicate dose selection procedures that will be used to minimize toxicity.

8. List any specialized grading system that will be used to evaluate adverse events (e.g., National Cancer Institute Common Toxicity Criteria).

9. Describe procedures that will be used to assure data accuracy and completeness.

10. Should a temporary or permanent suspension of your study occur, in addition to the PPHS, indicate to whom (NIH, FDA, sponsor, IRB) will you report the occurrence.

Not applicable

i) Withdrawal of Subjects:

- *Describe anticipated circumstances under which subjects will be withdrawn from the research without their consent.*
- *Describe any procedures for orderly termination.*
- *Describe procedures that will be followed when subjects withdraw from the research, including partial withdrawal from procedures with continued data collection.*

Subjects may choose to withdraw at any time. When the user withdraws, he will receive a message, "the data collected about you up to the time of dis-enrolling will remain de-identified as part of the study. Your identity will not be kept." At this point, the user may decide to uninstall or keep the app. If the user decides to keep the app, no new data is collected. If a participant wants to request that their old data not be used as well, they have to request this in writing to the Principal Investigator.
They may delete the app in the settings section of the app. Or they will be able to contact the research team through the study email address. A participant's decision to withdraw will not be questioned and will not require justification.
If the participant withdraws from the study and requests that the data be destroyed, all the data associated with that account will be removed from the study database. Any results already analyzed will not be able to be destroyed.
This type of destruction is not possible because the data may be statistical, aggregated and anonymous. Study withdrawal will not inhibit them from participating in a different study in the future. Once other IRB-approved studies are made available, they may be contacted again, unless they explicitly opt out of messaging.
The study team has the right to block users from the app if they are fond to be misusing it in any way. This would happen without their consent. They will receive an email from the study team indicating that their account has been terminated.
When a user withdraws and has been given a device, their withdrawal from the application will trigger instructions on how to return the device to the study team. This will be an email to the participant asking about their preference

for how they would like to give back the device ie. dropping it at an office location or receiving a pre-paid return envelope to ship it back.

The study investigators, the sponsor or the institution may stop subjects' involvement in this research study at any time without their consent. This may be because the research study is being stopped, the instructions of the study team have not been followed, the investigator believes it is in the subjects' best interest, or for any other reason. If the data have been stored as part of the research study, they too can be destroyed without participants' consent.

4. Provisions for Research Related Harm/Injury:

- *Explain how clinically important incidental results will be handled. Examples include an abnormal lab finding or a survey answer indicating possible danger to self or others.*
- *Describe the availability of medical or psychological resources that subjects might need as a result of any anticipated adverse events that may be known to be associated with the Human Research.*
- *If the research involves more than minimal risk to subjects, explain any medical treatments that are available if research-related injury occurs, who will provide it, what will be provided, and who will pay for it.*

This research is no more than minimal risk. This study does not provide any compensation, health or medical care to participants. If the subject is injured as a direct result of his/her participation in this study, the PI and the research study staff will assist in obtaining appropriate medical treatment if feasible. The participant's medical insurance, managed care plan, or other benefits program will be billed for this treatment. The subject will be responsible for any associated copayment or deductibles as required by his/her insurance. If costs of care related to such an injury are not covered by medical insurance, managed care plan or other benefits program, the participant may be responsible for these costs. This study/ the sponsor will not pay charges that the participant's insurance does not cover. No payment is available from the study.

5. Recordings:

- *Will any video or audio recordings be made for research purposes? If so please describe:*
- *How will the data be recorded, transmitted and stored, keeping in mind that this is likely PHI and should be encrypted, etc.?*
- *How long will the data be held?*
- *Is this an optional part of the project, and if not, what is the scientific need to compel people to be recorded in order to participate in the research?*
- *How can subjects ask to have the recordings and transcripts destroyed?*

Not applicable.

6. Provisions to Protect the Privacy Interests of Subjects:

[Note: This section is soliciting <u>different information</u> than the confidentiality information solicited in section #5f. Answers will vary widely based on the complexity of the research design, the sensitivity of the subject matter and the populations being recruited.]

