TITLE: Leveraging interactive SMS messaging to monitor and support maternal health in Kenya (AI-NEO)
NCT number: NCT05369806
PI name: Ronen
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IRB approval date: 15 Nov 2021

The Human Subjects Division (HSD) strives to ensure that people with disabilities have access to all services and content. **If you experience any accessibility-related issues with this form or any aspect of the application process, email hsdinfo@uw.edu for assistance.**

INSTRUCTIONS

- **This form is only for studies that will be reviewed by the UW IRB**. Before completing this form, check HSD's website to confirm that this should not be reviewed by an external (non-UW) IRB.
- **If you are requesting a determination** about whether the planned activity is human subjects research or qualifies for exempt status, you may skip all questions except those marked with a ◯. For example **1.1** must be answered.
- **Answer all questions**. If a question is not applicable to the research or if you believe you have already answered a question elsewhere in the application, state "NA" (and if applicable, refer to the question where you provided the information). If you do not answer a question, the IRB does not know whether the question was overlooked or whether it is not applicable. This may result in unnecessary "back and forth" for clarification. Use non-technical language as much as possible.
- To check a box, place an "X" in the box. To fill in a text box, make sure your cursor is within the gray text box bar before typing or pasting text.
- For collaborative or multi-site research, describe only the UW activities unless you are requesting that the UW IRB provide the review and oversight for non-UW collaborators or co-investigators as well.
- You may reference other documents (such as a grant application) if they provide the requested information in non-technical language. Be sure to provide the document name, page(s), and specific sections, and upload it to ***Zipline***. Also, describe any changes that may have occurred since the document was written (for example, changes that you've made during or after the grant review process). In some cases, you may need to provide additional details in the answer space as well as referencing a document.
- **NOTE: Do not convert this Word document to PDF.** The ability to use "tracked changes" is required in order to modify your study and respond to screening requests.

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1 OVERVIEW

Study Title: Leveraging interactive SMS messaging to monitor and support maternal health in Kenya

1.1 Home institution. Identify the institution through which the lead researcher listed on the IRB application will conduct the research. Provide any helpful explanatory information.

In general, the home institution is the institution (1) that provides the researcher's paycheck and that considers him/her to be a paid employee, or (2) at which the researcher is a matriculated student. Scholars, faculty, fellows, and students who are visiting the UW and who are the lead researcher: identify your home institution and describe the purpose and duration of your UW visit, as well as the UW department/center with which you are affiliated while at the UW.

Note that many UW clinical faculty members are paid employees of non-UW institutions.

*The UW IRB provides IRB review and oversight for only those researchers who meet the criteria described in the **SOP Use of the UW IRB**.*

University of Washington

1.2 Consultation history. Has there been any consultation with someone at HSD about this study?

It is not necessary to obtain advance consultation. However, if advance consultation was obtained, answering this question will help ensure that the IRB is aware of and considers the advice and guidance provided in that consultation.

[X] **No**
[ ] **Yes** → If yes, briefly describe the consultation: approximate date, with whom, and method (e.g., by email, phone call, in-person meeting).

1.3 Similar and/or related studies. Are there any related IRB applications that provide context for the proposed activities?

Examples of studies for which there is likely to be a related IRB application: Using samples or data collected by another study; recruiting subjects from a registry established by a colleague's research activity; conducting Phase 2 of a multi-part project, or conducting a continuation of another study; serving as the data coordinating center for a multi-site study that includes a UW site.

Providing this information (if relevant) may significantly improve the efficiency and consistency of the IRB's review.

[ ] **No**
[X] **Yes** → If yes, briefly describe the other studies or applications and how they relate to the proposed activities. If the other applications were reviewed by the UW IRB, please also provide: the UW IRB number, the study title, and the lead researcher's name.

STUDY00006395 – similar procedures; Aim 3 of this application will be nested within 6395

STUDY00009531 – formative secondary data analysis in 9531 led to development of computational models that will be used in this application

1.4 Externally-imposed urgency or time deadlines. Are there any externally-imposed deadlines or urgency that affect the proposed activity?

HSD recognizes that everyone would like their IRB applications to be reviewed as quickly as possible. To ensure fairness, it is HSD policy to review applications in the order in which they are received. However, HSD will assign a higher priority to research with externally-imposed urgency that is beyond the control of the researcher. Researchers are encouraged to communicate as soon as possible with their HSD staff contact person when there is an urgent situation (in other words, before submitting the IRB application). Examples: a researcher plans to test an experimental vaccine that has just been developed for a newly emerging epidemic; a researcher has an unexpected opportunity to collect data from students when the end of the school year is only four weeks away.

HSD may ask for documentation of the externally-imposed urgency. A higher priority should not be requested to compensate for a researcher's failure to prepare an IRB application in a timely manner. Note that IRB review requires a certain minimum amount of time; without sufficient time, the IRB may not be able to review and approve an application by a deadline.

[X] **No**

[ ] **Yes** → If yes, briefly describe the urgency or deadline as well as the reason for it.

1.5 Objectives Using lay language, describe the purpose, specific aims, or objectives that will be met by this specific project. If hypotheses are being tested, describe them. You will be asked to describe the specific procedures in a later section.

If this application involves the use of a HUD "humanitarian" device: describe whether the use is for "on-label" clinical patient care, "off-label" clinical patient care, and/or research (collecting safety and/or effectiveness data).

Our overarching aim is to implement a natural language processing (NLP) model into the previously developed Mobile WACh SMS platform and test its acceptability and impact on healthcare workers response time.

Aim 1: Validate performance of an NLP model trained to detect urgent client SMS.
Ten nurses from Mobile WACh studies will be presented with client messages from previous Mobile WACh studies, annotated with urgency predictions from the top 3 best performing NLP models. Each nurse will be asked to report their agreement with each prediction. The model with the highest sensitivity and specificity compared with the nurse "gold standard" determination will be selected for implementation in the Mobile WACh system.

Aim 2: Using a human-centered design approach, adapt the Mobile WACh system nurse interface to dynamically display urgent incoming messages.
Interactive focus groups will be conducted with 6-10 nurses from Mobile WACh studies and MOH facilities to collectively design a user interface that integrates real-time urgency classification of incoming messages and highlights messages classified as urgent.

Aim 3: Pilot the adapted Mobile WACh interface (AI-NEO) that identifies urgent client SMS and evaluate its acceptability and effect on nurse response time.
We will enroll 80 pregnant women to receive the AI-NEO SMS intervention. Women will be enrolled at 28-36 weeks gestation and will receive automated SMS regarding neonatal health from enrollment until 6 weeks postpartum, and will have the ability to interactively message with study nurses. Participant messages will be automatically categorized by urgency. We will evaluate intervention acceptability and recommended improvements among clients and nurses using quantitative and qualitative data collection at study exit (quantitiave questionnaires with all client participants and qualitative interviews with 4 nurses). We will compare nurse response time to urgent and non-urgent participant messages with the ongoing Mobile WACh NEO trial, in which a non-adapted Mobile WACh system is used.

1.6 Study design. Provide a one-sentence description of the general study design and/or type of methodology.

Your answer will help HSD in assigning applications to reviewers and in managing workload. Examples: a longitudinal observational study; a double-blind, placebo-controlled randomized study; ethnographic interviews; web scraping from a convenience sample of blogs; medical record review; coordinating center for a multi-site study.

Mixed methods design phase followed by pilot longitudinal cohort study.

1.7 Intent. Check all the descriptors that apply to your activity. You must place an "X" in at least one box.

This question is essential for ensuring that your application is correctly reviewed. Please read each option carefully.

	Descriptor
☐	1. Class project or other activity whose purpose is to provide an educational experience for the researcher (for example, to learn about the process or methods of doing research).
☐	2. Part of an institution, organization, or program's own internal operational monitoring.
X	3. Improve the quality of service provided by a specific institution, organization, or program.
X	4. Designed to expand the knowledge base of a scientific discipline or other scholarly field of study, and produce results that: • Are expected to be applicable to a larger population beyond the site of data collection or the specific subjects studied, or • Are intended to be used to develop, test, or support theories, principles, and statements of relationships, or to inform policy beyond the study.
☐	5. Focus directly on the specific individuals about whom the information or biospecimens are collected through oral history, journalism, biography, or historical scholarship activities, to provide an accurate and evidence-based portrayal of the individuals.
☐	6. A quality improvement or program improvement activity conducted to improve the implementation (delivery or quality) of an accepted practice, or to collect data about the implementation of the practice for clinical, practical, or administrative purposes. This does not include the evaluation of the efficacy of different accepted practices, or a comparison of their efficacy.
☐	7. Public health surveillance activities conducted, requested, or authorized by a public health authority for the sole purpose of identifying or investigating potential public health signals or timely awareness and priority setting during a situation that threatens public health.
X	8. Preliminary, exploratory, or research development activities (such as pilot and feasibility studies, or reliability/validation testing of a questionnaire)
☐	9. Expanded access use of a drug or device not yet approved for this purpose
☐	10. Use of a Humanitarian Use Device

☐ 11. Other. Explain:

1.8 Background, experience, and preliminary work. Answer this question **only** if the proposed activity has one or more of the following characteristics. The purpose of this question is to provide the IRB with information that is relevant to its risk/benefit analysis.

- Involves more than minimal risk (physical or non-physical)
- Is a clinical trial, or
- Involves having the subjects use a drug, biological, botanical, nutritional supplement, or medical device.

"Minimal risk" means that the probability and magnitude of harm or discomfort anticipated in the research are not greater than those ordinarily encountered in daily life or during the performance of routine physical or psychological examinations or tests.

a. Background. Provide the rationale and the scientific or scholarly background for the proposed activity, based on existing literature (or clinical knowledge). Describe the gaps in current knowledge that the project is intended to address.

This should be a plain language description. Do not provide scholarly citations. Limit your answer to less than one page, or refer to an attached document with background information that is no more than three pages long.

