HRP-881 - Protocol for Requests to Serve (R2S)

Protocol Title: Promoting Cardiovascular Health of Northern Appalachian Women During and After Pregnancy: Pilot Study

Provide the full title of the study as listed in item 1 on the "Basic Information" page in CATS IRB (http://irb.psu.edu).

Principal Investigator:
Name: Ian Paul, M
Department: Pediatrics
Telephone: 717-531-8006
E-mail Address: ipaul@psu.edu

Version Date: May 11, 2023

Provide version date for this document. This date must be updated each time this document is submitted to the IRB office with revisions. DO NOT revise the version date in the footer of this document.

Clinicaltrials.gov Registration #: NCT05822531

Provide the registration number for this study, if applicable. See "HRP-103- Investigator Manual," under "ClinicalTrials.gov" for more information.

Important Instructions for Using This Protocol Template:

This template is provided to help investigators prepare a protocol that includes the necessary information needed by the IRB to determine whether a study meets all applicable criteria for approval.

1. **GENERAL INSTRUCTIONS:**
   - Prior to completing this protocol:
     - Submit a reliance request form and await confirmation that the PSU HRPP has agreed to be the reviewing IRB for this project: https://forms.office.com/r/rPwwtLNicx
     - Ensure that you are using the most recent version by verifying the protocol template version date in the footer of this document with the current version provided in the CATS IRB Library.
   - Do not change the protocol template version date located in the footer of this document.
   - Some of the items may not be applicable to all types of research. If an item is not applicable, please indicate as such or skip question(s) if indicated in any of the instructional text.
   - **GRAY INSTRUCTIONAL BOXES:** Type your protocol responses below the gray instructional boxes of guidance language. If the section or item is not applicable, indicate not applicable.
     - **Do NOT delete the instructional boxes from the final version of the protocol.**
   - Many of the items include a Site Congruency check, which must be completed where included. This congruency check should solely identify the sites that have dissimilar procedures/information from the overall study design/procedures. Dissimilar procedures across sites should be detailed in the SITE workspace via HRP-XXX – R2S Site Plan after approval of the overall STUDY. See the 'Job Aid for Researchers – Requests to Serve (R2S) IRB Submissions' for guidance in STUDY/SITE submissions.
   - Add the completed protocol template to your study in CATS IRB (http://irb.psu.edu) on the "Basic Information" page.

2. **CATS IRB LIBRARY:**
    - Documents referenced in this protocol template (e.g. SOP's, Worksheets, Checklists, and Templates) can be accessed by clicking the Library link in CATS IRB (http://irb.psu.edu).

3. **PROTOCOL REVISIONS:**
    - When making revisions to this protocol as requested by the IRB, please follow the instructions outlined in the guides available in the Help Center in CATS IRB (http://irb.psu.edu) for using track changes.
    - Update the Version Date on page 1 each time this document is submitted to the IRB office with revisions.

If you need help…

All locations:
Human Research Protection Program
Office for Research Protections
The 330 Building, Suite 205
University Park, PA 16802-7014
Phone: 814-865-1775
Fax: 814-863-8699
Email: irb-orp@psu.edu
https://www.research.psu.edu/irb

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1.0 Objectives

1.1 Study Objectives

Describe the purpose, specific aims or objectives. State the hypotheses to be tested.

Aim 1: To add a cardiovascular health (CVH) module to the existing perinatal home visitation program delivered by Nurse Family Partnership (NFP) visiting nurses in the Northern Appalachian region of Central Pennsylvania.

Aim 2: To train selected NFP visiting nurses on the CVH module and assess the acceptability of the module as well as the fidelity of delivery to pregnant and postpartum women.

Aim 3: To demonstrate the feasibility of enrolling and following pregnant women participating in the NFP program into a pilot research study evaluating a CVH module delivered as part of the existing NFP program.

Aim 4: To develop an activity protocol during and after pregnancy to decrease sedentary behavior during and after pregnancy and increase activity level during the postpartum period.

Aim 5: To pilot the use of digital devices to encourage and monitor activity and associated biometric outcomes, primarily blood pressure and actigraphy.

1.2 Primary Study Endpoints

State the primary endpoints to be measured in the study.

Clinical trials typically have a primary objective or endpoint. Additional objectives and endpoints are secondary. The endpoints (or outcomes), determined for each study subject, are the quantitative measurements required by the objectives. Measuring the selected endpoints is the goal of a trial (examples: response rate and survival).

- Successful integration of CVH modules into NFP program during pregnancy and up to 6 months after delivery.
- Good acceptability of the CVH module by NFP visiting nurses and participants.
- Successful consent of 20 pregnant women into pilot study.

1.3 Secondary Study Endpoints

State the secondary endpoints to be measured in the study.

- Successful uptake and demonstrable utility of actigraphy and intermittent home-based blood pressure monitoring (HBPM) during and after pregnancy.
- Successful uptake and demonstrable utility of an enhanced smoking cessation intervention among women who smoke or have environmental smoke exposure.

2.0 Background

2.1 Scientific Background and Gaps

Describe the scientific background and gaps in current knowledge.

For clinical research studies being conducted at Penn State Health/Penn State College of Medicine, and for other non-PSH locations as applicable, describe the treatment/procedure that is considered standard of care (i.e., indicate how patients would be treated in non-investigational setting); and if applicable, indicate if the treatment, drug, or device is available to patient without taking part in the study.

Unhealthy lifestyles among women of reproductive age are threats to pregnant women, their offspring, and our nation's health.[1] ~70% of women of reproductive age have a component of metabolic syndrome and nearly 25% have three or more components,[2] with higher rates among non-Hispanic Black and Hispanic women.[2] >50% of women with metabolic syndrome in early pregnancy develop complications including preeclampsia and gestational diabetes (GDM).[2] Preeclampsia is associated with increased maternal chronic hypertension and cardiovascular disease (CVD) later in life, including congestive heart failure,[3] myocardial infarction, and stroke.[4] Women with GDM have an increased risk of diabetes (mostly type 2) later in life; up to 70% of women with GDM develop diabetes within 28 years of pregnancy;[5-7] minorities have higher rates of GDM and shorter conversion times.[8-10]

Exposure to hypertensive disorders, diabetes, and obesity during gestation has lifelong impact on offspring health.[11] Poor maternal CVH during gestation is associated with higher risks of poor offspring CVH at ages 10-14 years.[12] Offspring of women with elevated BMI or metabolic dysfunction during pregnancy have greater adiposity, less favorable lipid profiles, higher blood pressure, and greater insulin resistance across childhood, and are at increased long-term risk of obesity, metabolic dysfunction, and CVD compared with offspring of women with low metabolic risk.[13-36] Preeclampsia increases risk for complications including intrauterine growth restriction, low birth weight, preterm birth, and neonatal death.[37] GDM increases risk of macrosomia, neonatal hypoglycemia, and birth trauma.[38,39] Thus, maternal CVH is vitally important for offspring lifetime CVH,[40] yet few interventions during pregnancy and postpartum have focused on long term maternal CVH.

Perinatal HV programs have been utilized domestically and abroad since the 1800s through various models. Most use a multi-visit model encompassing both pre- and postnatal HV. The Nurse-Family Partnership (NFP) program is one of the most well regarded models,[41,42] and is one of 21 models meeting federal criteria for evidence of effectiveness.[43] NFP serves vulnerable, low income, first-time mothers and seeks to improve health and social outcomes for mothers and infants.[44] Women enroll by week 28 of pregnancy, have weekly nurse visits for a month followed by twice monthly visits until delivery. After delivery, dyads are visited weekly for 6 weeks, then twice monthly until the infant is 21 months old. From ages 21 months to 2 years, visits are once per month.

Women who participate in NFP have improved knowledge about contraception, fewer subsequent pregnancies, and more time between pregnancies.[45-49] Infants have fewer emergency visits, unintentional injuries, and poisonings[47,50,51] with a reduced incidence of child abuse and neglect.[46,50,52] Years after program completion, the positive effects persist,[53-56] resulting in a cost-effective intervention due to less reliance on government-based financial assistance programs.[57] NFP accounts for contextual factors (e.g., mental health, substance use/abuse, cognitive limitations, etc.) that compromise mothers' abilities to protect themselves and their children, which in part accounts for the program's success. While HV programs cover CVH-related topics (e.g., prenatal diet, weight gain, cigarette smoking, etc.) these programs have not been particularly successful at improving maternal-child CVH. Nonetheless, the visit structure, opportunity for continual refinement, training infrastructure, and quality control mechanisms suggest untapped potential for improving maternal-child CVH.[58]

Appalachia is among the most socioeconomically disadvantaged US regions with marked CVH disparities.[59] Obesity (>30%), smoking (>20%), and physical inactivity (>25%) are more common in Appalachian adults than in the US overall.[60-63] Those in rural Appalachia are more likely to be obese, engage in unhealthy behaviors (i.e., poor diet, physical inactivity, smoking), and have poor mental health than those in metropolitan areas.[64-66] As a result, heart disease, stroke, and diabetes are 17%, 14%, and 11% more common in Appalachia than the rest of the US with higher rates of hospitalization and mortality.[62] Social determinants of health including poor access to preventive care, high rates of generational poverty, and low educational attainment along with reduced access to healthy, affordable foods contribute to the vast health disparities and set the stage for poor CVH.[67] Addressing social disparities is central to improving CVH and life expectancy.[68] This research targets Northern Appalachia where heart disease mortality is 13%

higher than the US rate and 11% higher than the rate in non-Appalachian Pennsylvania.[69] The targeted region contains a dozen HRSA-designated medically underserved areas/populations[70] and while government-sponsored insurance predominates, hesitancy to enroll in government programs is common, resulting in coverage and care gaps[71] that contribute to poor CVH. Specific to the maternal-child population, women of childbearing age have poorer preconception health with higher rates of obesity, smoking, and poor nutrition compared with non-Appalachian women.[72] They also have lower rates of annual checkups with healthcare providers.

Digital devices to track human health have become widely utilized both by individuals and in medical care. The sophistication, ease of use, accuracy and cost have improved dramatically in recent years. Continuous glucose monitoring has become the standard for managing patients with type 1 diabetes with immediate data access (now through the cloud) by caregivers to guide treatment doses and regimen.[73] We pioneered the use of continuous glucose monitoring during pregnancy in women with polycystic ovary syndrome and documented good correlations with concurrently conducted oral glucose tolerance tests in a cohort of women across four time points in pregnancy.[74] Such devices are ideal for prenatal care where biometric factors as maternal weight, maternal blood pressure and fetal heart rate are important prognostic factors for the pregnancy outcome and maternal and child health. All of these factors can be accurately tracked by digital devices and our team has had both extensive clinical and research experience utilizing them. The most important of these biometric factors is maternal blood pressure, as increases are suggestive of gestational hypertensive disorders. Elevated blood pressure is arguably the greatest risk factor for serious maternal morbidity and mortality through pre-eclampsia or eclampsia. Ambulatory Blood Pressure Monitoring (ABPM) has been studied extensively not only during pregnancy[75,76] but for a number of cardiovascular conditions and has been found to correlate well with measures obtained in medical[77] settings and to correlate well with response to treatment and risk of cardiovascular events.[78] We have used 24 hour ABPM in a cohort study of women at risk for developing gestational hypertension throughout pregnancy (N = 73).[79] We found strong and significant correlation between measurements obtained through ABPM and those in the clinic. Further the strongest correlation was in those with the least risk, the population we are proposing to study in this proposal. Our results have been validated in meta-analyses of home blood pressure monitoring (HBPM), intermittent self-measurement of BP outside of a clinic setting) during pregnancy though most studies have used it in at risk populations to augment clinical measurements, instead of in lieu of clinical measurements as we are proposing.[76,80] Meta-analysis has shown the use of HBPM is associated with significantly fewer antepartum visits, diagnoses of pre-eclampsia, pre-delivery hospital admissions and inductions with no difference in maternal and neonatal morbidity and mortality.[76,80] Recently two large multi-center randomized controlled studies of AHBPM) in pregnancy in an at risk population for gestational hypertensive disorders found no benefit in AHBPM in diagnosing such disorders earlier than the control clinic based population (BUMP 1)[81] nor any benefit in AHBPM in reducing systolic blood pressure (BUMP 2).[82] Our study will use periodic HBPM, to monitor all patients (many patients who develop these disorders have no risk factors) during pregnancy. This study will also monitor blood pressure across the transition from pregnancy to postpartum which will provide novel data about this understudied transition. Additionally, we will monitor steps with an accelerometer and movement/sleep with an actigraphy device as we have done in previous lifestyle intervention studies.