- *Describe the steps that will be taken to protect subjects' privacy interests, particularly a person's desire to control how, where and with whom, they interact and communicate, especially on issues that prospective research participants may deem sensitive or private. Consider privacy interests that may arise from the time participants are identified for recruitment until they complete study participation.*

Consider privacy interests that may arise in communications with the study subjects (e.g. phone messages, mail, etc), including through long-term follow-up.

- *Describe what steps you will take to make the subjects feel at ease with the research situation in terms of the questions being asked and the procedures being performed. "At ease" does not refer to physical discomfort, but the sense of intrusiveness a subject might experience in response to questions, examinations, and procedures.*
- *Describe why it is acceptable and appropriate for members of the research team to approach the prospective participant about the research.*

All data will be de-identified and securely stored to maintain the privacy of all participants. in order to make the subjects feel at ease with the research situation in terms of the questions and tasks they are being asked to perform, the participants will have the choice to opt out of portions the study they do not want to or feel comfortable doing. Furthermore, subjects will have the option to contact the Principal Investigator or the research staff regarding any research related issues. We have also applied for a certificate of confidentiality.

7. Economic Impact on Subjects:

- *Describe any foreseeable costs that subjects may incur through participation in the research (exclude billing for procedures that are part of clinical care e.g. copayments for studies that involve an overlap of clinical care & research).*
- *In answering this question, the Financial Administration of Clinical Trials Services (FACTS) must be consulted in determining the appropriate responsible party for subject care costs incurred as part of the clinical research study. Additional information can be found at (FACTS Office)*

No economic impact is foreseen from participation in this research.

8. Payments/Reimbursements to Subjects:

Describe the amount and timing of any payments/reimbursements to subjects. Payments must be pro-rated. Completion bonuses may be permitted but may not represent undue inducement. Review ISMMS Finance webpage for restrictions on payments, requirements for tracking cash, gift card, etc. payments.

No payment is available from the study.

9. Consent Process:

*This section always applies, please indicate whether consent will be obtained from subjects. (If not, proceed to the **Waiver or Alteration of the Consent Process** section below). If you will be obtaining consent, describe:*

- *The setting of the consent process.*
- *Describe any waiting period available between informing the prospective subject and obtaining the consent.*
- *If you will be following "SOP HRP-090 Informed Consent Process for Research", after addressing the points above, indicate this. Otherwise, also describe:*

- *The role of the individuals listed in the application as being involved in the consent process.*
- *The time that will be devoted to the consent discussion.*
- *Steps that will be taken to minimize the possibility of coercion or undue influence.*
- *Steps that will be taken to ensure the subjects' understanding.*
- *Describe any tools that will be utilized during the consent process*

Non-English Speaking Subjects (See PPHS policy)

Indicate what language(s) other than English are understood by prospective subjects or representatives. If subjects who do not speak English will be enrolled, describe the process to ensure that the oral and written information provided to those subjects will be in that language. If you intend to exclude potential participants who do not speak English, provide a justification for doing so. .

After downloading the study app, the participant will go through an informed consent process mediated by the study app. This mobile/web-centric process promotes the participants understanding of what will be asked of them. A series of screens will verify that the participants meet the inclusion criteria and do not meet any of the exclusion criteria. This verification of inclusion/exclusion criteria will match user answers to questions locally on the phone and will not store this information as study data before the entire process is completed. For individuals who do not meet inclusion criteria, the study app will inform them that they do not meet the criteria to participate and will provide instructions on how to exit the application and uninstall it from their phone. Following the screening inclusion/ exclusion questions, a series of screens highlight key aspects of the study to reinforce material presented, followed by a series of comprehension questions that assess the participant's comprehension of key aspects of the study. If they answer incorrectly, the correct response is provided and explained to reinforce their understanding.