Despite recent reductions in under-five mortality, neonatal mortality remains high.
The risk of a newborn dying depends significantly on where in the world they are born. Neonatal mortality rates (NMRs) vary substantially between countries from 1 to 44 per 1000 live births; almost 98% of neonatal deaths occur in low to middle income countries.[1] While the global NMR has fallen in recent decades, it still lags behind the impressive gains made for children 1 month to 5 years old. Between 1990 and 2016, under-5 mortality dropped by 62%, compared to 49% in neonates.[2] As a result, newborn deaths now account for a growing proportion of under-5 mortality. Moreover, many neonatal deaths occur at home and are therefore underreported. In Kenya, the NMR is 22.6 per 1000 live births,[3] ranking among the countries with the highest number of neonatal deaths (~40,000 per year).[2] Siaya County in Western Kenya has a NMR of 27.3 per 1000 live births.[4] National implementation of a free maternal health care policy and the resulting rise in facility deliveries have not had a significant impact on neonatal mortality.[5] Achieving Sustainable Development Goal 3 of ≤12 neonatal deaths per 1000 live births by 2030 will require increased access to effective, evidence-based interventions that specifically address neonatal survival.[6] Moreover, improving health during the critical neonatal period has the potential to not only support survival but also improve long-term developmental outcomes.[7]

Mobile health (mHealth) interventions can provide on-demand information and support families to improve maternal child health.
mHealth tools, which utilize mobile phones and other wireless technologies to support health, provide an attractive strategy to augment community-based care and connect households to CHV support more efficiently and frequently. More households in low-income countries own a mobile phone than have access to electricity or adequate sanitation.[8] According to the Communications Authority of Kenya, there are now 46 million phone subscriptions in Kenya, for a national population of 43 million.[9] **A World Bank report found that Kenyans living at the so-called economic "bottom of the pyramid" reported health information and communication was the service they most wanted to receive through their mobile phones**.[10]

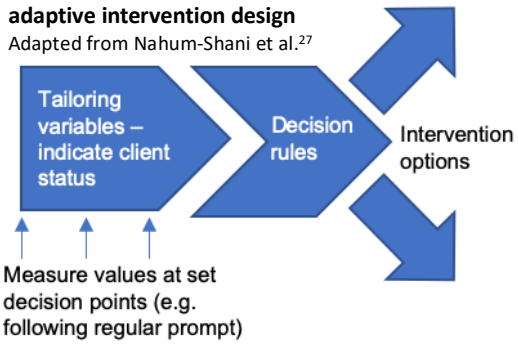
Our collaborative team has developed an open-source human-computer hybrid SMS platform, Mobile WACh (Mobile Solutions for Women's and Children's Health).[11] Mobile WACh sends pre-composed messages to clients at scheduled times. Clients may send messages at any time; a live HCW answers incoming messages, leading to personalized dialogue. The internet-based HCW interface contains a dashboard designed to facilitate HCW management of tasks such as message response, patient tracking, and message translation into English. The system back-end collects SMS metadata such as time stamps and delivery status, as well as data on seminal events such as childbirth. To date, Mobile WACh has been implemented in 7 studies (including 4 randomized controlled trials, RCTs) targeting a range of reproductive, maternal, neonatal and child health outcomes. Scheduled intervention messages were developed for each study based on formative research with the target population,[12–14] and behavioral theory selected based on the target outcome (Social Cognitive Theory,[15,16] Theory of Planned Behavior,[17,18] or Information-Motivation-Behavior Change Theory[19,20]). All studies also allowed unstructured, personalized dialogue between clients and HCWs. **This suite of studies provides well-developed software and rich data (400,000 SMS) for the proposed project (Table 1).**

Table 1. Mobile WACh study summary

Study	Primary outcome	N clients	N SMS			Follow-up period
			Automated system	Personalized nurse	Client	
Mobile WACh XY RCT[17]	Family planning	130	6,852 (144 unique)	3,356	3,577	Preg - 6mo
Mobile WACh Neo pilot (NEO Pilot)[20]	Neonatal health	799	26,021 (62 unique)	13,535	19,952	Preg - 3mo
Mobile WACh X RCT[16]	HIV treatment adherence	276	39,993 (1149 unique)	6,361	10,122	Preg - 2yr
Mobile WACh Neo RCT (NEO RCT)	Neonatal health, Maternal depression	2,500	*NA*	*NA*	*NA*	Preg - 2mo

Automation may enable mHealth interventions to maximize efficiency and adaptability.

Figure. 1. Schematic of just-in-time adaptive intervention design
Adapted from Nahum-Shani et al.[27]



The public health impact of mHealth interventions in resource-limited settings rests on their ability to achieve the following: (1) reach the people who most need support, (2) deliver efficacious treatment, and (3) reduce the burden on overstretched HCWs. Furthermore, there is increasing recognition that an mHealth intervention may be most efficacious if it is delivered *at the right time* and *adapts based on the context and response of individual clients.*[21] This idea is articulated in the paradigm of just-in-time adaptive intervention (JITAI) design.[22,23] Many mHealth interventions are inherently adaptive – particularly those that include dynamic interaction with a human. The JITAI paradigm involves formalization of *when* and *how* the intervention should be adapted, by defining decision points, decision rules, and intervention options (**Fig. 1**). Implementation of this process can only feasibly be accomplished with **automatic, real-time processing of client data** (in the case of SMS interventions, unstructured natural language).[22,24] **Table 2** summarizes the ways that automation can maximize mHealth intervention impact.

Natural language processing (NLP) enables computational analysis of unstructured language.

Table 2. Applications of automation in mHealth

mHealth function	Application of automation

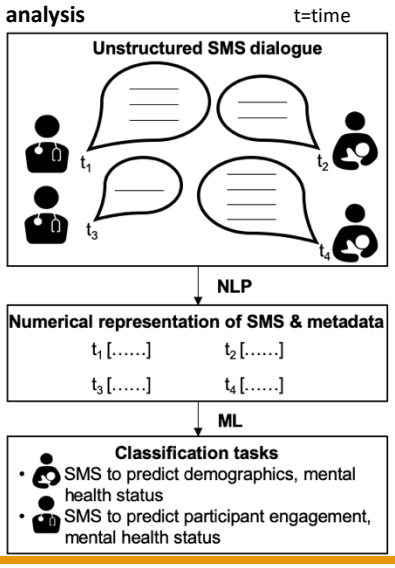
REACH people in need	**Identify** clients when they are in need of support
Deliver **EFFECTIVE** intervention	**Standardize** intervention delivery
	Adapt intervention to client status & response
REDUCE BURDEN on HCW	Reduce manual message review & **triage**
	Prompt, **guide** or compose HCW messages

NLP refers to methods that transform and represent natural language for computation.[25,26] Used in ubiquitous tools such as internet searching and email spam filtering, NLP is receiving growing attention in biomedical fields as a way to harness large quantities of rich, free text data, which are prohibitively resource-intensive to manually summarize.[27–29] Essentially, NLP breaks a piece of text (a *corpus*) into its constituent *tokens* (typically words) and represents each token numerically. Many approaches have been developed for numerical representation. They range from representing each word type as an arbitrary integer and summarizing the corpus by word frequencies, to representing each word as a multidimensional vector of *features*.[30] Features can be assigned based on expert linguistic knowledge, for example a categorical variable indicating parts of speech or root word.[25,26] Recently, machine learning algorithms have been developed for *contextual word embedding* – feature definition based on a word's distribution in other corpora, on the grounds that words found in similar contexts have similar meanings.[31–33] These algorithms have been shown to have excellent performance as predictors in a variety of classification tasks,[30] but the features they identify are generally not interpretable by humans.

Machine learning (ML) methods can be used to predict clinical outcomes based on natural language.

ML refers to computer algorithms that derive parameters of mathematical models by iteratively learning from observed data.[34,35] ML can be supervised, meaning *labeled* data with linked predictor and outcome values are available to train the model; or unsupervised, meaning data are unlabeled and the algorithm clusters similar data together without considering outcome. ML methods can be used in analysis of unstructured natural language such as SMS messages in several ways. As described above, unsupervised ML models known as *neural networks* can be used to generate feature vectors from text.[30] Additionally, feature vectors generated by (ML or non-ML) NLP can in turn be used as predictors in supervised ML tasks such as classifying whether text indicates a particular health outcome (**Fig. 2**).

Figure. 2. Use of NLP & ML for SMS analysis



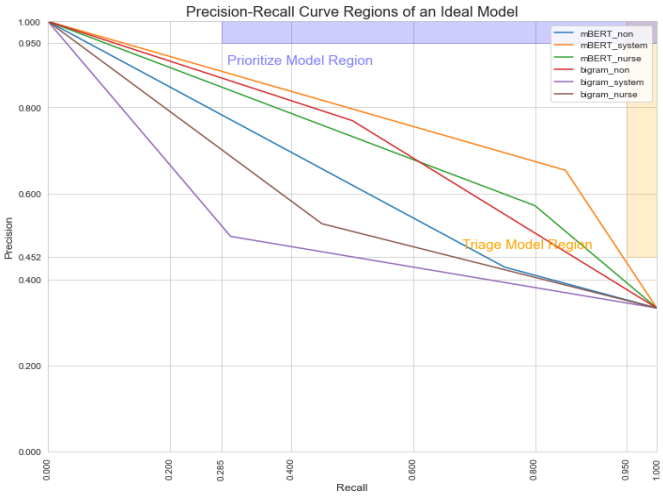
b. Experience and preliminary work. Briefly describe experience or preliminary work or data (if any) that you, your team, or your collaborators/co-investigators have that supports the feasibility and/or safety of this study.

It is not necessary to summarize all discussion that has led to the development of the study protocol. The IRB is interested only in short summaries about experiences or preliminary work that suggest the study is feasible and that risks are reasonable relative to the benefits. Examples: Your team has already conducted a Phase 1 study of an experimental drug which supports the Phase 2 study being proposed in this application; your team has already done a small pilot study showing that the reading skills intervention described in this application is feasible in an after-school program with classroom aides; your team has experience with the type of surgery that is required to implant the study device; the study coordinator is experienced in working with subjects who have significant cognitive impairment.

We have developed NLP models with promising performance for detection of urgent client messages.

Using 1497 messages sent by the 30 most active participants in the Mobile WACh NEO pilot study, we developed NLP models using message metadata, word frequencies and contextual word embeddings to detect clinical urgency of messages. **Fig. 3** displays precision-recall curves summarizing performance of 6 representative models using a variety of linguistic features and modeling approaches. To evaluate potential clinical usefulness of models, we identified two potential model applications and associated evaluation criteria. A "triage" model rules out messages by identifying with very high recall (sensitivity) the messages of interest (i.e. urgent messages) for healthcare workers to focus their review on, while significantly reducing the number of messages reviewed. A "prioritize" model identifies messages of interest with very high precision (positive predictive value), allowing healthcare workers to read those messages first, while still reading the remaining messages later. Each ideal model occupies a region on the precision-recall plot; a model whose precision-recall curve falls in one of the two regions would be a candidate model for pilot testing. To date, we have developed one model close to the "triage" region. We are continuing to optimize model performance and are optimistic we can achieve further performance gains.