2.2 Previous Data

Describe any relevant preliminary data.

Multiple study team members have participated in lifestyle interventions for pregnant women to improve CVH outcomes. Drs. Legro and Kris-Etherton collaborated on multiple preconception lifestyle interventions to decrease weight in women with overweight/obesity and to improve maternal pre-conception CVH. In *OWL-PCOS*,[83] those with polycystic ovarian syndrome-caused anovulatory infertility were assigned to receive either 16 weeks of 1) lifestyle modification consisting of caloric restriction with meal replacements, weight loss medication and increased physical activity ("Lifestyle"); 2) a weight loss neutral intervention of continuous oral contraceptive pills (OCP) or 3) "Combined" treatment with both. After preconception intervention, women underwent standardized ovulation induction with clomiphene citrate. A significant

preconception weight loss was achieved with both Lifestyle (mean weight loss -6.2%; 95%CI -7.4, -5.0%); and Combined (mean weight loss, -6.4%; 95%CI -7.6, -5.2%) compared with OCP (both $p<.001$). The OCP group had a significant increase in the prevalence of metabolic syndrome from baseline to the end of preconception treatment (OR, 2.47; 95%CI 1.42, 4.27) whereas no change in metabolic syndrome was detected in the Lifestyle or Combined groups. Ovulation and live births were also improved in the Lifestyle and Combined groups.

Healthy Moms, led by Dr. Vesco was a randomized controlled trial of behavioral lifestyle-intervention started in pregnancy which aimed to limit gestational weight gain (GWG) and reduce offspring weight for gestational age at birth.[84] The intervention consisted of weekly groups sessions until delivery (16 week core curriculum modeled after DPP).[85] The intervention focused on healthy eating (following DASH diet), getting adequate exercise (goal of 30 minutes or 10,000 steps daily), and behavioral self-management techniques.[86] Women with obesity were randomized between 7 to 21 weeks' gestation to intervention or usual care. Intervention participants gained less weight from randomization to 34 weeks gestation (5.0 vs. 8.4 kg, mean difference=-3.4 kg; 95%CI -5.1, -1.8), and from randomization to 2 weeks postpartum (-2.6 vs. +1.2 kg, mean difference=-3.8 kg; 95%CI -5.9, -1.7). They also had fewer large for gestational age newborns (9% vs. 26%, OR=0.28; 95%CI 0.09, 0.84).

As for tobacco cessation, Dr. Foulds is an international expert, and we suggest that a longitudinal care approach modeled on principles of chronic disease management is more effective than a discrete episode of state-of-the-science treatment to promote prolonged abstinence.[87-90] This includes a state-of-the art psychoeducational intervention based on existing NFP evidence-based protocols that includes health education, motivational interviewing and counseling.[91]

Recently the American Heart Association added sleep as one of the key measures for improving and maintaining cardiovascular health expanding the Life's Simple Seven to the new rubric of Life's Essential Eight. The AHA recommended a minimum of 7 hours sleep with a range of 7-9 hours.[92]Less sleep is associated with the development of an adverse cardiovascular risk profile. It can also be tracked via actigraphy device and is modifiable.

Our group's extensive experience with these interventions from design to implementation to dissemination will help us adapt them to evidence based HV models.

2.3 Study Rationale

Provide the scientific rationale for the research.

This trial will pilot the enhanced version of the Nurse Family Partnership standard care plan to promote greater cardiovascular health in mothers by targeting decreased sedentary time and enhanced activity (and where applicable smoking cessation) during and after pregnancy. We will also pilot the feasibility and acceptability of digital devices (e.g., actigraphy, digital scale, blood pressure monitor) during this same time period.

3.0 Inclusion and Exclusion Criteria

Create a numbered list below in sections 3.1 and 3.2 of criteria subjects must meet to be eligible for study enrollment (e.g., age, gender, diagnosis, etc.).

Vulnerable Populations:

Indicate specifically whether you will include any of the following vulnerable populations in this research. You MAY NOT include members of these populations as subjects in your research unless you indicate this in your inclusion criteria because specific regulations apply to studies that involve vulnerable populations.

The checklists referenced below outline the determinations to be made by the IRB when reviewing research involving these populations. Review the checklists as these will help to inform your responses throughout the remainder of the protocol.

- **Children –**Review "HRP-416- Checklist - Children"
- **Pregnant Women** – Review "HRP-412- Checklist - Pregnant Women"
- **Cognitively Impaired Adults-** Review "HRP-417- Checklist - Cognitively Impaired Adults"
- **Prisoners-** Review "HRP-415- Checklist - Prisoners"
- **Neonates of uncertain viability or non-viable neonates-** Review "HRP-413- Checklist - Non-Viable Neonates" or "HRP-414- Checklist - Neonates of Uncertain Viability"

[Do not type here]

3.1 Inclusion Criteria

Create a numbered list of the inclusion criteria that define who will be included in your final study sample (e.g., age, gender, condition, etc.)

1. Enrolled in and receiving the Nurse-Family Partnership program through the Geisinger Clinic or UPMC Home Health Care of Central PA
2. Age ≥ 18 years old
3. Nulliparous pregnant woman
4. Women with a singleton viable pregnancy confirmed by NFP home visitors
5. English speaking
6. Access to reliable internet service required for data collection
7. Willingness to download and access an app on personal smartphone
8. A minimum of 5 women with use of nicotine containing products (cigarette, cigar, hookah, chewing tobacco, e-cigarette, patch) within the past 3 months

3.2 Exclusion Criteria

Create a numbered list of the exclusion criteria that define who will be excluded in your study.

1. Unable or unwilling to comply with the study visits and procedures
2. Diagnosis of cancer
3. A personal history of complex congenital heart disease
4. A fetus in the current pregnancy with known chromosomal abnormalities or birth defects inconsistent with survival to 2 years will be excluded
5. Participation in a concurrent intervention study

3.3 Early Withdrawal of Subjects

3.3.1 Criteria for removal from study

Insert subject withdrawal criteria (e.g., safety reasons, failure of subject to adhere to protocol requirements, subject consent withdrawal, disease progression, etc.).

Participant consent withdrawal and safety reasons will be criterion for removal from the study.

3.3.2 Follow-up for withdrawn subjects

Describe when and how to withdraw subjects from the study; the type and timing of the data to be collected for withdrawal of subjects; whether and how subjects are to be replaced; the follow-up for subjects withdrawn from investigational treatment.

Participants may withdraw consent at any time, we will utilize all data collected up to that point. As time allows (~12 month pilot period maximum), we will recruit additional participants for the pilot.

4.0 Recruitment Methods

- Upload recruitment materials for your study in CATS IRB (http://irb.psu.edu). **DO NOT** include the actual recruitment wording in this protocol.
- StudyFinder: If StudyFinder (http://studyfinder.psu.edu) is to be used for recruitment purposes, separate recruitment documents do not need to be uploaded in CATS IRB. The necessary information will be captured from the StudyFinder page in your CATS IRB study.
- Any eligibility screening questions (verbal/phone scripts, email, etc.) used when contacting potential participants must be uploaded to your study in CATS IRB (http://irb.psu.edu).

[Do not type here]

4.1 Identification of subjects

Describe the source of subjects and the methods that will be used to identify potential subjects (e.g., organizational listservs, established recruitment databases, subject pools, medical or school records, interactions during a clinic visit, etc.). If not recruiting subjects directly (e.g., database query for eligible records or samples) state what will be queried, how and by whom.

StudyFinder:

- If you intend to use StudyFinder (http://studyfinder.psu.edu) for recruitment purposes, include this method in this section.
- Information provided in this protocol needs to be consistent with information provided on the StudyFinder page in your CATS IRB study.

For Penn State Health submissions using Enterprise Information Management (EIM) for recruitment, and for non-Hershey locations as applicable, attach your EIM Design Specification form on in CATS IRB (http://irb.psu.edu). See "HRP-103- Investigator Manual, What is appropriate for study recruitment?" for additional information. **DO NOT** include the actual recruitment material or wording in this protocol.

Participants meeting inclusion/exclusion criteria will be those participating in the NFP program through the Geisinger Clinic or UPMC Home Healthcare of Central PA. Potential participants who are <28 weeks' gestation and at least five potential participants who have used nicotine containing products in the past 3 months will be identified by visiting nurses and/or their supervisors.

4.2 Recruitment process

Describe how potential subjects first learn about this research opportunity or indicate as not applicable if subjects will not be prospectively recruited to participant in the research. Subject recruitment can involve various methods (e.g., approaching potential subjects in person, contacting potential subjects via email, letters, telephone, ResearchMatch, or advertising to a general public via flyers, websites, StudyFinder, newspaper, television, and radio etc.). **DO NOT** include the actual recruitment material or wording in this protocol.

[Do not type here]

4.2.1 How potential subjects will be recruited.

Potential participants will be recruited through established partnerships with Geisinger and UPMC Nurse Family Partnership agencies. After potential participants are identified by visiting nurses and/or their supervisors, visiting nurses will share information about the pilot study verbally and through a written summary handout prepared by the study team.

4.2.2 Where potential subjects will be recruited.

Potential participants will be recruited in their own homes during regularly scheduled home visits with their NFP visiting nurse.

4.2.3 When potential subjects will be recruited.

Potential participants will be recruited during pregnancy (<28 weeks' gestation) during regularly scheduled home visits with their visiting nurse from NFP.

4.2.4 Describe the eligibility screening process and indicate whether the screening process will occur before or after obtaining informed consent. Screening begins when the investigator obtains information about or from a prospective participant in order to determine their eligibility. In some studies, these procedures may not take place unless HIPAA Authorization is obtained OR a waiver of HIPAA Authorization when applicable for the screening procedures is approved by the IRB. [*For FDA regulated studies, consent for any screening activities would need to be obtained prior to screening unless specifically waived by the IRB.]*

All NFP visiting nurses participating in this study will be trained in screening procedures. No Protected Health Information (PHI) will be collected during screening procedures. Potential participants will be approached by NFP visiting nurses during regularly scheduled home visits. NFP visiting nurses will provide recruitment materials that include information about the study with potential participants and verbal consent will be obtained before any screening questions are asked of participants. Once a potential participant is deemed eligible after screening and expresses interest in participating, written informed consent will be obtained. Information collected as part of screening procedures will only be used to assess eligibility and will not be used in research analyses.

****Site Congruency: Is the information provided in the above section (Recruitment Methods) consistent across all relying sites in this research?**

☒ Yes

☐ No - Identify the sites that have dissimilar procedures: [*This field should solely identify the site. Dissimilar procedures across sites should be identified in the SITE workspace via HRP-XXX – R2S Site Plan]*
[Type protocol text here]

5.0 Consent Process and Documentation

Refer to the following materials:

- The "HRP-090- SOP - Informed Consent Process for Research" outlines the process for obtaining informed consent.
- The "HRP-091– SOP - Written Documentation of Consent" describes how the consent process will be documented.
- The "HRP-314- Worksheet - Criteria for Approval" section 7 lists the required elements of consent.
- The "HRP-312- Worksheet - Exemption Determination" includes information on requirements for the consent process for exempt research. In addition, the CATS IRB Library contains consent guidance and templates for exempt research.
- The CATS IRB library contains various consent templates for expedited or full review research that are designed to include the required information.
- Add the consent document(s) to your study in CATS IRB (http://irb.psu.edu). Links to Penn State's consent templates are available in the same location where they are uploaded. **DO NOT** include the actual consent wording in this protocol.