After the prospective subject answers the comprehension questions, the app will assess their performance. If the prospective subject incorrectly answered the question and/or if they incorrectly answered two or more total questions, they will be required to repeat the series of questions. If they fail again on the second attempt to pass the test, they will be required to repeat the entire e-consent process from the beginning.

After the econsent screens, the user will take a comprehension quiz to assess comprehension, and review of the full document (MSSM HRP-502a). See mockups for screens representing the informed consent process. Participants who wish to enroll will digitally sign the consent form. Once the e-consent process is completed, subjects will have the signed copy stored in the app to view at any time.

10. Process to Document Consent in Writing:

a) *If consent will be obtained at a distance using the written consent form as the official version, please provide details of how the subjects will receive a copy of the consent form, how the consent form will be reviewed with the subject, and how signature will be obtained and documented.*

b) *If using any sort of e-Consent on any device, including iOPEN, provide access to the PPHS to allow us to review the built consent. e-Consent is defined as consent designed to be obtained with minimal human interaction, generally using specialized software.*
   - *If not iOPEN please provide details and complete the InfoSec "screening questions" for further instructions.*

c) *If you want a waiver of written documentation, please review the "CHECKLIST HRP-411" to ensure that your protocol has sufficiently addressed these additional regulatory criteria for approval, including protocol specific information to support the determinations. You will also need to request a waiver of HIPA authorization. Unless you are eligible for a complete waiver of consent, your consent form or scrip still contain the needed elements of consent as laid out in our consent template.*

The participant will go through an informed consent process mediated by the study application. The e-consent process uses visual, iconic interfaces to explain concepts, communicate impacts of the study and highlight benefits and risks to participants. This will ensure that participants who are enrolled in our study have truly provided informed consent (please see Appendix for mockups of econsent screens). Participants who wish to enroll will digitally sign the consent form, which will then be emailed to them in PDF or rich text format.
The e-consent process is attached. This can either be done remotely, or mediated by a CRC as requested by the study participant.
A series of screens will show information with learn more tabs available. It will take the user through study expectations, eligibility criteria and will end with a series of comprehension questions that the user must "pass" in order to proceed with a view of the full consent form where they can provide their time stamped signature.
Because of the nature of the remote nature of the study, it is necessary that the consent take place remotely. The language in this module may change slightly over time, but the fundamental meaning will always remain the same.
The participant will be provided an option to contact the research staff during regular business hours if they have questions about the consent form. The consent form will cover HIPAA Authorization related to clinical data usage.
Consent will be documented electronically and submitted before participants proceed with any study procedures.
Consent documentation will be in line with New York State electronic signature guidelines as delineated in the Electronic Signatures and Records Act. Date and time of the consent is electronically recorded.
Users will be brought through the consent process and then have to answer comprehension questions. After 3 failed attempts at the quiz, the consent process will stop and the user will be asked to leave the app, unable to continue to the onboarding process. This flow can be viewed during a demo of the app.

Waiting period:
The participant will first hear about the study through a mychart message or other advertising, if they are interested and a link has not been sent to them yet, the research team will send one through Mychart. Once they open the study link, the process is led by the participant. It may be that a participant opens the app, but doesn't consent right away. We will be collecting analytics on when a user opens an app, and their activity within the app. so it's possible that we may prompt a user with a friendly message to complete the consent since they're somewhere in the process.

If a participant hears about the study through an advertisement or through a clinician for example, they may take it upon themselves to email the study email address, they will be prompted from there to open a Mychart account if they don't have one or log in if they do have one. The participant flow always starts with opening Mychart as that is a way to authenticate users. The study link will arrive as a message in their inbox through MyChart after an account is opened.

As described in the previous section, we will be utilizing an e-consent for our study and therefore there will not be a typical paper consent document that the subjects will need to sign. However, participants who wish to enroll will digitally sign the consent form, which they can choose to be emailed to them, texted to them etc. in PDF format. They can decide how to store a copy of their consent. The consent will appear as a blank box after they go through the consent process, they will sign with their finger. Screenshots of this are provided.