Figure 3. Precision-recall curves for urgency models



The ongoing Mobile WACh NEO RCT presents an opportunity to evaluate feasibility and performance of NLP models in practice

While model performance relative to a known label can be summarized using variables such as precision and recall, the utility of NLP for improving efficiency of nurse workflow must be determined empirically. We therefore propose to conduct a pilot study in which we compare nurse workflows when using the conventional Mobile WACh platform vs. workflows when using an NLP-enabled Mobile WACh platform. An ongoing RCT, Mobile WACh NEO, is evaluating use of the Mobile WACh platform to support neonatal health in Nairobi and Western Kenya. In this proposal, we will compare workflow in the context of the Mobile WACh NEO RCT with workflow in an NLP-enabled variant of the same intervention (named AI-NEO).

1.9 Supplements. Check all boxes that apply, to identify relevant Supplements that should be completed and uploaded to ***Zipline***.

This section is here instead of at the end of the form to reduce the risk of duplicating information in this IRB Protocol form that you will need to provide in these Supplements.

Check all That Apply	Type of Research	Supplement Name
☐	**Department of Defense** The research involves Department of Defense funding, facilities, data, or personnel.	SUPPLEMENT Department of Defense
☐	**Department of Energy** The research involves Department of Energy funding, facilities, data, or personnel.	SUPPLEMENT Department of Energy

☐	**Drug, biologic, botanical, supplement** Procedures involve the use of any drug, biologic, botanical or supplement, even if the item is not the focus of the proposed research	SUPPLEMENT Drugs
☐	**Emergency exception to informed consent** Research that requires this special consent waiver for research involving more than minimal risk	SUPPLEMENT Exception from Informed Consent for Emergency Research (EFIC)
☐	**Genomic data sharing** Genomic data are being collected and will be deposited in an external database (such as the NIH dbGaP database) for sharing with other researchers, and the UW is being asked to provide the required certification or to ensure that the consent forms can be certified	SUPPLEMENT Genomic Data Sharing
☐	**Medical device** Procedures involve the use of any medical device, even if the device is not the focus of the proposed research, except when the device is FDA-approved and is being used through a clinical facility in the manner for which it is approved	SUPPLEMENT Devices
☐	**Multi-site or collaborative study** The UW IRB is being asked to review on behalf of one or more non-UW institutions in a multi-site or collaborative study.	SUPPLEMENT Multi-site or Collaborative Research
☐	**Non-UW Individual Investigators** The UW IRB is being asked to review on behalf of one or more non-UW individuals who are not affiliated with another organization for the purpose of the research.	SUPPLEMENT Non-UW Individual Investigators
☐	**Other REDCap Installation Attestation for Electronic Consent** The research will use a non-UW installation of REDCap for conducting and/or documenting informed consent.	SUPPLEMENT Other REDCap Installation
X	None of the above	

1.10 Confirm by checking the box below that you will comply with the COVID requirements described on HSD's COVID webpage, which are based on the location of the in-person study procedures and the vaccination status of study team members and study participants.

Review the HSD website for current guidelines about which in-person research activities are allowable.

X **Confirmed**

2 PARTICIPANTS

2.1 Participants. Describe the general characteristics of the subject populations or groups, including age range, gender, health status, and any other relevant characteristics.

Aim 1: model validation

- Current or previous nurse on a Mobile WACh study

Aim 2: interface design

- Current nurse on a Mobile WACh study or at ministry of health facility

Aim 3: Pilot

- Pregnant women at 28-36 weeks gestation, age ≥14, able to receive daily SMS
- Nurses working on delivering the AI-NEO pilot

2.2 Inclusion and exclusion criteria.

a. Inclusion criteria. Describe the specific criteria that will be used to decide who will be included in the research from among interested or potential subjects. Define any technical terms in lay language.

Aim 1: model validation

- Currently or previously worked as a study nurse on a Mobile WACh study

Aim 2: interface design

- Currently working as a nurse on a Mobile WACh study or at ministry of health facility

Aim 3: Pilot

- Pregnant clients
  - Pregnant
  - 28-36 weeks gestation
  - Daily access to a mobile phone (own or shared) on the Safaricom network
  - Willing to receive SMS
  - Age ≥14 years
  - Able to read and respond to text messages in English, Kiswahili or Luo, or have someone in the household who can help
- Nurses
  - Currently working as a nurse on AI-NEO study

b. Exclusion criteria. Describe the specific criteria that will be used to decide who will be excluded from the research from subjects who meet the inclusion criteria listed above. Define any technical terms in lay language.

Aim 1: model validation

- None

Aim 2: interface design

- None

Aim 3: Pilot

- Pregnant clients
  - Currently enrolled in another research study

2.3 Prisoners. IRB approval is required in order to include prisoners in research, even when prisoners are not an intended target population.

Is the research likely to have subjects who become prisoners while participating in the study?

For example, a longitudinal study of youth with drug problems is likely to have subjects who will be prisoners at some point during the study.

[X] **No**
[ ] **Yes** → If yes, if a subject becomes a prisoner while participating in the study, will any study procedures and/or data collection related to the subject be continued while the subject is a prisoner?

[ ] **No**

☐ **Yes** → If yes, describe the procedures and/or data collection that will continue with prisoner subjects

2.4 Will the proposed research recruit or obtain data from individuals that are known to be prisoners?

*For records reviews: if the records do not indicate prisoner status and prisoners are not a target population, select "No". See the **GUIDANCE Prisoners** for the definition of "prisoner", which is not necessarily tied to the type of facility in which a person is residing.*

☒ **No**
☐ **Yes** → If yes, answer the following questions (i – iv).

i. Describe the type of prisoners, and their location(s):

ii. One concern about prisoner research is whether the effect of participation on prisoners' general living conditions, medical care, quality of food, amenities, and/or opportunity for earnings in prison will be so great that it will make it difficult for prisoners to adequately consider the research risks. How will the chances of this be reduced?

iii. Describe what will be done to make sure that (a) recruitment and subject selection procedures will be fair to all eligible prisoners and (b) prison authorities or other prisoners will not be able to arbitrarily prevent or require particular prisoners from participating.

iv. If the research is funded by one of these federal departments and agencies (Health & Human Services; Energy; Defense; Homeland Security; CIA; Social Security Administration), and/or will involve prisoners in federal facilities or in state/local facilities outside of Washington State: check the box below to provide assurance that study team members will (a) not encourage or facilitate the use of a prisoner's participation in the research to influence parole or pardon decisions, and (b) clearly inform each prisoner in advance (for example, in a consent form) that participation in the research will have no effect on his or her parole or pardon.

☐ **Confirmed**

2.5 **Protected populations**. IRB approval is required for the use of the subject populations listed here. Check the boxes for any of these populations that will be purposefully included. (In other words, being a part of the population is an inclusion criterion for the study.)

The WORKSHEETS describe the criteria for approval but do not need to be completed and should not be submitted.

Population	Worksheet
☐ Fetuses in utero	WORKSHEET Pregnant Women
☐ Neonates of uncertain viability	WORKSHEET Neonates
☐ Non-viable neonates	WORKSHEET Neonates

[X] Pregnant women WORKSHEET Pregnant Women

a. If you check any of the boxes above, use this space to provide any information that may be relevant for the IRB to consider.

This research proposal is focused specifically on using digital technologies (SMS) to improve neonatal mortality, practice of essential newborn care, care seeking behavior and maternal self-efficacy in Kenya. The research aims are specific to pregnant and postpartum women (including adolescent girls aged 14-17) and their babies. Kenyan regulations consider pregnant women age ≥14 emancipated by pregnancy and able to give consent as independent adults.

2.6 Native Americans or non-U.S. indigenous populations. Will Native American or non-U.S. indigenous populations be actively recruited through a tribe, tribe-focused organization, or similar community-based organization?

Indigenous people are defined in international or national legislation as having a set of specific rights based on their historical ties to a particular territory and their cultural or historical distinctiveness from other populations that are often politically dominant.

Examples: a reservation school or health clinic; recruiting during a tribal community gathering

[X] **No**

[ ] **Yes** → If yes, name the tribe, tribal-focused organization, or similar community-based organization. The UW IRB expects that tribal/indigenous approval will be obtained before beginning the research. This may or may not involve approval from a tribal IRB. The study team and any collaborators/investigators are also responsible for identifying any tribal laws that may affect the research.

2.7 Third party subjects. Will the research collect private identifiable information about *other individuals* from the study subjects? Common examples include: collecting medical history information or contact information about family members, friends, co-workers.

"Identifiable" means any direct or indirect identifier that, alone or in combination, would allow you or another member of the research team to readily identify the person. For example, suppose that the research is about immigration history. If subjects are asked questions about their grandparents but are not asked for names or other information that would allow easy identification of the grandparents, then private identifiable information is not being collected about the grandparents and the grandparents are not subjects.

[X] **No**

[ ] **Yes** → If yes, these individuals are considered human subjects in the study. Describe them and what data will be collected about them.

2.8 Number of subjects. Is it possible to predict or describe the maximum number of subjects (or subject units) needed to complete the study, for each subject group?

Subject units mean units within a group. For most research studies, a group will consist of individuals. However, the unit of interest in some research is not the individual. Examples:

- *Dyads such as caregiver-and-Alzheimer's patient, or parent and child*
- *Families*
- *Other units, such as student-parent-teacher*

Subject group means categories of subjects that are meaningful for the specific study. Some research has only one subject group – for example, all UW students taking Introductory Psychology. Some common ways in which subjects are grouped include:

- *By intervention – for example, an intervention group and a control group.*
- *By subject population or setting – for example, urban versus rural families*
- *By age – for example, children who are 6, 10, or 14 years old.*

The IRB reviews the number of subjects in the context of risks and benefits. Unless otherwise specified, if the IRB determines that the research involves no more than minimal risk: there are no restrictions on the total number of subjects that may be enrolled. If the research involves more than minimal risk: The number of enrolled subjects must be limited to the number described in this application. If it is necessary later to increase the number of subjects, submit a Modification. Exceeding the IRB-approved number (over-enrollment) will be considered non-compliance.

☐ **No** → If no, provide the rationale in the box below. Also, provide any other available information about the scope/size of the research. You do not need to complete the table.

Example: It may not be possible to predict the number of subjects who will complete an online survey advertised through Craigslist, but you can state that the survey will be posted for two weeks and the number who respond is the number who will be in the study.

☒ **Yes** → If yes, for each subject group, use the table below to provide the estimate of the maximum desired number of individuals (or other subject unit, such as families) who will complete the research.