[Do not type here]

5.1 Consent Process:

Check all applicable boxes below:

☒ **Informed consent will be sought and documented with a written consent form *[Complete Sections 5.2 and 5.6]***

☐ **Implied or verbal consent will be obtained – subjects will not sign a consent form (waiver of written documentation of consent) *[Complete Sections 5.2, 5.3 and 5.6]***

☐ **Informed consent will be sought but some of the elements of informed consent will be omitted or altered (e.g., deception). *[Complete section 5.2, 5.4 and 5.6]***

☐ **Informed consent will not be obtained – request to completely waive the informed consent requirement. *[Complete Section 5.5]***

5.2 Obtaining Informed Consent

5.2.1 Timing and Location of Consent

Describe where and when the consent process will take place.

Potential participants will receive information about the study during a regularly scheduled NFP home visit. If eligible and interested in participating, study personnel (NFP nurses) will provide the IRB-approved informed consent form and written consent will be obtained (signed consent and/or electronic consent). NFP nurses will be added as study personnel and will perform the entire informed consent process from explaining the study to obtaining written consent.

We will pilot the feasibility of obtaining written and/or electronic consent. E-consent will be obtained via PSHMC's secure REDCap database and will include electronic signatures and real-time timestamps. REDCap's e-consent framework allows participants to receive a signed copy of the consent form via email or we will print and send a copy upon request.

5.2.2 Coercion or Undue Influence during Consent

Describe the steps that will be taken to minimize the possibility of coercion or undue influence in the consent process.

Study personnel (NFP nurses) will explain research procedures and allow time for potential participants to ask questions before obtaining consent. Study personnel (NPF nurses) will explain that declining to participate in this study will not affect usual care.

5.3 Waiver of Written Documentation of Consent

Review "HRP – 411 – Checklist – Waiver of Written Documentation of Consent."

5.3.1 Indicate which of the following conditions applies to this research:

☐ The research presents no more that minimal risk of harm to subjects and involves no procedures for which written consent is normally required outside of the research context.

OR

☐ The only record linking the subject and the research would be the consent document and the principal risk would be potential harm resulting from a breach of confidentiality. Each subject will be asked whether the subject wants documentation linking the subject with the research, and the subject's wishes will govern. (*Note: This condition is not applicable for FDA-regulated research. If this category is chosen, include copies of a consent form and /or parental*

permission form for participants who want written documentation linking them to the research.)

OR

☐ If the subjects or legally authorized representatives are members of a distinct cultural group or community in which signing forms is not the norm, that the research presents no more than minimal risk of harm to subjects and provided there is an appropriate alternative mechanism for documenting that informed consent was obtained. (*Note: This condition is not applicable for FDA-regulated research.)*

Describe the alternative mechanism for documenting that informed consent was obtained:

N/A

5.3.2 Indicate what materials, if any, will be used to inform potential subjects about the research (e.g., a letter accompanying a questionnaire, verbal script, implied consent form, or summary explanation of the research)

N/A

5.4 Informed consent will be sought but some of the elements of informed consent will be omitted or altered (e.g., deception).

Review "HRP-410-Checklist -Waiver or Alteration of Consent Process" to ensure that you have provided sufficient information.

5.4.1 Indicate the elements of informed consent to be omitted or altered

N/A

5.4.2 Indicate why the research could not practicably be carried out without the omission or alteration of consent elements

N/A

5.4.3 Describe why the research involves no more than minimal risk to subjects.

N/A

5.4.4 Describe why the alteration/omission will not adversely affect the rights and welfare of subjects.

N/A

5.4.5 If the research involves using identifiable private information or identifiable biospecimens, describe why the research could not be practicably be carried out without using such information or biospecimens in an identifiable format.

N/A

5.4.6 Debriefing

Explain whether and how subjects will be debriefed after participation in the study. If subjects will not be debriefed, provide a justification for not doing so. Add any debriefing materials to the study in CATS IRB.

N/A

5.5 Informed consent will not be obtained – request to completely waive the informed consent requirement

Review "HRP-410-Checklist -Waiver or Alteration of Consent Process" to ensure that you have provided sufficient information.

5.5.1 Indicate why the research could not practicably be carried out without the waiver of consent

N/A

5.5.2 Describe why the research involves no more than minimal risk to subjects.

N/A

5.5.3 Describe why the alteration/omission will not adversely affect the rights and welfare of subjects.

N/A

5.5.4 If the research involves using identifiable private information or identifiable biospecimens, describe why the research could not be practicably be carried out without using such information or biospecimens in an identifiable format.

N/A

5.5.5 Additional pertinent information after participation

Explain if subjects will be provided with additional pertinent information after participation. If not applicable, indicate "not applicable."

N/A

5.6 Consent – Other Considerations

5.6.1 Non-English-Speaking Subjects

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. Indicate the language that will be used by those obtaining consent.

Indicate whether the consent process will be documented in writing with the long form of the consent documentation or with the short form of the consent documentation. Review "HRP-091 –SOP- Written Documentation of Consent" and "HRP-103 -Investigator Manual" to ensure that you have provided sufficient information.

N/A

5.6.2 Cognitively Impaired Adults

Refer "HRP-417 -CHECKLIST- Cognitively Impaired Adults" for information about research involving cognitively impaired adults as subjects.

5.6.2.1 Capability of Providing Consent

Describe the process to determine whether an individual is capable of consent.

N/A

5.6.2.2 Adults Unable to Consent

Describe whether and how informed consent will be obtained from the legally authorized representative. Describe who will be allowed to provide informed consent. Describe the process used to determine these individual's authority to consent to research.

For research conducted in the state of Pennsylvania, review "HRP-013 -SOP- Legally Authorized Representatives, Children and Guardians" to be aware of which individuals in the state of Pennsylvania meet the definition of "legally authorized representative."

For research conducted outside of the state of Pennsylvania, provide information that describes which individuals are authorized under applicable law to consent on behalf of a prospective subject to their participation in the procedure(s) involved in this research. One method of obtaining this information is to have a legal counsel or authority review your protocol along with the definition of "children" in "HRP-013 - SOP- Legally Authorized Representatives, Children, and Guardians."

N/A

5.6.2.3 Assent of Adults Unable to Consent

Describe the process for assent of the subjects. Indicate whether assent will be required of all, some or none of the subjects. If some, indicate which subjects will be required to assent and which will not.

If assent will not be obtained from some or all subjects, provide an explanation of why not.

Describe whether assent of the subjects will be documented and the process to document assent. The IRB allows the person obtaining assent to document assent on the consent document and does not routinely require assent documents and does not routinely require subjects to sign assent documents.

N/A

5.6.3 Subjects who are not yet adults (infants, children, teenagers)

5.6.3.1 Parental Permission

Describe whether and how parental permission will be obtained. If permission will be obtained from individuals other than parents, describe who will be allowed to provide permission. Describe the process used to determine these individual's authority to consent to each child's general medical care.

For research conducted in the state of Pennsylvania, review "HRP-013-SOP- Legally Authorized Representatives, Children and Guardians" to be aware of which individuals in the state of Pennsylvania meet the definition of "children."

For research conducted outside of the state of Pennsylvania, provide information that describes which persons have not attained the legal age for consent to treatments or procedures involved in the research, under the applicable law of the jurisdiction in which research will be conducted. One method of obtaining this information is to have a legal counsel or authority review your protocol along with the definition of "children" in "HRP-013-SOP- Legally Authorized Representatives, Children, and Guardians."

N/A

5.6.3.2 Assent of subjects who are not yet adults

Indicate whether assent will be obtained from all, some, or none of the children. If assent will be obtained from some children, indicate which children will be required to assent. When assent of children is obtained describe whether and how it will be documented.

N/A

****Site Congruency: Is the information provided in the above section (Consent Process and Documentation) consistent across all relying sites in this research?**

☒ Yes

☐ No - Identify the sites that have dissimilar procedures: [*This field should solely identify the site. Dissimilar procedures across sites should be identified in the SITE workspace via HRP-XXX – R2S Site Plan]*

6.0 HIPAA Research Authorization and/or Waiver or Alteration of Authorization

This section is about the access, use or disclosure of Protected Health Information (PHI). PHI is individually identifiable health information (i.e., health information containing one or more 18 identifiers) that is transmitted or maintained in any form or medium by a Covered Entity or its Business Associate. A Covered Entity is a health plan, a health care clearinghouse or health care provider who transmits health information in electronic form. See "HRP-103 -Investigator Manual" for a list of the 18 identifiers.

If requesting a waiver/alteration of HIPAA authorization, complete sections 6.2 and 6.3 in addition to section 6.1. The Privacy Rule permits waivers (or alterations) of authorization if the research meets certain conditions. Include only information that will be accessed with the waiver/alteration.

[Do not type here]

6.1 Authorization and/or Waiver or Alteration of Authorization for the Uses and Disclosures of PHI

Check all that apply:

☐ **Not applicable, no identifiable protected health information (PHI) is accessed, used or disclosed in this study.** *[Mark all parts of sections 6.2 and 6.3 as not applicable]*

☒ **Authorization will be obtained and documented as part of the consent process.** *[If this is the only box checked, mark sections 6.2 and 6.3 as not applicable]*

☐ **Partial waiver is requested for recruitment purposes only (Check this box if patients' medical records will be accessed to determine eligibility before consent/authorization has been obtained).** *[Complete all parts of sections 6.2 and 6.3]*

☐ **Full waiver is requested for entire research study (e.g., medical record review studies).** *[Complete all parts of sections 6.2 and 6.3]*

☐ **Alteration is requested to waive requirement for written documentation of authorization (verbal authorization will be obtained).** *[Complete all parts of sections 6.2 and 6.3]*

6.2 Waiver or Alteration of Authorization for the Uses and Disclosures of PHI

6.2.1 Access, use or disclosure of PHI representing no more than a minimal risk to the privacy of the individual

6.2.1.1 Plan to protect PHI from improper use or disclosure

Include the following statement as written – DO NOT ALTER OR DELETE unless this section is not applicable because the research does not involve a waiver of authorization. **If the section is <u>not</u> applicable, <u>remove</u> the statement and <u>indicate as not applicable</u>.**

Information is included in the "Confidentiality, Privacy and Data Management" section of this protocol or in "HRP-598 – Research Data Plan Review Form".

6.2.1.2 Plan to destroy identifiers or a justification for retaining identifiers

Describe the plan to destroy the identifiers at the earliest opportunity consistent with the conduct of the research. Include when and how identifiers will be destroyed. If identifiers will be retained, provide the legal, health or research justification for retaining the identifiers.

Authorization for Collection of Health Information: Authorization for the Fitbit (actigraphy), Fitbit Scale (weight), blood pressure monitor, and carbon monoxide monitor will be obtained and documented during consent procedures. After consent is obtained, NPF visiting nurses will provide women with information on how to use the devices. Data from the Fitbit and Fitbit Scale will connect to a smartphone app on the women's phone; the study team will not have access the data and will not be connected to identifying information. However, participants may verbally share data from these devices with nurses. Nurses will review data from blood pressure monitor using a paper tracking log provided by the study team and data from the carbon monoxide monitor will be reviewed with participants at study visits. This data will not be connected to identifying information.

6.2.2 Explanation for why the research could not practicably be conducted without access to and use of PHI

Provide an explanation for why the research could not practicably be conducted without access to and use of PHI.