The e-consent process uses visual, iconic interfaces to explain concepts, communicate impacts of the study and highlight benefits and risks to participants. A series of screens will verify that the participants meet the inclusion criteria and do not meet any of the exclusion criteria. This verification of inclusion/exclusion criteria will match user answers to questions locally on the phone and will not store this information as study data before the entire process is completed. For individuals who do not meet inclusion criteria, the study app will inform them that they do not meet the criteria to participate and will provide instructions on how to exit the application and uninstall it from their phone. Following the screening inclusion/exclusion questions, a series of screens highlight key aspects of the study to reinforce material presented, followed by a series of comprehension questions that assess the participant's comprehension of key aspects of the study. If they answer incorrectly, the correct response is provided and explained to reinforce their understanding. After the prospective subject answers the questions, the app will asses

performance. If the prospective subject incorrectly answered the question and/or if they incorrectly answered two or more total questions, they will be required to repeat the series of questions. If they fail again on the second attempt to pass the test, they will be required to repeat the entire e-consent process from the beginning. The presentation of key aspects of the study in multiple formats, including visual iconic interfaces, interactive questions to assess comprehension, and review of the full document (MSSM HRP-502a) will help ensure that patients understand what the study is about, what they are asked to do in the study, and the risks, benefits, and options of participation. See mockups for screens representing the informed consent process. Participants who wish to enroll will digitally sign the consent form. Once the e-consent process is completed, subjects have the option of printing a hard-copy of the consent form

11. Vulnerable Populations:

a) *Unless already detailed in the protocol, please indicate which of the following populations are either included or excluded in this project: Indicate specifically whether you will include (target) or exclude each of the following populations:*

Include	*Exclude*	*Vulnerable Population Type*
	X	*Adults unable to consent*
	X	*Individuals who are not yet adults (e.g. infants, children, teenagers)*
	X	*Wards of the State (e.g. foster children)*
	X	*Pregnant women*
	X	*Prisoners*

b) *Describe other aspects of the subject population that may increase their vulnerability (marginalized populations, poverty, illiteracy and under-education, legal status, home/institution-bound individuals; students participating in their professor's research, cognitively-impaired minors, etc.). For those subjects at an increased risk of not understanding the aims, procedures, risks and benefits of this project, OR whom may be at increased vulnerability to coercion or undue influence, describe additional safeguards included to protect their rights and welfare.*

c) *What steps are being taken to assure that a diverse group of research subjects are approached to participate in this study? What are the projected demographics of the enrolled subjects at study completion.*

d) *Review the following checklists that are available in RUTH. The research team should provide the "project specific findings" that are requested in the relevant checklists.*

- *If the Human Research involves cognitively impaired adults, review the "CHECKLIST HRP-417 Criteria for Research Involving Cognitively Impaired Adults" to ensure that your protocol has sufficiently addressed these additional regulatory criteria for approval, including protocol specific information to support the determinations.*
- *If the Human Research involves persons who have not attained the legal age for consent to treatments or procedures involved in the research ("children"), review the "CHECKLIST HRP-416 Criteria for Research Involving Children" to ensure that your protocol has sufficiently addressed these additional regulatory criteria for approval, including protocol specific information to support the determinations.*
- *If the Human Research involves pregnant women, review the "CHECKLIST HRP-412 Criteria for Rese Involving Pregnant Women" to ensure that your protocol has sufficiently addressed these additional re criteria for approval, including protocol specific information to support the determinations.*

- *If the Human Research involves non-viable neonates or neonates of uncertain viability, review the "CHECKLIST HRP-413 Criteria for Research Involving Non-Viable Neonates" "CHECKLIST HRP-414 Criteria for Research Involving Neonates of Uncertain Viability" to ensure that your protocol has sufficiently addressed these additional regulatory criteria for approval, including protocol specific information to support the determinations.*
- *If the Human Research involves Prisoners, review the "CHECKLIST HRP-415 Research Involving Prisoners" to ensure that your protocol has sufficiently addressed these additional regulatory criteria for approval, including protocol specific information to support the determinations.*

Not applicable.