Group name/description	Maximum desired number of individuals (or other subject unit, such as families) who will complete the research ***Provide numbers for the site(s) reviewed by the UW IRB and for the study-wide total number; example: 20/100***
Aim 1 nurses	10
Aim 2 nurses	20
Aim 3 pregnant cohort	80
Aim 3 nurses	4

3 NON-UW RESEARCH SETTING

Complete this section only if UW investigators and people named in the SUPPLEMENT: Non-UW Individual Investigators will conduct research procedures outside of UW and Harborview

3.1 Reason for locations. Describe the reason(s) for choosing the locations.

This is especially important when the research will occur in locations or with populations that may be vulnerable to exploitation. One of the three ethical principles the IRB must consider is justice: ensuring that reasonable, non-exploitative, and well-considered procedures are administered fairly, with a fair distribution of costs and potential benefits.

3.2 Local context. Culturally appropriate procedures and an understanding of local context are an important part of protecting subjects. Describe any site-specific cultural issues, customs, beliefs, or values that may affect the research, how it is conducted, or how consent is obtained or documented.

Examples: It would be culturally inappropriate in some international settings for a woman to be directly contacted by a male researcher; instead, the researcher may need to ask a male family member for permission before the woman can be approached. It may be appropriate to obtain permission from community leaders prior to obtaining consent from individual members of a group. In some distinct cultural groups, signing forms may not be the norm.

This federal site maintains an international list of human research standards and requirements:
http://www.hhs.gov/ohrp/international/index.html

3.3 Location-specific laws. Describe any local laws that may affect the research (especially the research design and consent procedures). The most common examples are laws about:

- **Specimens** – for example, some countries will not allow biospecimens to be taken out of the country.
- **Age of consent** – laws about when an individual is considered old enough to be able to provide consent vary across states, and across countries.
- **Legally authorized representative** – laws about who can serve as a legally authorized representative (and who has priority when more than one person is available) vary across states and countries.
- **Use of healthcare records** – many states (including Washington State) have laws that are similar to the federal HIPAA law but that have additional requirements.

3.4 Location-specific administrative or ethical requirements. Describe local administrative or ethical requirements that affect the research.

Example: A school district may require researchers to obtain permission from the head district office as well as school principals before approaching teachers or students; a factory in China may allow researchers to interview factory workers but not allow the workers to be paid for their participation.

3.5 If the PI is a student: Does the research involve traveling outside of the US?

☐ **No**

☐ **Yes** → If yes, confirm by checking the box that (1) you will register with the **UW Office of Global Affairs** before traveling; (2) you will notify your advisor when the registration is complete; and (3) you will request a UW Travel Waiver if the research involves travel to the list of countries requiring a UW Travel Waiver.

☐ **Confirmed**

4 RECRUITING and SCREENING PARTICIPANTS

4.1 Recruiting and Screening. Describe how subjects will be identified, recruited, and screened. Include information about: how, when, where, and in what setting. Identify who (by position or role, not name) will approach and recruit subjects, and who will screen them for eligibility.

Note: Per UW Medicine policy, the UW Medicine eCare/MyChart system may not be used for research recruitment purposes.

Aim 1 – model validation
Recruitment: Nurses from former and ongoing Mobile WACh studies will be recruited by sharing information about the study in team meetings. Nurses will be informed that participation is voluntary.
Screening: All nurses employed by Mobile WACh studies will be eligible to participate.

Aim 2 – interface design
Recruitment: Nurses from former and ongoing Mobile WACh studies will be recruited by sharing information about the study in team meetings. Additionally, nurses employed by MOH at study facilities will be recruited by sharing information about the study with the facility. Nurses will be informed that participation is voluntary.
Screening: All nurses employed by Mobile WACh studies or the MOH facility will be eligible to participate.

Aim 3 – AI-NEO pilot – cohort
Recruitment: Women will be recruited when attending routine ANC, through in-person outreach by study staff. Women will be informed that participation is voluntary.
Screening: Interested patients will be asked to provide verbal consent for screening (see Recruitment Script 1 Aim 3), consenting women will be asked screening questions using an electronic questionnaire to assess eligibility and, if eligible (see inclusion criteria above), be invited to participate in the study.

Aim 3 – AI-NEO pilot – nurse exit interview
Recruitment: Nurses from the AI-NEO study will be recruited by sharing information about the interviews in team meetings. Nurses will be informed that participation is voluntary.
Screening: All nurses employed by AI-NEO will be eligible to participate.

4.2 Recruitment materials.

a. What materials (if any) will be used to recruit and screen subjects?

Examples: talking points for phone or in-person conversations; video or audio presentations; websites; social media messages; written materials such as letters, flyers for posting, brochures, or printed advertisements; questionnaires filled out by potential subjects.

See talking points 1-3 for in-person recruitment.

b. Upload descriptions of each type of material (or the materials themselves) to ***Zipline***. If letters or emails will be sent to any subjects, these should include a statement about how the subject's name and contact information were obtained. No sensitive information about the person (such as a diagnosis of a medical condition) should be included in the letter. The text of these letters and emails must be uploaded to ***Zipline*** (i.e., a description will not suffice).

HSD encourages researchers to consider uploading descriptions of most recruitment and screening materials instead of the materials themselves. The goal is to provide the researchers with the flexibility to change some information on the materials without submitting a Modification for IRB approval of the changes. Examples:

- *Provide a list of talking points that will be used for phone or in-person conversations instead of a script.*
- *For the description of a flyer, include the information that it will provide the study phone number and the name of a study contact person (without providing the actual phone number or name). This means that a Modification would not be necessary if/when the study phone number or contact person changes. Also, instead of listing the inclusion/exclusion criteria, the description below might state that the flyer will list one or a few of the major inclusion/exclusion criteria.*
- *For the description of a video or a website, include a description of the possible visual elements and a list of the content (e.g., study phone number; study contact person; top three inclusion/exclusion criteria; payment of $50; study name; UW researcher).*

4.3 Relationship with participant population. Do any members of the study team have an existing relationship with the study population(s)?

Examples: a study team member may have a dual role with the study population (for example, being their clinical care provider, teacher, laboratory directory or tribal leader in addition to recruiting them for his/her research).

X	**No**
	Yes → If yes, describe the nature of the relationship.

4.4 Payment to participants. The IRB must evaluate subject payment for the possibility that it will unduly influence subjects to participate. Refer to GUIDANCE Subject Payment when designing subject payment plans. Provide the following information about your plans for paying research subjects in the text box below or note that the information can be found in the consent form.

- The total amount/value of the payment
- Schedule/timing of the payment [i.e., when will subjects receive the payment(s)]
- Purpose of the payment [e.g., reimbursement, compensation, incentive]
- Whether payment will be "pro-rated" so that participants who are unable to complete the research may still receive some part of the payment

The IRB expects the consent process or study information provided to the subjects to include all of the above-listed information about payment, including the number and amount of payments, and especially when subjects can expect to receive payment.

One of the most frequent complaints received by HSD is from subjects who expected to receive cash or a check on the day that they completed a study and who were angry or disappointed when payment took 6-8 weeks to reach them.

Researchers should review current UW Financial Management requirements about when Social Security Numbers must be collected, and when research payment must be reported to the UW Tax Office and the IRS: https://finance.uw.edu/ps/how-pay/research-subjects.

Aim 2 and 3 participants will receive payment as reimbursement for transport and compensation for their time. All participants will receive KSh 400 (approximately $4) per visit, at the end of the visit. Nurses participating in Aim 2 will each participate in 2 focus groups and will receive a KSh 400 payment at the conclusion of each focus group. Pregnant clients participating in Aim 3 will attend 3 study visits and will receive a KSh 400 payment at the

conclusion of each study visit. Nurses participating in Aim 3 will attend one interview and will receive a KSh 400 payment at the conclusion of the interview.

4.5 Non-monetary compensation. Describe any non-monetary compensation that will be provided. Example: extra credit for students; a toy for a child. If class credit will be offered to students, there must be an alternate way for the students to earn the extra credit without participating in the research.

None

4.6 Will data or specimens be accessed or obtained for recruiting and screening procedures prior to enrollment?

Examples: names and contact information; the information gathered from records that were screened; results of screening questionnaires or screening blood tests; Protected Health Information (PHI) from screening medical records to identify possible subjects.

[ ] **No** → If no, skip the rest of this section; go to question **5.1**.

[X] **Yes** → If yes, describe the data and/or specimens (including PHI) and whether it will be retained as part of the study data.

A screening questionnaire will be used to collect data on eligibility and will include questions about age, pregnancy status, gestational age and phone access.

4.7 Consent for recruiting and screening. Will consent be obtained for any of the recruiting and screening procedures? (Section 8: Consent of Adults asks about consent for the main study procedures).

"Consent" includes: consent from individuals for their own participation; parental permission; assent from children; consent from a legally authorized representative for adult individuals who are unable to provide consent.

Examples:

- *For a study in which names and contact information will be obtained from a registry: the registry should have consent from the registry participants to release their names and contact information to researchers.*
- *For a study in which possible subjects are identified by screening records: there will be no consent process.*
- *For a study in which individuals respond to an announcement and call into a study phone line: the study team person talking to the individual may obtain non-written consent to ask eligibility questions over the phone.*

[ ] **No** → If no, skip the rest of this section; go to question **5.1**.

[X] **Yes** → If yes, describe the consent process.

We will obtain verbal consent for screening.

a. Documentation of consent. Will a written or verifiable electronic signature from the subject on a consent form be used to document consent for the **recruiting and screening procedures**?

[X] **No** → If no, describe the information that will be provided during the consent process and for which procedures.

We will approach women and inform them about the study (see talking points 3).

[ ] **Yes, written** → If yes, and a **written** signature will be used to document consent:

- Upload the consent form to ***Zipline***.

[ ] **Yes, electronic** → If yes, and an **electronic** signature will be used to document consent:

- Upload the consent form to ***Zipline***.
- **If the eSignature process or method for recruiting and screening is different than for the main study procedures**, use the questions about electronic consent in Section 8.3 and 8.4 to differentiate between recruiting/screening and main study electronic consent. **If electronic consent will be used for recruiting/screening but not main study consent**, use 8.3 and 8.4 to describe eConsent and note that it is only for recruiting/screening.

5 PROCEDURES

5.1 **Study procedures**. Using lay language, provide a complete description of the study procedures, including the sequence, intervention or manipulation (if any), drug dosing information (if any), blood volumes and frequency of draws (if any), use of records, time required, and setting/location. If it is available: Upload a study flow sheet or table to ***Zipline***.