Authorization for Collection of Health Information: Authorization for the Fitbit (actigraphy), Fitbit Scale (weight), blood pressure monitor, and carbon monoxide monitor will be obtained and documented during consent procedures. Given the that a primary goal of this pilot is to test the feasibility of using commercial devices to collect these data, study goals could not be met.

6.2.3 Explanation for why the research could not practicably be conducted without the waiver or alteration of authorization

Provide an explanation for why the research could not practicably be conducted without the waiver or alternation of authorization.

Given the that a primary goal of this pilot is to test the feasibility of using commercial devices to collect these data, study goals could not be met.

6.3 Waiver or alteration of authorization statements of agreement

By submitting this study for review with a waiver of authorization, you agree to the following statement – DO NOT ALTER OR DELETE unless this section is not applicable because the research does not involve a waiver or alteration of authorization. **If the section is <u>not</u> applicable, <u>remove</u> the statement and <u>indicate as not applicable.</u>**

Protected health information obtained as part of this research will not be reused or disclosed to any other person or entity, except as required by law, for authorized oversight of the research study, or for other permitted uses and disclosures according to federal regulations.

The research team will collect only information essential to the study and in accord with the 'Minimum Necessary' standard (information reasonably necessary to accomplish the objectives of the research) per federal regulations.

Access to the information will be limited, to the greatest extent possible, within the research team. All disclosures or releases of identifiable information granted under this waiver will be accounted for and documented.

****Site Congruency: Is the information provided in the above section (HIPAA Research Authorization and/or Waiver or Alteration of Authorization) consistent across all relying sites in this research?**

☒ Yes

☐ No – Identify the sites that have dissimilar procedures: [*This field should solely identify the site. Dissimilar procedures across sites should be identified in the SITE workspace via HRP-XXX – R2S Site Plan]*
[Type protocol text here]

7.0 Study Design and Procedures

Data collection materials that will be seen or used by subjects in your study must be uploaded to CATS IRB (http://irb.psu.edu). **DO NOT** include any actual data collection materials in this protocol (e.g., actual survey or interview questions). Remove any section that does not apply (research not involving drug/device).

[Do not type here]

7.1 Study Design

Describe and explain the study design.

This is a single arm study in which women who are pregnant and participating in the NFP program will be recruited into a study of traditional NFP care with enhanced care focusing on improving CVH throughout the pregnancy and up to 6 months postpartum.

7.2 Study Procedures

Provide a step by step description of all research procedures being conducted (broken down by visit, if applicable) including such information as below (where and when applicable); describe the following:

- HOW: (e.g., data collection via interviews, focus groups, forms such as surveys and questionnaires, medical/school records, audio/video/digital recordings, photographs, EKG procedures, MRI, mobile

devices such as electronic tablets/cell phones, observations, collection of specimens, experimental drug/device testing, manipulation of behavior/use of deception, computer games, etc.)
- WHERE: (e.g., classrooms, labs, internet/online, places of business, medical settings, public spaces, etc.)

Intervention Overview. Our pilot CVH intervention will be delivered by NFP visiting nurses starting as early as NFP program enrollment in the first trimester after confirmation of a viable pregnancy and no later than the 28th week of pregnancy and will continue up to 6 months postpartum. The visit schedule will be consistent with the NFP program visit structure to deliver intervention content at regularly scheduled visits that are typically 60 minutes long (weekly visits for the first month following enrollment followed by twice monthly visits until delivery).

The pilot intervention will include a behavioral component aimed at reducing sedentary behaviors as well as utilizing a technology/monitoring component. We will monitor all mothers with a wrist-worn actigraphy device (FitBit) to record activity and sleep, weight scale (Fitbit Scale), intermittent home ambulatory blood pressure self-monitoring (HBPM), and carbon monoxide monitoring administered by the NFP visiting nurse. Carbon monoxide monitoring is part of an attempt to reduce the use of nicotine-containing products. Monitoring with digital devices is discussed below and in the digital device section which follows a description of the interventions. However, the participant will have access to the digital data on the device through smartphone or computer apps to reinforce desired behaviors.

Implementation. Our behavior change strategies will involve interactive, skill-based intervention will be delivered in-person by NFP visiting nurses and include health coaching to modify short- and long-term health behaviors, electronic and print resources, and referrals to community resources (e.g., smoking cessation 1-800-QUIT NOW). Curricula are informed by our ongoing and prior work as well as modules developed by the Diabetes Prevention Program (DPP) and freely available. NFP home visiting nurses will document information related to session implementation (e.g., length of visit, quality of delivery, participant engagement).

Lifestyle Behaviors. Includes self-assessment of lifestyle behaviors, self-monitoring with the digital devices, monitoring tools, reflection, written materials, situated learning, and guided goal setting and action planning to meet behavior change goals. Activity will be monitored continuously via a wrist-worn actigraphy device (Fitbit) and data on physical activity and sleep reviewed with the visiting nurse at each visit. The Fitbit is a low-burden, continuous assessment tool. The Fitbit will be able to provide continuous heart rate, temperature and activity monitoring. Reducing sedentary activity and setting activity goals will be tailored to the patient's baseline condition, stage and complications of pregnancy and the puerperal state. Aside from self-monitoring, topics from the DPP reducing sedentary behavior will be reinforced. Specifically, we will utilize the DPP-GLB physical activity modules to address activity. They have two modules specifically focused on sedentary behavior and less sitting time.

Impact of lifestyle behaviors. Home visitors will discuss associated risks, treatment, and surveillance of pertinent pregnancy conditions including prevention of hypertension as well as tobacco cessation when applicable.

Sedentary behaviors and Physical activity. Participants will receive information about the importance of being active and how to adjust their lifestyle to accommodate more activity with encouragement to exercise, working toward two daily goals: 1) reducing sedentary time and 2) aiming for 30 minutes moderate physical activity daily. Additionally, we will focus on increasing the level of activity after delivery to achieve moderate intensity of activity.

Sedentary behavior is a modifiable risk factor for CVH.[210,211] Participants will be guided on reducing sedentary behaviors including screen time (i.e., television, computer devices, mobile connectivity) to meet physical activity guidelines. We will utilize the DPP modules and scripting to reduce sedentary activity as noted above (see uploaded intervention documents). The goal will be to limit screen-based sitting time (e.g. TV or computer) outside of work to less than 2 hours per day and break up long continuous bouts of sitting (defined as sedentary > 2 hours) with periods of movement (standing up,

stretching, walking around). Participants will have access to feedback related to sedentary behavior via an app downloaded on their personal cell phone. Materials will emphasize the goal of reduced sedentary activity as noted above and provide guidance for increased physical activity as determined by the patient's recovery from the mode of delivery by the nurse. For physical activity, an example goal would be to specify a certain number of steps in a limited time to increase activity, for instance 1,000 steps in 10 minutes, 2,000 steps in 20 minutes, 3,000 steps in 30 minutes. Sedentary participants will be given graduated regimens to achieve these goals. These goals will be individualized rather than relying on set goals of weekly increases. We will utilize modules developed by the DPP to introduce increased aerobic activity (see supplements and DPP manual). Ultimately the participant in the puerperium period should reach 150 minutes per week of exercise. Education will include exercise definitions, guidelines, safety, myths, goals, overcoming barriers, and practical strategies to increase daily activity level.

Nicotine and Tobacco Cessation. Nicotine use, and particularly cigarette smoking is a key modifiable risk factor for CVH, in addition to numerous other maternal-child health indicators. During the pilot, we will aim to recruit at least 5 women with nicotine use in the past 3 months (cigarette, cigar, hookah, chewing tobacco, e-cigarettes, patch) into the study to pilot enhanced intervention to reduce nicotine use (and particularly cigarette smoking). Cigarette and e-cigarette use will be the most common sources of nicotine exposure, and cigarette smoking likely the most harmful. Carbon monoxide screening will be used throughout on all patients to document new exposure or recidivism, which would trigger enrollment into an enhanced intervention. We will use the Micro+ ™ baby Smokerlyzer® from Covita. This monitor can be used during pregnancy and postpartum. It measures three relevant feedback parameters to the patient: PPM – CO in the lungs, %COHb – CO in the blood and %FetalCOHb – fetus CO level. Baseline assessment will record ever use of any tobacco/nicotine product and from that point and at subsequent visits will focus on assessment of the average frequency of use per day over the previous 7 days. Non-smoking will be reinforced, and smokers will be provided with evidence-based education and motivational interviewing counseling based on the existing NFP protocols. In addition, as soon as women who have used a nicotine product in the previous 3 months agree, they will be assisted to call and enroll with the national smoking cessation Quitline where they will receive pro-active call-back counseling, written materials, and other intervention modalities (e.g. texting and online support). These interventions will be repeated as required throughout the trial using a chronic care model rather than a single intervention model.[124-]Nicotine replacement and/or medication may be provided by the Quitline according to their standard protocols for pregnant women, requiring written approval from the woman's provider, prescribed in order to achieve smoking cessation or reduction. Compliance will be monitored with carbon monoxide monitoring. We have developed a protocol and script for delivering this intervention to achieve smoking cessation (see uploaded intervention documents).

We next include a summary of the study visit table with study specific parameters on mothers only for this pilot (NOTE as per above NFP visits will be more frequent).

Table 1. Study Visit Table

CONSTRUCT	**MEASURE**	**Prenatal** and/or **Postpartum**		
		Study entry (V1)	**+ 1 month** (V2)	**+2 months** (V3)
Smoking status	National Adult Smoking Survey questions	S	S	S
Home Blood Pressure Monitoring (HBPM)	Systolic/diastolic blood pressure three times a week; nurse review results at each visit and provide referrals for high readings	C / N	C / N	C / N
Carbon Monoxide (CO) Monitoring	CO monitoring will take place to monitor for smoke exposure, faulty ventilation, etc.	N	N	N
Physical Activity	Sedentary time, steps, intensity, hours/week monitored by actigraphy device	C	C	C
Demographic/baseline characteristics	Developed for ENRICH	S		S
Satisfaction	Developed for ENRICH			S

S=survey; C= client self-monitoring; N= nurse administered

MATERNAL MODIFIED AMERICAN HEART ASSOCIATION HEALTH INDICATORS

Smoking. Maternal smoking status will be assessed at baseline using items from the National Adult Smoking Survey including: "Have you ever smoked a cigarette, even one or two puffs?"; "About how many cigarettes have you smoked in your entire life?"; "During the past 30 days, on how many days did you smoke cigarettes?"; "When was the last time you smoked a cigarette, even one or two puffs?"; and "During the past 30 days, on the days you smoked, about how many cigarettes did you smoke per day?" A script is provided for the NFP nurse to administer this intervention. This will be repeated at the designated time points in Table 1 among known smokers only.

DIGITAL DEVICE MONITORING

Our plan will be to use digital devices that can be accessed through apps on participant smart phones. The participants will have immediate access to the data from the Fitbit and Fitbit Scale, through Bluetooth links to their smartphone or computer. Research data will not be collected from these devices (i.e., the research team will not have access to data from the Fitbit or Fitbit Scale). However, NFP home visiting nurse will answer any questions related to physical activity and weight as standard care. The research team will ask participants to document readings from the blood pressure monitor on a study tracking log. This log will be reviewed by the NFP visiting nurse at each home visit and referral provided for high readings as appropriate (details below).

Physical Activity Monitoring. We will use a commercially available wrist-worn device, the Fitbit Charge 5, to monitor physical activity. This device has a long battery life of 7 days and is compatible with a wide variety of devices and operating systems and can differentiate type and duration of activity.

Weight Monitoring: We will use a commercially available digital scale, the Fitbit Aria Scale, to monitor participant weight. This device has a long battery life and is compatible with a wide variety of devices (including the Fitbit) and operating systems.