12. Multi-Site Human Research:

a) Besides research sites within the Mount Sinai System please detail the PI's responsibilities for other sites, or overall responsibility for the project?

b) If coordinating center functions are taking place at Sinai, whether or not it is also a clinical site, please answer the following with appropriate justification and documentation, if needed:

(i) Are the management, data analysis, and Data Safety and Monitoring (DSM) systems adequate, given the nature of the research involved?

(ii) Is the sample protocols and informed consent documents developed and distributed to each collaborating institution?;

(iii) Does each collaborating institution hold an applicable OHRP-approved Assurance?;

(iv)Will each protocol be reviewed and approved by the IRB at the collaborating institution prior to the enrollment of subjects?;

(v) Have all substantive modifications by the collaborating institution to the sample consent, especially related to risks or alternative procedures, been appropriately justified?;

(vi) Will informed consent be obtained from each subject in compliance with HHS regulations?

If this is a multi-site study where you are the lead investigator, describe the management of information (e.g., results, new information, unanticipated problems involving risk to subjects or others, or protocol modifications) among sites to protect subjects.

Not applicable.

13. Community-Based Participatory Research

a) Describe involvement of the community in the design and conduct of the research.

(Note: "Community-based Participatory Research" is a collaborative approach to research that involves the community in all aspects of research process. Community-based Participatory Research begins with a research topic of importance to the community and has the aim of combining knowledge with action and achieving social change to improve health outcomes and eliminate health disparities. Simply recruiting participants from the community is not CBPR. If your research does not involve the community in all aspec of the research process, mark N/A)

b) Composition and involvement of any community advisory board for research conducted outside of MSSM.

Not applicable.

14. Sharing of individual and study Results with Subjects:

a) If not in the protocol, or in response to other questions (e.g. Radiation Safety) add here. Be sure to remain compliant with NYS laws around genetic testing and the use of research tests, as only FDA or NYS DOH a approved tests from CLIA labs can be used to guide clinical decision making. If results are not being returned, explain the rationale.

b) Specify which results will be returned to subjects and/or their clinical care team. If results are not being returned, explain the rationale.

c) How and when will subjects be informed of the study results? The PPHS expects proactive outreach by the study team.

We may communicate through the study application in notifications, any updates to the study: aka: xx amount of people have joined the study as of today, check out our paper published in xx, it may also be sent in an email to participants associated with their account if they are long messages.
Participants can access their own data via the study application. Where participants have agreed to allow the study researchers to contact them after the study, we may email participants a link to download the study or a summary of its findings. The "study app" can only give users access to their data collected during the study for as long as the supporting server-side software for the study continues to run and provide the data to the user on the user's request. No later than at the conclusion of the study, the server software supporting the study and the asthma app will be decommissioned and users will no longer be able to access their data gathered during the study. During the study, Mount Sinai will make it possible for users who wish to obtain their study data through a secure download.

15. External IRB Review History

If you have previously submitted this protocol for review by an external IRB (non-Mount Sinai IRB), provide the name of the reviewing IRB and the associated project identification number. Please include the details of the review with appropriate documentation including the date of review and the IRB contact information.

Not applicable.

16. Control of Drugs, Biologics, or Devices:

a) If not included in the protocol, the supplemental questions of the Investigational Drug service or included in other uploaded documents please add here:

- *If the Human Research involves drugs, biologics, or devices, describe the plans to store, handle, and control those drugs, biologics or devices so that they will be used only on subjects and be used only by authorized investigators. This very well may involve OR personnel, nursing, central sterilization and supplies etc. The plan should be comprehensive and robust.*
- *Note: If there are required departmental policies that regulate the control of drugs, biologics, or devices, provide that information here.*

- *Note: For studies involving research drugs or biologics, you will need to obtain the approval of Investigational Drug Service (IDS) of the Mount Sinai Pharmacy, regardless of whether you will be utilizing the IDS to manage the control of research drugs and biologics.*

Not applicable.