For studies comparing standards of care: It is important to accurately identify the research procedures. See UW IRB ***POLICY Risks of Harm from Standard Care*** *and the draft guidance from the federal Office of Human Research Protections,* ***"Guidance on Disclosing Reasonably Foreseeable Risks in Research Evaluating Standards of Care";*** *October 20, 2014.*
Information about pediatric blood volume and frequency of draws that would qualify for expedited review can be found in this **reference table** *on the Seattle Children's IRB website.*

Aim 1 – model validation
Nurses will self-administer an electronic tablet-based questionnaire that will present them with a series of participant messages and ask them to categorize each message's urgency according to a provided definition. The questionnaire will also include open-ended questions to enter comments on each assessment. No identifiable information will be collected.

Aim 2 – interface design
We will conduct two iterative rounds of human-centered designed FGDs with nurses to determine how the AI-NEO interface should designed (see Aim 2 FGD guide). The starting point will be the current Mobile WACh NEO user interface. Following informed consent, participants will complete a questionnaire using tablet-based Kobo Collect forms, regarding age, professional role, time in practice and technology access. In the first set of FGDs, we will explore nurses' ideas for visually representing urgent messages in different parts of the user interface, for example having messages appear in a different color, having incoming messages sorted so that urgent messages appear at the top, and having urgent messages appear in a different part of the interface. After the first FGD, the study team will develop a prototype to illustrate possible displays. The same group of nurses will be invited to participate in the second FGD to evaluate the modified interface. FGDs will be conducted in English, in-person or by video conference, depending on COVID-19 restrictions and participant preferences. FGDs will be recorded and a note-taker will be present to capture general impressions of the discussion. Thereafter, notes will be compared to audio-recordings to fill in missing information and transcribed. Transcribed data will be de-identified and stored on a secure server. Recorded discussions will be destroyed no later than 6 months after conducting the FGD. Participants will be provided refreshments (if in-person) and KSh 400 (approximately $4) to compensate for their time and transportation expenses to each FGD, provided to participants at the conclusion of each FGD.

Aim 3 – AI-NEO pilot

Intervention package: Our intervention is based on the Mobile WACh NEO intervention currently being tested in an RCT in Kenya (KNH ERC protocol P310/04/2019, UW IRB protocol STUDY00006395). Based on results of Aims 1 and 2, the Mobile WACh software will be updated to include NLP-based identification and display of urgent messages. Women will receive automated, theory-based SMS messages targeting the appropriate peripartum period (**Figure 4**) and will have the capability to respond and spontaneously message a nurse based at the clinic. During pregnancy, automated SMS will be delivered weekly. Two weeks prior to the participant's estimated due date (EDD), daily messaging will begin, and will continue for two weeks after delivery is ascertained. If delivery is not confirmed by 43 weeks gestational age, the participant will be automatically moved to the postpartum messaging track. Thereafter, SMS will be delivered every other day for the remaining four weeks. Automated SMS will be delivered at times and in languages based on patient preferences. We have partnered with a local premium rate service provider (PRSP), Africa's Talking, to provide SMS dialogue free of charge to participants. Women who experience pregnancy or infant loss will be enrolled into an infant loss track where they will receive messages of support. All AI-NEO pilot participants will receive the intervention.

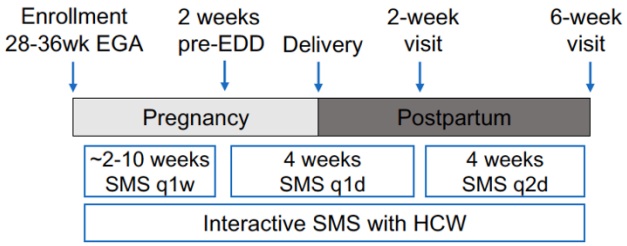


Figure 4. AI- NEO intervention outline

Data collection: Participants will be followed from enrolment (28-36 weeks gestation) up to 18 weeks postpartum. All clinical care will be managed through the existing MCH infrastructure. The study visit schedule will be aligned to routine postpartum and infant visits: enrolment visit in pregnancy (28-36 weeks gestation), 2 weeks postpartum and 6 weeks postpartum. Active tracing will be performed through phone calls and home visits to maximize completeness of data at study visits. Participants who do not report their delivery by 40 weeks will be contacted by phone, followed by home tracing if not reached by phone. Further, participants who are 1 week late for their 2-week or 6-week postpartum visits will be traced by phone. Participants who are 2 weeks late for their 6-week visit and cannot be reached by phone will be traced at their home. Participants who do not wish to come to clinic for their 2-week or 6-week visit will be offered to complete their visits by phone or at home in locations that ensure participant safety and confidentiality. This approach has been successful and acceptable in our previous studies in this population. During the consent process, study staff will collect contact information and permission to contact a family member or trusted individual who they may contact in case of long-term lack of communication from the participant. This person may be contacted as part of active tracing.

A tablet-based screening questionnaire will be used to assess eligibility and collect sociodemographic characteristics. Following enrolment in the pilot, a tablet-based enrolment questionnaire using an open-source tablet-based data collection system (Kobo Collect) will be used to collect enrolment data including: demographics, clinical and sexual history, family planning, experience with SMS and technology, social support, intimate partner violence, and depression.

At each visit, a standardized questionnaire will evaluate self-reported outcomes (**Table 5**), experience with the intervention, and participant clinical characteristics that may be associated with the outcomes, such as delivery experience, maternal and child health status, breastfeeding, care-seeking, cord care, depression and social support. Between study visits, data will be abstracted from patient clinic records to ascertain clinical outcomes such as deliveries, clinic/hospital visits, and infant or maternal deaths. The data will be abstracted from available facility records including MCH cards, facility registers (hospitalization, ANC, CWC, PNC), and EMR systems. The study nurses will review clinic records daily to check for deliveries and clinic visits from study participants. We have successfully employed this approach in a previous RCT, Mobile WACh-X [16,36]. In addition to contributing to ascertainment of trial outcomes, abstraction of clinic records will enable personalization of messaging, for example initiating postpartum messaging after a participant delivers.

Medical extraction forms will be completed by data teams using REDCap electronic data management: delivery information, infant admissions, maternal health, infant health, maternal mortality, and infant mortality.

When the study team learns of an infant death through an SMS message, phone call or clinic record review, the study team will contact the participant to arrange a visit to conduct a verbal autopsy. Verbal autopsies will be performed no earlier than 6 weeks after the infant death, either in the clinic or at the participant's home based on their preference.

Participants will be provided Ksh. 400 per visit to compensate for time and transportation expenses to participate in the study. All participants will be compensated KSh. 400 irrespective of whether the visit is conducted in person or virtually. We will provide this monetary compensation to each participant at the conclusion of each study visit.

Data collection instruments: Data collection instruments will include forms to record data from participant surveys, to include:

- Demographics
- Experience with SMS and technology
- Social support
- Delivery report
- Infant health
- Maternal health
- AI-NEO intervention acceptability

Aim 3 – AI-NEO pilot –nurse exit interviews

IDIs will be performed in a private area within the facility. Participants will meet a trained interviewer who will ask questions related to intervention acceptability and recommendations for change (see Aim 3 nurse interview guide) and take notes. Consent will be obtained from participants to take notes and audio record the discussion. The interviewer will describe procedures and norms for discussion and participation. Participants will be given a chance to ask questions regarding procedures prior to the discussion. Their socio-demographic information will be documented in separate forms. For postpartum client participants, socio-demographic information that will be captured includes: age, marital status, education level, employment, number of children. For nurses, demographic information will include age, level of training and years in profession.

Interviews will be conducted in English, Kiswahili, or Luo depending on participant preferences. Thereafter, notes will be compared to audio-recordings to fill in missing information and transcribed to English (if necessary). Transcribed data will be de-identified. Tape-recorded discussions will be destroyed no later than 6 months after conducting the IDI.

Participants will be provided refreshments and Ksh. 400 to compensate for time and transportation expenses to participate in the study. We will provide this monetary compensation to each participant at the conclusion of each interview.

5.2 Recordings. Does the research involve creating audio or video recordings?

☐ **No** → If no, go to question **5.3**.

☒ **Yes** → If yes, verify that you have described what will be recorded in 5.1 and answer question **a**.

a. Before recording, will consent for being recorded be obtained from subjects and any other individuals who may be recorded?

☐ **No** → If no, email hsdinfo@uw.edu before submitting this application in Zipline. In the email, include a brief description of the research and a note that individuals will be recorded without their advance consent.

☒ **Yes**

5.3 MRI scans. Will any subjects have a Magnetic Resonance Imaging (MRI) scan as part of the study procedures?

This means scans that are performed solely for research purposes or clinical scans that are modified for research purposes (for example, using a gadolinium-based contrast agent when it is not required for clinical reasons).

☒ **No** → If no, go to question **5.4**.

☐ **Yes** → If yes, answer questions **a** through **c**.

a. Describe the MRI scan(s). Specifically:

- What is the purpose of the scan(s)? *Examples: obtain research data; safety assessment associated with a research procedure.*
- Which subjects will receive an MRI scan?
- Describe the minimum and maximum number of scans per subject, and over what time period the scans will occur. *For example: all subjects will undergo two MRI scans, six months apart.*

b. MRI facility. At which facility(ies) will the MRI scans occur? Check all that apply.

☐ UWMC Radiology/Imaging Services (the UWMC clinical facility)
☐ DISC Diagnostic Imaging Sciences Center (UWMC research facility)
☐ CHN Center for Human Neuroscience MRI Center (Arts & Sciences research facility)
☐ BMIC Biomolecular Imaging Center (South Lake Union research facility)
☐ Harborview Radiology/Imaging Services (the Harborview clinical facility)
☐ SCCA Imaging Services
☐ Northwest Diagnostic Imaging
☐ Other: identify in the text box below:

c. Personnel. For MRI scans that will be conducted at the DISC, CHN or BMIC research facilities: Indicate who will be responsible for operating the MRI scanner by checking all that apply.

☐ MRI technician who is formally qualified
☐ Researcher who has completed scanner operator training provided by a qualified MRI operator

5.4 Data variables. Describe the specific data that will be obtained (including a description of the most sensitive items). Alternatively, a list of the data variables may be uploaded to ***Zipline***.

See attached data collection instruments:
- Aim 1 validation questionnaire
- Aim 2 FGD guide
- Aim 3 pregnant client screening questionnaire
- Aim 3 pregnant client enrollment questionnaire

- Aim 3 pregnant client follow-up questionnaire
- Aim 3 pregnant client variables for data abstraction
- Aim 3 pregnant client verbal autopsy questionnaire
- Aim 3 nurse IDI guide

5.5 Data sources. For all types of data that will be accessed or collected for this research: Identify whether the data are being obtained from the subjects (or subjects' specimens) or whether they are being obtained from some other source (and identify the source).