Home Blood Pressure Monitoring (HBPM). We will utilize the devices and methodology (including apps and central database) utilized in the BUMP 1 and 2 trials.[81,82] Participants will be provided with a validated automated monitor (Microlife Watch BP Home).[95] They will be given training and written instructions for HBPM by the recruiting NFP visiting nurse. Participants will be asked to self-monitor their BP 3 times per week, to take 2 readings each time, and to recording readings on a study tracking log provided by the study. NFP visiting nurses will review the log at each visit. During pregnancy and the puerperium, elevated readings (defined as a blood pressure > 140/90 as per the CHAP trial)[96] will trigger a request from the app for a third reading. If a participant's third reading is also elevated, the app will trigger a message to the participant to contact their local obstetric provider. After the puerperium and during the postpartum period a blood pressure > 150/100 will trigger a similar alert to their primary care provider. We will follow NFP protocols to establish contact with a primary care provider if the participant does not have one.

Family and maternal demographics. We will collect demographic information at baseline (before study visit 1) and at follow-up (after study visit 3). Participants will be asked to provide information about their pregnancy and household and complete two online packets of questionnaires, which will take about 15 to 20 minutes to complete. Participants will also be given the option to complete surveys on paper if that is their preference.

7.2.1 Visit 1 or Day 1 or Pre-test, etc.

Provide a description of what procedures will be performed on visit 1 or day 1 or pre-test in order of how these will be done. If your study only involves one session or visit, use this section only and indicate 7.2.2 as not applicable.

Study Visit 1 (V1) as summarized in Table 1 will take place at the first home visit after informed consent has been obtained. At this visit, participants will receive "Getting Started" handouts that includes information on setting up the commercially available devices including a 1) a device that monitors physical activity daily for 6 months, 2) a digital scale that monitors weight once per week for 6 months, and 2) a home blood pressure monitor that monitors your blood pressure three times per week for 6 months. NFP visiting nurse will also measure carbon monoxide levels using a provided device at this study visit. During this visit, participants will also be asked to take part in a tobacco cessation program if they have used a nicotine product in the past 3 months. This includes the NFP visiting nurse providing an active referral to a national tobacco quit line and provide a handout on the benefits of and tips for quitting smoking during and or after pregnancy.

7.2.2 Visit 2 or Day 2 or Post-test, etc. (If applicable)

Provide a description of what procedures will be performed on visit 2 or day 2 or post-test in order of how these will be done. If your study involves more than two sessions or visits replicate this section for each additional session or visit (e.g., 7.2.3, 7.2.4, etc.).

Study Visit 2 (V2) as summarized in Table 1 will take place about 1 to 2 months after the participants first study visit. At this visit, participants will receive "Physical Activity During Pregnancy" handouts that includes information on safely adding physical activity into their daily life from their visiting nurse. The NFP visiting nurse will also answer any questions participants have about physical activity and weight monitoring. The NFP visiting nurse will also review results and answer any questions about the results from participant home blood pressure monitoring. In addition, participants who report using nicotine products in the past 3 months, will be provided with a handout on the benefits of and tips for quitting smoking during or after pregnancy.

7.2.3 Visit 3 or Day 3 or Post-test, etc. (If applicable)

Provide a description of what procedures will be performed on visit 2 or day 2 or post-test in order of how these will be done. If your study involves more than two sessions or visits replicate this section for each additional session or visit (e.g., 7.2.3, 7.2.4, etc.).

Study Visit 3 (V3) as summarized in Table 1 will take place about 3 to 4 months after the participants first study visit. At this visit, participants will receive "Physical Activity After Pregnancy" handouts that includes information on safely adding physical activity into their daily life from their visiting nurse. The NFP visiting nurse will also answer any questions participants have about physical activity and weight monitoring. The NFP visiting nurse will also review results and answer any questions about the results from participant home blood pressure monitoring. In addition, participants who report using nicotine products in the past 3 months, will be provided with a handout on the benefits of and tips for quitting smoking during or after pregnancy.

7.3 Duration of Participation

Describe how long subjects will be involved in this research study. Include the number of sessions and the duration of each session - consider the total number of minutes, hours, days, months, years, etc.

Participation in this study will take about 6 months. It is anticipated that Visit 1 will last approximately 45 minutes, 15 minutes for the questions and 30 minutes to instruct in the use of the devices. This may be divided among consecutive visits based on standard care.

7.4 Test Article(s) (Study Drug(s) and/or Study Device(s))

7.4.1 Description

Provide a brief description of all test articles (drugs (including any foods and dietary supplements), devices and/or biologics used in the research including the purpose of their use and their approval status with the Food and Drug Administration (FDA). Include information about the form of the drug product (e.g., tablets, capsules, liquid).

N/A

7.4.2 Treatment Regimen

Describe dose, route of administration and treatment duration. Include information about dose adjustments.

N/A

7.4.3 Method for Assigning Subject to Treatment Groups

Describe the randomization process and how the associated treatment assignment will be made.

N/A

7.4.4 Subject Compliance Monitoring

Insert the procedures for monitoring subject compliance.

N/A

7.4.5 Blinding of the Test Article

Describe how the test article is blinded.

N/A

7.4.6 Receiving, Storage, Dispensing and Return

7.4.6.1 Receipt of Test Article

Describe how the test article will be obtained and from what source. Describe how the study test article will be

packaged along with amounts (e.g., number of tablets/capsules or volume of liquid) and labeling. If drug kits are used, describe all the contents of the kit and associated labeling.

N/A

7.4.6.2 Storage

Describe the plans to store, handle the test article so they will be used only on subjects and only by authorized investigators. Describe storage temperature requirements and how temperature will be monitored and recorded.

N/A

7.4.6.3 Preparation and Dispensing

Describe how the test article will be assigned to each subject and dispensed. Describe the steps necessary to prepare the test article. Include where the test article preparation will be done and by whom. Fully describe how the study treatment is to be administered and by whom.

N/A

7.4.6.4 Return or Destruction of the Test Article

Describe the procedures for final reconciliation of the test article supply at the end of the study and whether the test article is to be shipped back to a source or destroyed on site.

N/A

7.4.6.5 Prior and Concomitant Therapy

Describe what prior and/or concomitant medical therapy will be collected. Describe which concomitant medicines/therapies are permitted during the study. Describe which concomitant medicines are not permitted during the study.

N/A

****Site Congruency: Is the information provided in the above section (Study Design and Procedures) consistent across all relying sites in this research?**

☒ Yes

☐ No - Identify the sites that have dissimilar procedures: [*This field should solely identify the site. Dissimilar procedures across sites should be identified in the SITE workspace via HRP-XXX – R2S Site Plan]*

8.0 Number of Subject and Statistical Plan

8.1 Number of Subjects

Indicate the maximum number of subjects to be accrued/enrolled. Distinguish between the number of subjects who are expected to be enrolled and screened, and the number of subjects needed to complete the research procedures if applicable (i.e., numbers of subjects excluding screen failures.)

We anticipate enrolling 20 pregnant women for this pilot study.

8.2 Sample size determination

If applicable, provide a justification of the sample size outlined in section 8.1 to include reflections on, or calculations of, the power of the study.

Because this is a pilot study, no formal sample size calculations were completed.

8.3 Statistical methods

Describe the statistical methods (or non-statistical methods of analysis) that will be employed.

Descriptive statistics for surveys as well as feasibility (e.g., recruitment and retention, fidelity, data collection methods) and acceptability (e.g., satisfaction) will be calculated.

9.0 Data and Safety Monitoring Plan

This section is required when research involves more than Minimal Risk to subjects as defined in "HRP-001 SOP- Definitions."

Minimal Risk is defined as the probability and magnitude of harm or discomfort anticipated in the research that are not greater in and of themselves than those ordinarily encountered in daily life or during the performance of routine physical or psychological examinations or tests. For research involving prisoners, Minimal Risk is the probability and magnitude of physical or psychological harm that is normally encountered in the daily lives, or in the routine medical, dental, or psychological examination of healthy persons.

Please complete the sections below if the research involves more than minimal risk to subjects, otherwise indicate each section as not applicable.

[Do not type here]

9.1 Periodic evaluation of data

Describe the plan to periodically evaluate the data collected regarding both harms and benefits to determine whether subjects remain safe.

N/A

9.2 Data that are reviewed

Describe the data that are reviewed, including safety data, untoward events, and efficacy data.

N/A

9.3 Method of collection of safety information

Describe the method by which the safety information will be collected (e.g., with case report forms, at study visits, by telephone calls and with subjects).

N/A

9.4 Frequency of data collection

Describe the frequency of data collection, including when safety data collection starts.

N/A

9.5 Individuals reviewing the data

Identify the individuals who will review the data. The plan might include establishing a data and safety monitoring committee and a plan for reporting data monitoring committee findings to the IRB and the sponsor.

N/A

9.6 Frequency of review of cumulative data

Describe the frequency or periodicity of review of cumulative data.

N/A

9.7 Statistical tests

Describe the statistical tests for analyzing the safety data to determine whether harms are occurring.

N/A

9.8 Suspension of research

Describe any conditions that trigger an immediate suspension of research.

N/A

10.0 Risks

List the reasonably foreseeable risks, discomforts, hazards, or inconveniences to the subjects related the subjects' participation in the research. Include as may be useful for the IRB's consideration, a description of the probability, magnitude, duration and reversibility of the risks. Consider all types of risk including physical, psychological, social, legal, and economic risks. Note: Loss of confidentiality is a potential risk when conducting human subject research.

- If applicable, indicate which procedures may have risks to the subjects that are currently unforeseeable.
- If applicable, indicate which procedures may have risks to an embryo or fetus should the subject be or become pregnant.
- If applicable, describe risks to others who are not subjects.

This study involves no major health risks to participants, and we implement procedures to minimize any potential risks. There is a slight risk of musculoskeletal joint pain, strains, aches and injuries associated with moderate-intensity physical activity. Physical activity is a component of the proposed intervention. NFP home visitors will educate participants about recommendations regarding physical activity in pregnancy based on current guidelines such as those from the American College of Obstetrics and Gynecology. We will minimize the riskof injury by providing proper exercise technique instruction, including the importance of warm-up and cool-down exercises and proper stretching techniques. We will minimize the risk of injury during pregnancy by emphasizing appropriate precautions (e.g., avoidance of activities with potential for trauma such as contact sports andskiing).

As with all studies, there is some risk to the participant's confidentiality. The study follows procedures to minimize the potential risk to participant confidentiality. To protect participant's confidentiality, we store study information using only a study identification number and no other information that could identify an individual. All information is stored in secure computers and moved using secure data transfer methods. We destroy all study records at the end of the study. Any information from this study we present in reports or publications will not identify any individual.

11.0 Potential Benefits to Subjects and Others

11.1 Potential Benefits to Subjects

Describe the potential benefits that individual subjects may experience from taking part in the research. If there is no direct benefit to subjects, indicate as such. Compensation is not considered a benefit. Compensation should be addressed in section 14.0.

There is no guarantee that participants will benefit from this pilot study. The possible benefits include improved physical activity patterns, reduced nicotine use, earlier detection of hypertension, and improved sleep which could lead to improved pregnancy outcomes like easier labor and fewer complications. The lifestyle changes, if maintained, have the possibility of leading to long-term reduction in obesity and its associated risks, such as hypertension and diabetes. Other possible benefits include improved recognition of hypertensive disorders during and after pregnancy, as well as assistance with smoking cessation for those who smoke.

11.2 Potential Benefits to Others

Include benefits to society or others.

The results of the research will help scientists to better understand the feasibility and acceptability of delivering enhanced intervention content during NFP program home visits. Understanding these factors will help scientists designed a large scale, multi-site trial designed to improve CVH for women and infants.

12.0 Sharing Results with Subjects

Describe whether results (study results or individual subject results, such as results of investigational diagnostic tests, genetic tests, or incidental findings) will be shared with subjects or others (e.g., the subject's primary care physicians) and if so, describe how information will be shared.

No results will be shared with participants.

13.0 Subject Payment and/or Travel Reimbursements

Describe the amount, type (cash, check, gift card, other) and timing of any subject payment or travel reimbursement. If there is **no** subject payment or travel reimbursement, indicate as not applicable.

Extra or Course Credit: Describe the amount of credit **and** the available alternatives. Alternatives should be equal in time and effort to the amount of course or extra credit offered. It is not acceptable to indicate that the amount of credit is to be determined or at the discretion of the instructor of the course.

Approved Subject Pool: Indicate which approved subject pool will be used; include in response below that course credit will be given and alternatives will be offered as per the approved subject pool procedures.

Participants are eligible to receive up to $300. Participants will receive $100.00 after completing the first study visit and baseline survey. Upon completing the second study visit, participants will receive $100.00. Upon completing the last study visit and follow-up survey, participants will receive $100.00. Participants will also get to keep the Fitbit and Fitbit Scale they have used during the study.

****Site Congruency: Is the information provided in the above section (Subject Payment and/or Travel Reimbursements) consistent across all relying sites in this research?**

☒ Yes

☐ No - Identify the sites that have dissimilar procedures: [*This field should solely identify the site. Dissimilar procedures across sites should be identified in the SITE workspace via HRP-XXX – R2S Site Plan]*

14.0 Economic Burden to Subjects

14.1 Costs

Describe any costs that subjects may be responsible for because of participation in the research.

Participants will not incur any costs because of participation in this research.

14.2 Compensation for research-related injury

If the research involves more than Minimal Risk to subjects, describe the available compensation in the event of research related injury.

If there is no sponsor agreement that addresses compensation for medical care for research subjects with a research-related injury, include the following text as written - DO NOT ALTER OR DELETE:

It is the policy of the institution to provide neither financial compensation nor free medical treatment for research-related injury. In the event of injury resulting from this research, medical treatment is available but will be provided at the usual charge. Costs for the treatment of research-related injuries will be charged to subjects or their insurance carriers.

For sponsored research studies with a research agreement with the sponsor that addresses compensation for medical care for research-related injuries, include the following text as written - DO NOT ALTER OR DELETE:
It is the policy of the institution to provide neither financial compensation nor free medical treatment for research-related injury. In the event of injury resulting from this research, medical treatment is available but will be provided at the usual charge. Such charges may be paid by the study sponsor as outlined in the research agreement and explained in the consent form.

N/A

15.0 Resources Available

15.1 Facilities and locations

Identify and describe the facilities, sites and locations where recruitment and study procedures will be performed by the PSU study team.

If research will be conducted outside the United States by the PSU study team, describe site-specific regulations or customs affecting the research, and describe the process for obtaining local ethical review. Also, describe the principal investigator's experience conducting research at these locations and familiarity with local culture.

Recruitment will most likely take place in the home of the participants, where study procedures will also all occur. Occasionally, those participating in NFP meet at other mutually agreed upon locations.

15.2 Feasibility of recruiting the required number of subjects

Indicate the number of potential subjects to which the PSU study team has access. Indicate the percentage of those potential subjects needed for recruitment.

Given the small sample size for this pilot study, it is feasible to recruit the number of subjects needed. Our two NFP agency partners enroll several hundred pregnant women into their programs annually. The Center for Childhood Obesity Research (CCOR) has previous experience recruiting pregnant women and women who have recently delivered and has long standing working relationship with Geisinger and UPMC offices across the state.

15.3 PI Time devoted to conducting the research

Describe how the PSU PI will ensure that a sufficient amount of time will be devoted to conducting and completing the research. Please consider outside responsibilities as well as other on-going research for which the PSU PI is responsible.

The PI's will be responsible for overseeing all aspects of the study.

15.4 Availability of medical or psychological resources

Describe the availability of medical or psychological resources that subjects might need as a result of their participation in the study, if applicable.

N/A

15.5 Process for informing Study Team

Describe the training plans to ensure members of the PSU research team are informed about the protocol and their duties, if applicable.

The PI will provide training to all members of the study team related to recruitment and other aspects of this study. The research team will work collaboratively with the NFP agencies and their home visitors with a minimum of twice monthly meetings to discuss changes or issues.

16.0 Other Approvals

16.1 Other Approvals from External Entities

Describe any approvals that will be obtained prior to commencing the research (e.g., from community leaders, schools, research locations where research is to be conducted by the Penn State investigator, funding agencies, etc.).

N/A

16.2 Internal PSU Committee Approvals

Check all that apply:

☐ Anatomic Pathology – **Penn State** Health **only** – Research involves the collection of tissues or use of pathologic specimens. Upload a copy of "HRP-902 - Human Tissue For Research Form" in CATS IRB.

☐ Animal Care and Use – **All campuses** – Human research involves animals and humans or the use of human tissues in animals

☐ Biosafety – **All campuses** – Research involves biohazardous materials (human biological specimens in a PSU research lab, biological toxins, carcinogens, infectious agents, recombinant viruses or DNA or gene therapy).

☐ Clinical Laboratories – **Penn State Health only** – Collection, processing and/or storage of extra tubes of body fluid specimens for research purposes by the Clinical Laboratories; and/or use of body fluids that had been collected for clinical purposes but are no longer needed for clinical use.

☐ Clinical Research Center (CRC) Advisory Committee – **University Park** – Research involves the use of CRC services in any way.

☐ Conflict of Interest Review – **All campuses** – Research has one or more of study team members indicated as having a financial interest.

☐ Radiation Safety – **Penn State Health only** – Research involves research-related radiation procedures. All research involving radiation procedures (standard of care and/or research-related) must upload a copy of "HRP-903 - Radiation Review Form" in CATS IRB.

☐ IND/IDE Audit – **All campuses** – Research in which the PSU researcher holds the IND or IDE or intends to hold the IND or IDE.

☒ Scientific Review – **Penn State Health only** – All investigator-written research studies requiring review by the convened IRB must provide documentation of scientific review with the IRB

submission. The scientific review requirement may be fulfilled by one of the following: (1) external peer-review process; (2) department/institute scientific review committee; or (3) scientific review by the Clinical Research Center Advisory committee. NOTE: Review by the Penn State Health Cancer Institute (PSCI) Protocol Review Committee or the PSCI Disease Team is required if the study involves cancer prevention studies or cancer patients, records and/or tissues. For more information about this requirement see the IRB website.

☐ St. Joseph Administrative Review – **Penn State Health only** – Penn State Health Research that will be conducted at St. Joseph Medical Center or St. Joseph Community Medical Groups.

17.0 Requests to Serve (R2S) Study Management

This section should describe the plan to ensure consistency and communication across all sites in this sIRB project.

[Do not type here]

17.1 Other sites

List the name and location of all other relying sites. Provide the name, qualifications and contact information for the principal investigator at each site.

Geisinger
Co-Investigator: Lisa Bailey-Davis, DEd, RD
Associate Professor
Department of Population Health Sciences
Associate Director, Obesity Research Institute
100 North Academy Ave
Danville, PA 17822
Phone: 570-214-9625
Fax: 570-214-5170
ldbaileydavis@geisinger.edu

Nurse Family Partnership (Geisinger and UPMC)
Geisinger Site Contact: Chris Hayes
cmhayes@geisinger.edu
UPMC Site Contact: Kim Bahnsen
bahnsenkm@upmc.edu

17.2 Communication Plans

Describe the plan for regular communication between the PSU study team and the other sites to ensure that all sites have the most current version of the protocol, consent document, etc. Describe the process to ensure all modifications have been communicated to sites. Describe the process for communication of problems with the research, interim results and closure of the study.

PSU, Geisinger and UPMC team members have regularly scheduled meetings to discuss the protocol, consent document, and pilot study progress. All modifications as well as problems with the research, results, and closure of the study will be discussed during these meetings. Site investigators will have access to a secure, electronic data storage site that includes study protocols and procedures as well as minutes from regularly scheduled meetings.

17.3 Data Submission and Security Plan

Describe the process and schedule for data submission and provide the data security plan for data collected from other sites. Describe the process to ensure all engaged participating sites will safeguard data as required by local information security policies.

Most of the data for this pilot study will be collected electronically via REDCap, a secure web-based platform. CCOR will be responsible for all storage and management of electronic data. Any paper records (e.g., consent forms) will be stored in a locked cabinet in a locked office at the Center for Childhood Obesity Research at Penn State.

17.4 Subject Enrollment

Describe the procedures for coordination of subject enrollment and randomization for the overall project.

Potential participants will be recruited through established partnerships with Geisinger and UPMC Nurse Family Partnership agencies. After potential participants are identified by visiting nurses and/or their supervisors, visiting nurses will share information about the pilot study verbally and through a written summary handout prepared by the study team. Potential participants will be recruited in their homes during regularly scheduled home visits with their visiting nurse. Once recruited, visiting nurses will inform the study team at the Center for Childhood Obesity Research at Penn State. This is a pilot study to determine feasibility and acceptability and no randomization will occur.

17.5 Reporting of Adverse Events and New Information

Describe how adverse events and other information will be reported from the relying sites to the PSU study team. Provide the timeframe for this reporting.

We do not anticipate any research-related adverse events given the content of the behavioral intervention. NFP community-based nurses will report clinical concerns to the infant's primary care provider as is their usual practice. Should there be an emergency where the primary care provider is not available or concerns related to the specific intervention material arise, the NFP nurses will contact the study team including the PIs within 24 hours.

17.6 Audit and Monitoring Plans

Describe the process to ensure all relying site investigators conduct the study appropriately. Describe any on-site auditing and monitoring plans for the study.

Study PIs will hold regularly scheduled meetings with site investigators to discuss study implementation and adherence to study protocols. Site investigators will have access to a secure, electronic data storage site that includes study protocols and procedures as well as minutes from regularly scheduled meetings.

18.0 Adverse Event Reporting

18.1 Adverse Event Definitions

For drug studies, incorporate the following definitions into the below responses, as written:	
Adverse event	Any untoward medical occurrence associated with the use of the drug in humans, whether or not considered drug related
Adverse reaction	Any adverse event caused by a drug
Suspected adverse reaction	Any adverse event for which there is a reasonable possibility that the drug caused the adverse event. Suspected adverse reaction implies a lesser degree of certainty about causality than “adverse reaction”.

	• *Reasonable possibility.* For the purpose of IND safety reporting, "reasonable possibility" means there is evidence to suggest a causal relationship between the drug and the adverse event.
Serious adverse event or Serious suspected adverse reaction	Serious adverse event or Serious suspected adverse reaction: An adverse event or suspected adverse reaction that in the view of either the investigator or sponsor, it results in any of the following outcomes: Death, a life-threatening adverse event, inpatient hospitalization or prolongation of existing hospitalization, a persistent or significant incapacity or substantial disruption of the ability to conduct normal life functions, or a congenital anomaly/birth defect. Important medical events that may not result in death, be life-threatening, or require hospitalization may be considered serious when, based upon appropriate medical judgment, they may jeopardize the patient or subject and may require medical or surgical intervention to prevent one of the outcomes listed in this definition.
Life-threatening adverse event or life-threatening suspected adverse reaction	An adverse event or suspected adverse reaction is considered "life-threatening" if, in the view of either the Investigator (i.e., the study site principal investigator) or Sponsor, its occurrence places the patient or research subject at immediate risk of death. It does not include an adverse event or suspected adverse reaction that had it occurred in a more severe form, might have caused death.
Unexpected adverse event or Unexpected suspected adverse reaction.	An adverse event or suspected adverse reaction is considered "unexpected" if it is not listed in the investigator brochure, general investigational plan, clinical protocol, or elsewhere in the current IND application; or is not listed at the specificity or severity that has been previously observed and/or specified.