If you have already provided this information in Question 5.1, you do not need to repeat the information here.

The data will be obtained from subjects' self-report and from their clinic based medical record.

5.6 Identifiability of data and specimens. Answer these questions carefully and completely. This will allow HSD to accurately determine the type of review that is required and the relevant compliance requirements. Review the following definitions before answering the questions:

Access *means to view or perceive data, but not to possess or record it. See, in contrast, the definition of "obtain".*
Identifiable *means that the identity of an individual is or may be readily (1) ascertained by the researcher or any other member of the study team from specific data variables or from a combination of data variables, or (2) associated with the information.*
Direct identifiers *are direct links between a subject and data/specimens. Examples include (but are not limited to): name, date of birth, medical record number, email or IP address, pathology or surgery accession number, student number, or a collection of data that is (when taken together) identifiable.*
Indirect identifiers *are information that links between direct identifiers and data/specimens. Examples: a subject code or pseudonym.*
Key *refers to a single place where direct identifiers and indirect identifiers are linked together so that, for example, coded data can be identified as relating to a specific person. Example: a master list that contains the data code and the identifiers linked to the codes.*
Obtain *means to possess or record in any fashion (writing, electronic document, video, email, voice recording, etc.) for research purposes and to retain for any length of time. This is different from* ***accessing****, which means to view or perceive data.*

a. Will you or any members of your team have <u>access</u> to any direct or indirect identifiers?

[X] **Yes** → If yes, describe which identifiers and for which data/specimens.

The PI and study staff will have access to identifiable information, including the participant's full name and phone number. However, this identifiable date will be kept separate from all other data and will be kept in a password protected document on a study laptop that is kept in a locked cabinet when it is not being used.

[ ] **No** → If no, select the reason(s) why you (and all members of your team) will not have access to direct or indirect identifiers.

- [ ] There will be no identifiers.
- [ ] Identifiers or the key have been (or will have been) destroyed before access.
- [ ] There is an agreement with the holder of the identifiers (or key) that prohibits the release of the identifiers (or key) to study team members under any circumstances.

  This agreement should be available upon request from the IRB. Examples: a Data Use Agreement, Repository Gatekeeping form, or documented email.

☐ There are written policies and procedures for the repository/database/data management center that prohibit the release of the identifiers (or identifying link). This includes situations involving an Honest Broker.

☐ There are other legal requirements prohibiting the release of the identifiers or key. Describe them below.

b. Will you or any study team members obtain any direct or indirect identifiers?

☒ **Yes** → If yes, describe which identifiers and for which data/specimens.

We will obtain identifiable information, including the participant's full name and phone number. However, this identifiable date will be kept separate from all other data and will be kept in a password protected document on a study laptop that is kept in a locked cabinet when it is not being used.

☐ **No** → If no, select the reason(s) why you (and all members of your team) will not obtain direct or indirect identifiers.

☐ There will be no identifiers.

☐ Identifiers or the key have been (or will have been) destroyed before access.

☐ There will be an agreement with the holder of the identifiers (or key) that prohibits the release of the identifiers (or key) under any circumstances.

This agreement should be available upon request from the IRB. Examples: a Data Use Agreement, Repository Gatekeeping form, or documented email.

☐ There are written policies and procedures for the repository/database/data management center that prohibit the release of the identifiers (or identifying link). This includes situations involving an Honest Broker.

☐ There are other legal requirements prohibiting the release of the identifiers or key. Describe them below.

c. If any identifiers will be obtained, indicate how the identifiers will be stored (and for which data). NOTE: Do not describe the data security plan here – that information is requested in section 9.6.

☐ Identifiers will be stored with the data. Describe the data to which this applies:

☒ Identifiers and study data will be stored separately but a link will be maintained between the identifiers and the study data (for example, through the use of a code). Describe the data to which this applies:

We will store identifiers separately from study data but maintain a link with a code. This will include all identifiable data – names, DOB and phone numbers.

☐ Identifiers and study data will be stored separately, with no link between the identifiers and the study data. Describe the data to which this applies:

d. Research collaboration. Will individuals who provide coded information or specimens for the research also collaborate on other activities for this research? If yes, identify the activities and provide the name of the collaborator's institution/organization.

Examples include but are not limited to: (1) study, interpretation, or analysis of the data that results from the coded information or specimens; and (2) authorship on presentations or manuscripts related to this work.

NA

5.7 Protected Health Information (PHI). Will participants' identifiable PHI be accessed, obtained, used, or disclosed for any reason (for example, to identify or screen potential subjects, to obtain study data or specimens, for study follow-up) that does not involve the creation or obtaining of a Limited Data Set?

PHI is individually identifiable healthcare record information or clinical specimens from an organization considered a "covered entity" by federal HIPAA regulations, in any form or media, whether electronic, paper, or oral. ***You must answer yes to this question if the research involves identifiable health care records (e.g., medical, dental, pharmacy, nursing, billing, etc.), identifiable healthcare information from a clinical department repository, or observations or recordings of clinical interactions.***

For information about what constitutes the UW Covered Entity, see UW Medicine Compliance Patient Information Privacy Policy 101 and diagram of the healthcare components.

☒ **No** → If no, skip the rest of this question; go to question **5.8**.

☐ **Yes** → If yes, answer all of the questions below.

a. Describe the PHI and the reason for using it. *Be specific. For example, will any "free text" fields (such as physician notes) be accessed, obtained, or used?*

b. Is any of the PHI located in Washington State?

☐ **No**
☐ **Yes**

c. Describe the pathway of how the PHI will be accessed or obtained, starting with the source/location and then describing the system/path/mechanism by which it will be identified, accessed, and copied for the research. *Be specific. For example: directly view records; search through a department's clinical database; submit a request to Leaf.*

d. For which PHI will subjects provide HIPAA authorization before the PHI is accessed, obtained and/or used?

Confirm by checking the box that the UW Medicine HIPAA Authorization form maintained on the HSD website will be used to access, obtain, use, or disclose any UW Medicine PHI.

☐ **Confirmed**

e. Will you obtain any HIPAA authorizations electronically (i.e., e-signature)?

☐ **No**
☐ **Yes**

If 'Yes', confirm by checking the box that you have read and understand the 'Special Considerations' section of the **GUIDANCE Electronic Informed Consent** for information regarding the use of electronic signatures and HIPAA authorizations.

☐ **Confirmed**

f. For which PHI will HIPAA authorization NOT be obtained from the subjects?

Provide the following assurances by checking the boxes.

☐ The minimum necessary amount of PHI to accomplish the purposes described in this application will be accessed, obtained and/or used.

☐ The PHI 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 research for which the use or disclosure of PHI would be permitted.

☐ The HIPAA "accounting for disclosures" requirement will be fulfilled, if applicable. See UW Medicine Compliance Policy #104.

☐ There will be reasonable safeguards to protect against identifying, directly or indirectly, any patient in any report of the research.

5.8 Genomic data sharing. Will the research obtain or generate genomic data?

☒ **No**
☐ **Yes** → If yes, answer the question below.

a. Will genomic data from this research be sent to a national database (for example, NIH's dbGaP database)?

☐ **No**
☐ **Yes** → If yes, complete the **SUPPLEMENT Genomic Data Sharing** and upload it to ***Zipline***.

5.9 Whole genome sequencing. For research involving biospecimens: Will the research include whole genome sequencing?

Whole genome sequencing is sequencing of a human germline or somatic specimen with the intent to generate the genome or exome sequence of that specimen.

☒ **No**
☐ **Yes**

5.10 Possible secondary use or sharing of information, specimens, or subject contact information. Is it likely that the obtained or collected information, specimens, or subject contact information will be used for any of the following:

- Future research not described in this application (in other words, secondary research)
- Submission to a repository, registry, or database managed by the study team, colleagues, or others for research purposes
- Sharing with others for their own research

Please consider the broadest possible future plans and whether consent will be obtained now from the subjects for future sharing or research uses (which it may not be possible to describe in detail at this time). Answer **YES** even if future sharing or uses will use de-identified information or specimens. Answer **NO** if sharing is unlikely or if the only sharing will be through the NIH Genomic Data Sharing described in question 5.8.

Many federal grants and contracts now require data or specimen sharing as a condition of funding, and many journals require data sharing as a condition of publication. "Sharing" may include (for example): informal arrangements to share banked data/specimens with other investigators; establishing a repository that will formally share with other researchers through written agreements; or sending data/specimens to a third party repository/archive/entity such as the Social Science Open Access Repository (SSOAR), or the UCLA Ethnomusicology Archive.

	No
X	**Yes**

→ If yes, answer all of the questions below.

a. Describe <u>what will be stored for future use,</u> including whether any direct or indirect (e.g., subject codes) identifiers will be stored.

All qualitative and quantitative data collected through this study will be stored for future use. Indirect identifiers (subject codes) will be retained. The link between direct and indirect identifiers will not be stored for future research.

b. Describe <u>what will be shared with other researchers or with a repository/database/registry</u>, including whether direct identifiers will be shared and (for specimens) what data will be released with the specimens.

No direct identifiers will be shared with other researchers.

c. Who will oversee and/or manage the sharing?

The study PI, Keshet Ronen

d. Describe <u>the possible future uses</u>, including limitations or restrictions (if any) on future uses or users. As stated above, consider the broadest possible uses.

Examples: data will be used only for cardiovascular research; data will not be used for research on population origins.

Data may be used to answer additional questions related to health and related mHealth interventions. These could be related to maternal and infant health or other conditions. SMS communications may be used to further develop natural language processing algorithms to analyze communication patterns.

e. Consent. Will consent be obtained now from subjects for the secondary use, banking and/or future sharing?

[ ] **No**

[X] **Yes** → If yes, be sure to include the information about this consent process in the consent form (if there is one) and in the answers to the consent questions in Section 8.

f. Withdrawal. Will subjects be able to withdraw their data/specimens from secondary use, banking or sharing?

[ ] **No**

[X] **Yes** → If yes, describe how, and whether there are any limitations on withdrawal.

Example: data can be withdrawn from the repository but cannot be retrieved after they are released.

Participants may contact the study at any time to withdraw their permission to share their data. However, once shared, data cannot be retrieved.

g. Agreements for sharing or release. Confirm by checking the box that the sharing or release will comply with UW (and, if applicable, UW Medicine) policies that require a formal agreement with the recipient for release of data or specimens to individuals or entities other than federal databases.