For device studies, incorporate the following definitions into the below responses, as written:	
Unanticipated adverse device effect	Any serious adverse effect on health or safety or any life-threatening problem or death caused by, or associated with, a device, if that effect, problem, or death was not previously identified in nature, severity, or degree of incidence in the investigational plan or IDE application (including a supplementary plan or application), or any other unanticipated serious problem associated with a device that relates to the rights, safety, or welfare of subjects.

18.2 Recording of Adverse Events

Address the frequency and process for eliciting adverse event information from research subject, e.g., "Research subjects will be routinely questioned about adverse events at study visits."

In the response, incorporate the following as written:
All adverse events (serious or non-serious) and abnormal test findings observed or reported to study team believed to be associated with the study drug(s) or device(s) will be followed until the event (or its sequelae) or the abnormal test finding resolves or stabilizes at a level acceptable to the investigator.

An abnormal test finding will be classified as an adverse event if one or more of the following criteria are met:

- The test finding is accompanied by clinical symptoms
- The test finding necessitates additional diagnostic evaluation(s) or medical/surgical intervention; including significant additional concomitant drug treatment or other therapy
  NOTE: Simply repeating a test finding, in the absence of any of the other listed criteria, does not constitute an adverse event.

- The test finding leads to a change in study drug dosing or discontinuation of subject participation in the clinical research study
- The test finding is considered an adverse event by the investigator.

Adverse events will be reported to the project coordinator on a monthly basis. Serious adverse events will be reported within 24 hours following IRB and NIH guidelines. Monthly research meetings will be the regularly scheduled time to convey new information about the study. More urgent information will be transmitted by email or phone.

18.3 Causality and Severity Assessments

By submitting this study for review, you agree to the following statement – DO NOT ALTER OR DELETE:

The investigator will promptly review documented adverse events and abnormal test findings to determine 1) if the abnormal test finding should be classified as an adverse event; 2) if there is a reasonable possibility that the adverse event was caused by the study drug(s) or device(s); and 3) if the adverse event meets the criteria for a serious adverse event.

If the investigator's final determination of causality is "unknown and of questionable relationship to the study drug(s) or device(s)", the adverse event will be classified as associated with the use of the study drug(s) or device(s) for reporting purposes. If the investigator's final determination of causality is "unknown but not related to the study drug(s) or device(s)", this determination and the rationale for the determination will be documented in the respective subject's case history.

18.4 Reporting of Adverse Reactions and Unanticipated Problems to the FDA

18.4.1 Written IND/IDE Safety Reports

For a drug study under an IND, incorporate the following from 21 CFR 312.32 as written – DO NOT ALTER OR DELETE:

The Sponsor-Investigator will submit a written IND Safety Report (i.e., completed FDA Form 3500A) to the responsible new drug review division of the FDA for any observed or volunteered adverse event that is determined to be a serious and unexpected, suspected adverse reaction. Each IND Safety Report will be prominently labeled, "IND Safety Report", and a copy will be provided to all participating investigators (if applicable) and sub-investigators.

Written IND Safety Reports will be submitted to the FDA as soon as possible and, in no event, later than 15 calendar days following the Sponsor-Investigator's receipt of the respective adverse event information and determination that it meets the respective criteria for reporting.

For each written IND Safety Report, the Sponsor-Investigator will identify all previously submitted IND Safety Reports that addressed a similar suspected adverse reaction experience and will provide an analysis of the significance of newly reported, suspected adverse reaction in light of the previous, similar report(s) or any other relevant information.

Relevant follow-up information to an IND Safety Report will be submitted to the applicable review division of the FDA as soon as the information is available and will be identified as such (i.e., "Follow-up IND Safety Report").

If the results of the Sponsor-Investigator's follow-up investigation show that an adverse event that was initially determined to not require a written IND Safety Report does, in fact, meet the requirements for reporting; the Sponsor-Investigator will submit a written IND Safety Report as soon as possible, but in no event later than 15 calendar days, after the determination was made.

For a device study under an IDE, incorporate the following from 21 CFR 812.150 as written – DO NOT ALTER OR DELETE:
The Sponsor-Investigator will submit a completed FDA Form 3500Ato the FDA's Center for Devices and Radiological Health for any observed or volunteered adverse effect that is determined to be an unanticipated adverse device effect. A copy of this completed form will be provided to all participating sub-investigators.

The completed FDA Form 3500Awill be submitted to the FDA as soon as possible and, in no event, later than 10 working days after the Sponsor-Investigator first receives notice of the adverse effect.

If the results of the Sponsor-Investigator's follow-up evaluation show that an adverse effect that was initially determined to not constitute an unanticipated adverse device effect does, in fact, meet the requirements for reporting; the Sponsor-Investigator will submit a completed FDA Form 3500Aas soon as possible, but in no event later than 10 working days, after the determination was made.

For each submitted FDA Form 3500A, the Sponsor-Investigator will identify all previously submitted reports that that addressed a similar adverse effect experience and will provide an analysis of the significance of newly reported adverse effect in light of the previous, similar report(s).

Subsequent to the initial submission of a completed FDA Form 3500A, the Sponsor-Investigator will submit additional information concerning the reported adverse effect as requested by the FDA.

N/A

18.4.2 Telephoned IND Safety Reports – Fatal or Life-threatening Suspected Adverse Reactions

For a drug study under an IND, incorporate the following from 21 CFR 312.32 into the response, as written:
In addition to the subsequent submission of a written IND Safety Report (i.e., completed FDA Form 3500A), the Sponsor-Investigator will notify the responsible review division of the FDA by telephone or facsimile transmission of any unexpected, fatal or life-threatening suspected adverse reaction.

The telephone or facsimile transmission of applicable IND Safety Reports will be made as soon as possible but in no event later than 7 calendar days after the Sponsor-Investigator's receipt of the respective adverse event information and determination that it meets the respective criteria for reporting.

N/A

18.5 Reporting Adverse Reactions and Unanticipated Problems to the Responsible IRB

By submitting this study for review, you agree to the following statement – DO NOT ALTER OR DELETE:

In accordance with applicable policies of The Pennsylvania State University Institutional Review Board (IRB), the investigator will report, to the IRB, any observed or reported harm (adverse event) experienced by a subject or other individual, which in the opinion of the investigator is determined to be (1) unexpected; and (2) probably related to the research procedures. Harms (adverse events) will be submitted to the IRB in accordance with the IRB policies and procedures.

18.6 Unblinding Procedures

Describe the procedures for unblinding study therapy on a subject, including documentation of this in the subject's source document. Include example(s) here why someone might unblind a study. In most cases, the unblinding will be part of managing a serious adverse reaction and will be reported with the serious adverse event. However, in cases where unblinding was not associated with a serious adverse event, such actions should be reported in a timely manner.

N/A

18.7 Stopping Rules

In studies with a primary safety endpoint or studies with high risk to study subjects, provide the rules that define the circumstances and procedures for interrupting or stopping the study. If an independent Data and Safety Monitoring (DSMB) or Committee (DSMC) is set up for the study, the same stopping rules should be incorporated into the safety analysis plan as well.

N/A

19.0 Study Monitoring, Auditing and Inspecting

19.1 Study Monitoring Plan

19.1.1 Quality Assurance and Quality Control

Include this section if FDA regulations apply to this study (see "WORKSHEET: Drugs (HRP-306)" and "WORKSHEET: Devices (HRP-307)". HRP-306 and HRP-307 can be accessed by clicking the Library link in CATS IRB (http://irb.psu.edu).

Describe how you will ensure that this study is conducted and that the data are generated, documented (recorded) and reported in compliance with this protocol, with institutional and IRB policies, with Good Clinical Practice guidelines and any other applicable regulatory requirements.

Indicate who is responsible for monitoring the conduct of the study and specify how often the study will be monitored.

For single-site studies with low risk, it may be appropriate for the principal investigator to monitor the study.

For multi-center studies or single site studies involving significant risk, an independent monitor may be required (e.g., monitoring by the staff of the PSU quality assurance program office(s) or by a clinical research organization).

N/A

19.1.2 Safety Monitoring

Include this section if FDA regulations apply to this study (see "WORKSHEET: Drugs (HRP-306)" and "WORKSHEET: Devices (HRP-307)". HRP-306 and HRP-307 can be accessed by clicking the Library link in CATS IRB (http://irb.psu.edu).

Indicate the process for identifying, recording and reporting adverse events.

Specify roles for adverse event recording and monitoring. Indicate each staff member's role in the adverse event reporting process. Include the following if applicable:

The **Principal Investigator** will confirm that all adverse events (AE) are correctly entered into the AE case report forms by the coordinator; be available to answer any questions that the coordinators may have concerning AEs; and will notify the IRB, FDA, sponsor and/or DSMB of all applicable AEs as appropriate. All assessments of AEs will be made by a licensed medical professional who is an investigator on the research.

The **Research Coordinator** will complete the appropriate report form and logs; assist the PI to prepare reports and notify the IRB, FDA and/or DSMB of all Unanticipated Problems/SAE's.

The **Monitor** will confirm that the AEs are correctly entered into the case report forms. The Monitor will also confirm that the adverse events are consistent with the source documents and are reported to the appropriate regulatory bodies as required.

N/A

20.0 Future Undetermined Research: Data and Specimen Banking

If this study is collecting **identifiable** data and/or specimens that will be banked for future **undetermined research**, please describe this process in the sections below. This information should not conflict with information provided in section 22 regarding whether or not data and/or specimens will be associated with identifiers (directly or indirectly). If **NOT applicable**, indicate as such below in all sections.

[Do not type here]

20.1 Data and/or specimens being stored

Identify what data and/or specimens will be stored and the data associated with each specimen.

N/A

20.2 Location of storage

Identify the location where the data and/or specimens will be stored.

N/A

20.3 Duration of storage

Identify how long the data and/or specimens will be stored. If data and/or specimens will be stored indefinitely, indicate as such.

N/A

20.4 Access to data and/or specimens

Identify who will have access to the data and/or specimens.

N/A

20.5 Procedures to release data or specimens

Describe the procedures to release the data and/or specimens, including: the process to request a release, approvals required for release, who can obtain data and/or specimens, and the data to be provided with the specimens.

N/A

20.6 Process for returning results

Describe the process for returning results about the use of the data and/or specimens.

N/A

21.0 References

List relevant references in the literature which highlight methods, controversies, and study outcomes.

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CONSENT FOR RESEARCH

The Pennsylvania State University

Title of Project: **Promoting Cardiovascular Health of Northern Appalachian Mothers During and After Pregnancy: Pilot Study**

Principal Investigator: Dr. Ian Paul

Address: Penn State College of Medicine
Long Lane Building - Room 111; Mail Code HS83
500 University Drive
Hershey, PA 17033-0850

Telephone Numbers: (717) 531-8006 (weekdays: 8:00 a.m. to 5:00 p.m.)

Subject's Printed Name: _____

We are asking you to be in a research study.

Whether or not you take part is up to you. You can choose not to take part. You can agree to take part and later change your mind. Your decision will not be held against you, and there will be no penalty or loss of benefits to which you are entitled.

This form gives you information about the research. Please ask questions about anything that is unclear to you and take your time to make your choice.

KEY INFORMATION

The following is a short summary of this study to help you decide whether or not to be a part of this research. More detailed information is provided later in this form. If you have any questions, be sure to ask the study team.

Why am I being invited to take part in this research study?

We are asking you to take part in this voluntary research study because you are currently enrolled in the Nurse Family Partnership (NFP) program with Geisinger Clinic or UPMC Home Health Care of Central PA and are pregnant (<28 weeks' gestation) and/or have used a nicotine containing product (at least five women) in the past 3 months.

What is the purpose of this research study?