Data Use Agreements or Gatekeeping forms are used for data; Material Transfer Agreements are used for specimens (or specimens plus data). Do not attach any template agreement forms; the IRB neither reviews nor approves them

[X] **Confirmed**

5.11 Communication with subjects during the study. Describe the types of communication (if any) the research team will have with already-enrolled subjects during the study. Provide a description instead of the actual materials themselves.

Examples: email, texts, phone, or letter reminders about appointments or about returning study materials such as a questionnaire; requests to confirm contact information.

Aim 1, 2 and 3 nurse interviews are cross-sectional, so no ongoing communication will take place with subjects after enrollment.

Aim 3 pregnant client cohort is longitudinal. Intervention participants will receive text messages throughout the study as described above in section 5.1. Check-in calls will be made by nurses to participants who do not attend their final follow up visit. Participants' secondary contacts will receive phone calls if participants cannot be reached. Further, home-based tracing will occur if there has not been other contact with the participant.

5.12 Future contact with subjects. Is there a plan to retain any contact information for subjects so that they can be contacted in the future?

☐ **No**
☒ **Yes** → If yes, describe the purpose of the future contact, and whether use of the contact information will be limited to the study team; if not, describe who else could be provided with the contact information. Describe the criteria for approving requests for the information.

Examples: inform subjects about other studies; ask subjects for additional information or medical record access that is not currently part of the study proposed in this application; obtain another sample.

We would contact participants to request additional information for this study. We would also contact them to see if they would be interested in participating in any additional studies. All contact information will be limited to the current study team.

5.13 Alternatives to participation. Are there any alternative procedures or treatments that might be advantageous to the subjects?

If there are no alternative procedures or treatments, select "No". Examples of advantageous alternatives: earning extra class credit in some time-equivalent way other than research participation; obtaining supportive care or a standard clinical treatment from a health care provider instead of participating in research with an experimental drug.

☒ **No**
☐ **Yes** → If yes, describe the alternatives.

5.14 Upload to *Zipline* all data collection forms (if any) that will be directly used by or with the subjects, and any scripts/talking points that will be used to collect the data. Do not include data collection forms that will be used to abstract data from other sources (such as medical or academic records), or video recordings.

- ***Examples**: survey, questionnaires, subject logs or diaries, focus group questions.*
- ***NOTE:** Sometimes the IRB can approve the general content of surveys and other data collection instruments rather than the specific form itself. This prevents the need to submit a modification request for future minor changes that do not add new topics or increase the sensitivity of the questions. To request this general approval, use the text box below to identify the questionnaires/surveys/ etc. for which you are seeking this more general approval. Then briefly describe the scope of the topics that will be covered and the most personal and sensitive questions. The HSD staff person who screens this application will let you know whether this is sufficient or whether you will need to provide more information.*
- ***For materials that cannot be uploaded**: upload screenshots or written descriptions that are sufficient to enable the IRB to understand the types of data that will be collected and the nature of the experience for the participant. You may also provide URLs (website addresses) or written descriptions below. Examples of materials that usually cannot be uploaded: mobile apps; computer-administered test; licensed and restricted standardized tests.*
- ***For data that will be gathered in an evolving way**: This refers to data collection/questions that are not pre-determined but rather are shaped during interactions with participants in response to observations and responses made during those interactions. If this applies to the proposed research, provide a description of the process by which the data collection/questions will be established during the interactions with subjects, how the data collection/questions will be documented, the topics likely to be addressed, the most sensitive type of information likely to be gathered, and the limitations (if any) on topics that will be raised or pursued.*

Use this text box (if desired) to provide:

- Short written descriptions of materials that cannot be uploaded, such as URLs
- A description of the process that will be used for data that will be gathered in an evolving way.
- The general content of questionnaires, surveys and similar instruments for which general approval is being sought. (See the **NOTE** bullet point in the instructions above.)

Data collection forms and example SMS messages are attached to this application. We are seeking general approval for the content of these attachments and request that we are able to make minor word changes including removing and adding content that does not add to the sensitivity of the information (without approval).

5.15 SARS-CoV-2 testing. Will the subjects be tested for the SARS-CoV-2 coronavirus?

If the only testing is to screen the subjects (question 2.8), you do not need to answer this question

[X] **No**
[ ] **Yes** → If yes:

- Name the testing lab
- Confirm that the lab and its use of this test is CLIA-certified or certified by the Washington State Department of Health
- Describe whether you will return the results to the participants and, if yes, who will do it and how (including any information you would provide to subjects with positive test results).

6 CHILDREN (MINORS) and PARENTAL PERMISSION

6.1 Involvement of minors. Does the research include minors (children)?

Minor or child means someone who has not yet attained the legal age for consent for the research procedures, as described in the applicable laws of the jurisdiction in which the research will be conducted. This may or may not be the same as the definition used by funding agencies such as the National Institutes of Health.

- In Washington State the generic age of consent is 18, meaning that anyone under the age of 18 is considered a child.
- There are some procedures for which the age of consent is much lower in Washington State.
- The generic age of consent may be different in other states, and in other countries.

[ ] **No** → If no, go to Section 8.
[X] **Yes** → If yes, provide the age range of the minor subjects for this study and the legal age for consent in the study population(s). If there is more than one answer, explain.

Age 14-17. Legal age of consent in Kenya is 18, but pregnant minors are legally considered adults in Kenya (essential emancipation). Therefore these women aged 14-17 do not require parental consent.
We also include in this study the infant children of participants who will be newborns to approximately 6 weeks of age. We will therefore be including all live born infants from participants.

[ ] **Don't know** →This means is it not possible to know the age of the subjects. For example, this may be true for some research involving social media, the Internet, or a dataset that is obtained from another researcher or from a government agency. Go to Section 8.

6.2 Parental permission. Parental permission means actively obtaining the permission of the parents. This is not the same as "passive" or "opt out" permission where it is assumed that parents are allowing their children to participate because they have been provided with information about the research and have not objected or returned a form indicating they don't want their children to participate.

a. Will parental permission be obtained for:

☐ All of the research procedures → Go to question **6.2b.**

☐ None of the research procedures → Use the table below to provide justification, and skip question 6.2b.

☒ Some of the research procedures → Use the table below to identify the procedures for which parental permission will not be obtained.

Be sure to consider all research procedures and plans, including screening, future contact, and sharing/banking of data and specimens for future work.

Children Group[1]	Describe the procedures or data/specimen collection (if any) for which there will be NO parental permission[2]	Reason why parental permission will not be obtained	Will parents be informed about the research?[3]	
			YES	NO
Aim 3 pregnant participants age 14-17	Aim 3 intervention and collection of outcomes data and medical record data	Participants are emancipated minors and can consent independently according to Kenyan regulations	☐	☒
			☐	☐
			☐	☐
			☐	☐
			☐	☐
			☐	☐

Table footnotes

1. *If the answer is the same for all children groups or all procedures: collapse the answer across the groups and/or procedures.*
2. *If identifiable information or biospecimens will be obtained without parent permission, any waiver granted by the IRB does not override parents' refusal to provide broad consent (for example, through the Northwest Biotrust).*
3. *Will parents be informed about the research beforehand even though active permission is not being obtained?*

b. Indicate the plan for obtaining parental permission. One or both boxes must be checked.

☐ Both parents, unless one parent is deceased, unknown, incompetent, or not reasonably available; or when only one parent has legal responsibility for the care and custody of the child

☒ One parent, even if the other parent is alive, known, competent, reasonably available, and shares legal responsibility for the care and custody of the child.

This is all that is required for minimal risk research.

If both boxes are checked, explain:

6.3 Children who are wards. Will any of the children be wards of the State or any other agency, institution, or entity?

[X] **No**
[ ] **Yes** → If yes, an advocate may need to be appointed for each child who is a ward. The advocate must be in addition to any other individual acting on behalf of the child as guardian or in loco parentis. The same individual can serve as advocate for all children who are wards.

Describe who will be the advocate(s). The description must address the following points:

- Background and experience
- Willingness to act in the best interests of the child for the duration of the research
- Independence of the research, research team, and any guardian organization

6.4 UW Office for Youth Programs Development and Support. If the project involves interaction (in-person or remotely) with individuals under the age of 18, researchers must comply with **UW Administrative Policy Statement 10.13** and the requirements listed at this website. This includes activities that are deemed to be Not Research or Exempt. It does not apply to third-party led research (i.e., research conducted by a non-UW PI). Information and FAQs for researchers are available.

This point is advisory only; there is no need to provide a response.

7 ASSENT OF CHILDREN (MINORS)

Go to Section 8 if your research does not involve children (minors).

7.1 Assent of children (minors). Though children do not have the legal capacity to "consent" to participate in research, they should be involved in the process if they are able to "assent" by having a study explained to them and/or by reading a simple form about the study, and then giving their verbal choice about whether they want to participate. They may also provide a written assent if they are older. See **WORKSHEET Children** for circumstances in which a child's assent may be unnecessary or inappropriate.

a. Will assent be obtained for:

[ ] All research procedures and child groups	→ Go to question **7.2.**
[X] None of the research procedures and child groups	→ Use the table below to provide justification, then skip to question **7.6**
[ ] Some of your research procedures and child groups	→ Use the table below to identify the procedures for which assent will not be obtained.

Be sure to consider all research procedures and plans, including screening, future contact, and sharing/banking of data and specimens for future work.

Children Group[1]	Describe the procedures or data/specimen collection (if any) for which assent will NOT be obtained	Reason why assent will not be obtained
Infant subject of enrolled participants	Aim 3 collection of outcomes data and medical record data	Infants are too young to assent
Aim 3 pregnant participants age 14-17	Aim 3 intervention and collection of outcomes data and medical record data	Pregnant women aged 14-17 are considered adults who can legally consent

Table footnotes

1. *If the answer is the same for all children groups or all procedures, collapse your answer across the groups and/or procedures.*

7.2 Assent process. Describe how assent will be obtained, for each child group. If the research involves children of different ages, answer separately for each group. If the children are non-English speakers, include a description of how their comprehension of the information will be evaluated.

7.3 Dissent or resistance. Describe how a child's objection or resistance to participation (including non-verbal indications) will be identified during the research, and what the response will be.

7.4 E-consent. Will any electronic processes (email, websites, electronic signatures, etc.) be used to present assent information to subjects/and or to obtain documentation (signatures) of assent? If yes, describe how this will be done.

7.5 Documentation of assent. Which of the following statements describes whether documentation of assent will be obtained?