The purpose of this research is to find out the feasibility of recruiting pregnant women through the NFP program and enhancing standard of care to improve cardiovascular health among pregnant and postpartum women.

How long will the research study last?

If you agree to take part in this research, it will take about 6 months to complete.

What will I need to do?
If you take part in this research, your major responsibilities will include 1) keeping your regularly scheduled home visits with your NFP visiting nurse, 2) talking with your NFP visiting nurse about study materials, 3) wearing a device that measures your physical activity, 4) using a home digital scale to measure your weight weekly, 5) taking your blood pressure three times per week, 6) measuring your carbon monoxide level using a breath monitoring device, and 7) completing two online packets of questionnaires. And participate in a tobacco cessation program if you currently use a nicotine containing product.

What are the main risks of taking part in the study?
There are minimal risks associated with taking part in this research. Some questions on the survey are personal and may make you feel uncomfortable, but they are not expected to cause feelings different from what is experienced in everyday life (for example, answering questions at a doctor's office).

What are the possible benefits to me that may reasonably be expected from being in the research?
There are no benefits to you from taking part in this research. Results of the study may benefit other people in the future by helping us learn more about how to improve the cardiovascular health of pregnant and postpartum women who participate in home visitation programs across the United States.

What happens if I do not want to be in this research?
Participation in research is completely voluntary. You may choose not to take part in this research study.

DETAILED INFORMATION

1. Why is this research study being done?
This research is being done to find out the feasibility of recruiting through Nurse Family Partnership and enhancing standard of care to improve cardiovascular health among pregnant and postpartum women.

Approximately 20 people will take part in this research study throughout Central Pennsylvania.

2. What will happen in this research study?

What are my responsibilities if I take part in this research?
If you take part in this research, your major responsibilities will include:

- Keeping your regularly scheduled home visits with Nurse Family Partnership
- Engaging in conversations with your NFP nurse related to the study materials
- Wearing a monitor that measures your physical activity daily
- Measuring weight using a home digital scale weekly

- Monitoring your blood pressure at home three times per week
- Measuring your carbon monoxide level using a provided device
- Completing two online surveys

If you decide to take part in this study, you will be asked to take part in your regularly scheduled NFP visits that will include additional materials about your health during pregnancy. At the beginning of the study, you will be asked to provide some information about you and your family and complete an online packet of questionnaires, which will take about 15 minutes.

Your first study visit (Visit 1) will take place at your first NFP visit after you consent to take part in this study. At this visit, you will receive "Getting Started" handouts that include information on setting up your commercially available devices including a 1) a device that monitors your physical activity daily for 6 months, 2) a digital scale that monitors your weight once per week for 6 months, and 2) a home blood pressure monitor that monitors your blood pressure three times per week for 6 months. Your nurse will also measure your carbon monoxide levels using a provided device at least once during the study.

Your second study visit (Visit 2) will take place about 1 to 2 months after your first study visit. At this visit, you will receive "Physical Activity During Pregnancy" handouts that include information on safely adding physical activity into your daily life from your visiting nurse. Your NFP visiting nurse will also answer any questions you have about your physical activity and weight monitoring. Your nurse will review the results and answer any questions about the results from your blood pressure monitor.

Your third study visit (Visit 3) will take place about 3 to 4 months after your first study visit. At this visit, you will receive "Physical Activity After Pregnancy" handouts that include information on safely adding physical activity into your daily life from your visiting nurse. Your NFP visiting nurse will also answer any questions you have about your physical activity and weight monitoring. Your nurse will review the results and answer any questions about the results from your blood pressure monitor.

During this study, you will also be asked to take part in a tobacco cessation program if you have used a nicotine product in the past 3 months. Your NFP visiting nurse will provide you with the phone number and help you call a national quit line. You would be asked to take place in this program at each of your three study visits (Visits 1-3).

At the end of the study, you will be asked to complete an online packet of questionnaires that includes questions about your thoughts on the additional materials shared by your visiting nurse, which will take about 15 to 20 minutes.

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

This study involves no major health risks to participants, and we follow procedures to minimize potential risks. There is a slight risk of muscle or joint pain, strains, aches, and injuries due to moderate-intensity physical activity. Moderate-intensity physical activity will be recommended after you deliver your baby. We will minimize the potential risk of injury by providing proper

exercise technique instruction, including the importance of warm-up and cool-down exercises and proper stretching techniques. We will minimize the risk of injury during pregnancy by emphasizing appropriate precautions (e.g., avoidance of activities with potential for trauma such as contact sports and skiing).

As with all studies, there is some risk to your confidentiality. The study follows procedures to minimize the potential risk to your confidentiality. To protect your confidentiality, we will store study information using only a study identification number and no other information that could identify an individual. All information is stored in secure computers and moved using secure data transfer methods. We destroy all study records at the end of the study. In the event of any publication or presentation resulting from the research, no personally identifiable information will be shared.

4. What are the possible benefits from being in this research study?

4a. What are the possible benefits to me?

There is no guarantee that you will benefit from this research. The possible benefits you may experience from this research study include learning new strategies to change lifestyle behaviors related to cardiovascular health.

4b. What are the possible benefits to others?

The results of this research may lead to an improvement in cardiovascular health of pregnant and postpartum mothers across the United States who participate in home visitation programs.

5. What other options are available instead of being in this research study?

You may choose not to be in this research study.

6. How long will I take part in this research study?

If you agree to take part, it will take about 6 months to complete this research study. You will not be asked to visit the research site. Instead, all participation will take place from your home.

7. How will you protect my privacy and confidentiality if I decide to take part in this research study?

7a. What happens to the information collected for the research?

Efforts will be made to limit the use and sharing of your personal research information to people who have a need to review this information. Reasonable efforts will be made to keep the personal information in your research record private. However, absolute confidentiality cannot be guaranteed, and there may be situations where disclosure is required by law.

- Once you decide to take part in this study, you will be assigned a study ID number. A list that matches your name with your study ID number will be kept in a password protected electronic file stored on a secure server at Penn State.

- All electronic data collected will be labeled with your study ID number and will be stored on a secure server at Penn State. No personally identifying information (like your name or phone number) will be stored with your electronic data.

This research is covered by a Certificate of Confidentiality from the National Institutes of Health. This means that the researchers cannot disclose information that identifies you to anyone not connected with the research. This protection also prevents this information from being used or disclosed for legal proceedings, such as being accessed through a court order. The Certificate of Confidentiality however does not prevent disclosures required by law, such as information about child abuse or neglect and harm to yourself or others. Also, your information may be disclosed in accordance with any consent you provide, including for your medical treatment or use in other research. For additional information ask the principal investigator or a member of the study team or contact the Human Research Protection Program at (814) 865-1775.

We will do our best to keep your participation in this research study confidential to the extent permitted by law. However, the following people/groups may check and copy records about this research.

- The Office for Human Research Protections in the U. S. Department of Health and Human Services
- The National Institutes of Health
- The Penn State Institutional Review Board (a committee that reviews and approves human research studies) and the Penn State Human Research Protection Program
- The investigator, Penn State study staff, and other Penn State professionals who may be evaluating the study or need this information to do their jobs (such as for treatment, payment (billing), or health care operations)

Sometimes a Principal Investigator or other researcher moves to a different institution. If this happens, your identifiable information may be shared with that new institution and their oversight offices. Data will be shared securely and under a legal agreement to ensure it continues to be used under the terms of this consent and authorization.

The research team may use your past, present, and future medical information and records for the purpose of your participation in the research study specifically identified in this authorization. Information that will be disclosed may include information that identifies you and your medical condition, as well as information developed as a result of the research study. Your authorization will remain in effect until you revoke it. You may change your mind and revoke (take back) this authorization at any time and for any reason. However, any information previously disclosed under this authorization may not be retrieved and may no longer be protected by federal or state privacy laws. To revoke this consent and authorization, contact the Principal Investigator using the information found on the first page of this form. Revocation of, or refusal to sign, this consent and authorization will not impact the care you receive at Penn State that is not related to the research, however, you will be excluded from participation in this research study if you do not provide this consent and authorization.

7b. What will happen to my research information and/or samples after the study is completed?

We may use your research information in future studies or may share your information with other investigators for future research without your additional informed consent. Before we use or share your information, we will remove any information that shows your identity. All data will be stored in a password protected electronic file stored on a secure server at Penn State.

Researchers can do studies that are more powerful when they share with each other the data or information they get from research studies. They share this information with each other by putting it into scientific databases. Your coded research information may be put in one or more databases and used for future research. Your information stored in these databases will not include any identifying information such as your name, address, telephone number, or social security number. Your research data will only be available to researchers who have received approval from data access committees and/or Institutional Review Boards. Some of these databases are maintained by Penn State, some are maintained by the federal government, and some are maintained by private companies and other institutions.

8. Will I be paid to take part in this research study?

You will receive up to $300 in gift cards for taking part in this pilot study. You will receive $100 after completing your first online packet of questionnaires and your first study visit. You will receive $100 after completing your second study visit. You will receive $100 after completing your last online packet of questionnaire and your last study visit. You get to keep the Fitbit and Fitbit Scale you have been using. If you do not complete the study for any reason, you will be paid for the visits you have completed.

Payments will be in the form of Walmart gift cards sent electronically (e-codes) to you via email or text. You will receive the e-codes within 1-2 weeks of visit and survey completion.

10. Who is paying for this research study?

The institution and investigators are receiving a grant from The United States National Heart, Lung, and Blood Institute to support this research.

11. What are my rights if I take part in this research study?

Taking part in this research study is voluntary.

- You do not have to be in this research.
- If you choose to be in this research, you have the right to stop at any time.
- If you decide not to be in this research or if you decide to stop at a later date, there will be no penalty or loss of benefits to which you are entitled.

The person in charge of the research study or the sponsor can remove you from the research study without your approval. Possible reasons for removal include your withdrawal from Nurse-Family Partnership services.

During the course of the research, you will be provided with any new information that may affect your health, welfare or your decision to continue participating in this research.

12. If I have questions or concerns about this research study, whom should I call?
Please call the head of the research study (principal investigator), Dr. Ian Paul at (717) 531-8006 if you:

- Have questions, complaints or concerns about the research.
- Believe you may have been harmed by being in the research study.

You may also contact the Penn State Human Research Protection Program (HRPP) at (814) 865-1775 or visit the HRPP website at https://www.research.psu.edu/irb/participants if you:

- Have questions or want information regarding your rights as a person in a research study.
- Have concerns, complaints or general questions about the research.
- Have questions about your privacy and the use of your personal health information.
- You may also call this number if you cannot reach the research team or wish to offer input or to talk to someone else about any concerns related to the research.

A description of this clinical trial will be available on https://www.ClinicalTrials.gov, as required by U.S. Law or policy. This Web site will not include information that can identify you. At most, the Web site will include a summary of the results. You can search this Web site at any time.

INFORMED CONSENT TO TAKE PART IN RESEARCH

Signature of Person Obtaining Informed Consent

Your signature below means that you have explained the research to the subject or subject representative, provided the subject or subject representative an opportunity to discuss and consider whether or not to participate in the research, and have answered any questions about the research.

_____	_____	_____	_____
Signature of person who explained this research	Date	Time	Printed Name

(Only approved investigators for this research may explain the research and obtain informed consent.)

Signature of Person Giving Informed Consent and Authorization
Before making the decision about being in this research you should have:

- Discussed this research study with an investigator,
- Read the information in this form, and

- Had the opportunity to ask any questions you may have.

Your signature below means that you have received this information, have asked the questions you currently have about the research and those questions have been answered. You will receive a copy of the signed and dated form to keep for future reference.

Signature of Subject

By signing this consent form, you indicate that you voluntarily choose to be in this research and authorize your information to be used and shared as described above.

_____	_____	_____	_____
Signature of Subject	Date	Time	Printed Name