☐ None of the research procedures and child groups	→ Use the table below to provide justification, then go to question **7.5.b**
☐ All of the research procedures and child groups	→ Go to question **7.5.a**, do not complete the table
☐ Some of the research procedures and/or child groups	→ Complete the table below and then to go question **7.5.a**

Children Group[1]	Describe the procedures or data/specimen collection (if any) for which assent will NOT be documented

Table footnotes

1. *If the answer is the same for all children groups or all procedures, collapse the answer across the groups and/or procedures.*

a. Describe how assent will be documented. If the children are functionally illiterate or are not fluent in English, include a description of the documentation process for them.

b. Upload all assent materials (talking points, videos, forms, etc.) to ***Zipline***. Assent materials are not required to provide all of the standard elements of adult consent; the information should be appropriate to the age, population, and research procedures. The documents should be in Word, if possible.

7.6 Children who reach the legal age of consent during participation in longitudinal research.

Children who were enrolled at a young age and continue for many years: It is best practice to re-obtain assent (or to obtain it for the first time, if it was not obtained at the beginning of their participation).
Children who reach the legal age of consent: Informed consent must be obtained from the now-adult subject for (1) any ongoing interactions or interventions with the subjects, or (2) the continued analysis of specimens or data for which the subject's identify is readily identifiable to the researcher, unless the IRB waives this requirement.

a. Describe the plans (if any) to re-obtain assent from children.

As adolescent women are considered emancipated, they will not require another assent. Neonates will not reach the age of consent over the course of the study.

b. Describe the plans (if any) to obtain consent for children who reach the legal age of consent.

- If adult consent will be obtained from them, describe what will happen regarding now-adult subjects who cannot be contacted.
- If consent will not obtained or will not be possible: explain why.

As adolescent women are considered emancipated, they will not require another consent. Neonates will not reach the age of consent over the course of the study.

7.7 Other regulatory requirements. (This is for information only; no answer or response is required.) Researchers are responsible for determining whether their research conducted in schools, with student records, or over the Internet comply with permission, consent, and inspection requirements of the following federal regulations:

- PPRA – Protection of Pupil Rights Amendment
- FERPA – Family Education Rights and Privacy Act
- COPPA – Children's Online Privacy Protection Act

8 CONSENT OF ADULTS

Review the following definitions before answering the questions in this section.

CONSENT	is the process of informing potential subjects about the research and asking them whether they want to participate. It does not necessarily include the signing of a consent form.
CONSENT DOCUMENTATION	refers to how a subject's decision to participate in the research is documented. This is typically obtained by having the subject sign a consent form.
CONSENT FORM	is a document signed by subjects, by which they agree to participate in the research as described in the consent form and in the consent process.
ELEMENTS OF CONSENT	are specific information that is required to be provided to subjects.

CHARACTERISTICS OF CONSENT	are the qualities of the consent process as a whole. These are:
	• Consent must be legally effective.
	• The process minimizes the possibility of coercion or undue influence.
	• Subjects or their representatives must be given sufficient opportunity to discuss and consider participation.
	• The information provided must:
	  ○ Begin with presentation of key information (for consent materials over 2,000 words)
	  ○ Be what a reasonable person would want to have
	  ○ Be organized and presented so as to facilitate understanding
	  ○ Be provided in sufficient detail
	  ○ Not ask or appear to ask subjects to waive their rights

PARENTAL PERMISSION	is the parent's active permission for the child to participate in the research. Parental permission is subject to the same requirements as consent, including written documentation of permission and required elements.
SHORT FORM CONSENT	is an alternative way of obtaining written documentation of consent that is most commonly used with individuals who are illiterate or whose language is one for which translated consent forms are not available.
WAIVER OF CONSENT	means there is IRB approval for not obtaining consent or for not including some of the elements of consent in the consent process. **NOTE**: If you plan to obtain identifiable information or identifiable biospecimens without consent, any waiver granted by the IRB does not override a subject's refusal to provide broad consent (for example, the Northwest Biotrust).
WAIVER OF DOCUMENTATION OF CONSENT	means that there is IRB approval for not obtaining written documentation of consent.

8.1 Groups Identify the groups to which the answers in this section apply.

[X] Adult subjects

[ ] Parents who are providing permission for their children to participate in research

→ *If you selected **PARENTS**, the word "consent" below should also be interpreted as applying to parental permission and "subjects" should also be interpreted as applying to the parents.*

8.2 The consent process and characteristics. This series of questions is about whether consent will be obtained for all procedures except recruiting and screening and, if yes, how.

The issue of consent for recruiting and screening activities is addressed in question 4.7. You do not need to repeat your answer to question 4.6.

a. Are there any procedures for which consent will not be obtained?

[X] **No**
[ ] **Yes** → If yes, use the table below to identify the procedures for which consent will not be obtained. "All" is an acceptable answer for some studies.

Be sure to consider all research procedures and plans, including future contact, and sharing/banking of data and specimens for future work.

Group[1]	Describe the procedures or data/specimen collection (if any) for which there will be NO consent process	Reason why consent will not be obtained	Will subjects be provided with info about the research after they finish? YES	NO
			☐	☐
			☐	☐
			☐	☐
			☐	☐
			☐	☐

Table footnotes

1. *If the answer is the same for all groups, collapse your answer across the groups and/or procedures.*

b. Describe the consent process, if consent will be obtained for any or all procedures, for any or all groups. Address groups and procedures separately if the consent processes are different.

Be sure to include:

- *The location/setting where consent will be obtained*
- *Who will obtain consent (refer to positions, roles, or titles, not names)*
- *How subjects will be provided sufficient opportunity to discuss the study with the research team and consider participation*

Aim 1 – model validation
Nurses who are interested in participating will provide written informed consent (see Consent 1 Aim 1). Consent will be obtained by the study coordinator in a private place at the study facility.

Aim 2 – interface design

Interested nurses will be asked to provide written informed consent prior to scheduling the focus group discussion (see Consent 2 Aim 2). Consent will be obtained by the study coordinator or focus group facilitator, in a private place at the study facility.

Aim 3 – AI-NEO pilot cohort
Interested patients will be asked to provide verbal consent for screening (see Talking Points 3 Aim 3). Women interested in participating in the study will provide written informed consent to receive messages and complete quantitative and qualitative data collection (see Consent 3 Aim 3).

Aim 3 – AI-NEO pilot - nurse exit interview
Interested nurses will provide written informed consent to participate in an interview (see Consent 4 Aim 3).

For all written consent processes, after a verbal explanation of the study, subjects will be given the consent document to read. Subjects will be given the opportunity to ask questions at any point during the consent process, and study staff will ask subjects before signing if they have any further questions. Subjects will be provided adequate opportunity to consider not participating by ensuring they understand the study procedures and type of information they will share. They will be informed that participation is completely voluntary and that they do not have to be part of the study if they do not want. They will be informed that they are free to decline participation without losing their regular medical care. They will also be assured that if they decide not to participate in the study, they can still join other research studies later.

c. Comprehension**.** Describe the methods that will be used to ensure or test the subjects' understanding of the information during the consent process.

Consent and study details will be presented in a language that the subject understands. After providing study information and answering participant questions, the participants will be asked simple questions to ascertain their understanding of the study.

d. Influence**.** Does the research involve any subject groups that might find it difficult to say "no" to participation because of the setting or their relationship with someone on the study team, even if they aren't pressured to participate?

Examples: Student participants being recruited into their teacher's research; patients being recruited into their healthcare provider's research, study team members who are participants; outpatients recruited from an outpatient surgery waiting room just prior to their surgery.

☐ **No**
☒ **Yes** → If yes, describe what will be done to reduce any effect of the setting or relationship on the participation decision.

Examples: a study coordinator will obtain consent instead of the subjects' physician; the researcher will not know which subjects agreed to participate; subjects will have two days to decide after hearing about the study.

Study nurses may find it difficult to refuse participation due to concerns about professional consequences. We will reiterate that participation is completely voluntary and the PI will not receive information about which subjects agreed to participate.

e. Information provided is tailored to needs of subject population. Describe the basis for concluding that the information that will be provided to subjects (via written or oral methods) is what a *reasonable member of the subject population(s)* would want to know. If the research consent materials contain a key information section, also describe the basis for concluding that the information presented in that section is that which is *most likely* to assist the selected subject population with making a decision. See **GUIDANCE Key Information for Consent Materials**.

For example: Consultation with publications about research subjects' preferences, disease-focused nonprofit groups, patient interest groups, or other researchers/study staff with experience with the specific population. It may also involve directly consulting selected members of the study population.

Our collective study team has been conducting large studies in Kenya for the last 20 years. The consent form has been developed in collaboration with the population in the communities where we work. These consents are designed to be appropriate for subjects with lower literacy and study nurses highlight the key points and assess the participant's comprehension.

f. Ongoing process. For research that involves multiple or continued interaction with subjects over time, describe the opportunities (if any) that will be given to subjects to ask questions or to change their minds about participating.

Subjects will be informed upon consent/assent that they will be able to decide to discontinue participation in the study at any time during the study if they choose, by notifying a study staff member. Intervention participants will be informed that they can withdraw from receiving SMS messages at any time.

8.3 Electronic presentation of consent information. Will any part of the consent-related information be provided electronically for some or all of the subjects?

This refers to the use of electronic systems and processes instead of (or in addition to) a paper consent form. For example, an emailed consent form, a passive or an interactive website, graphics, audio, video podcasts. See GUIDANCE Electronic Informed Consent for information about electronic consent requirements at UW.

[X] **No** → If no, skip to question 8.4

[ ] **Yes** → If yes, answer questions **a** through **e**

a. Describe the electronic consent methodology and the information that will be provided.

All informational materials must be made available to the IRB. Website content should be provided as a Word document. It is considered best practice to give subjects information about multi-page/multi-screen information that will help them assess how long it will take them to complete the process. For example, telling them that it will take about 15 minutes, or that it involves reading six screens or pages.

b. Describe how the information can be navigated (if relevant). *For example, will the subject be able to proceed forward or backward within the system, or to stop and continue at a later time?*

c. In a standard paper-based consent process, the subjects generally have the opportunity to go through the consent form with study staff and/or to ask study staff about any question they may have after reading the consent form. Describe what will be done, if anything, to facilitate the subject's comprehension and opportunity to ask questions when consent information is presented electronically. Include a description of any provisions to help ensure privacy and confidentiality during this process.

Examples: hyperlinks, help text, telephone calls, text messages or other type of electronic messaging, video conference, live chat with remotely located study team members.

d. What will happen if there are individuals who wish to participate but who do not have access to the consent methodology being used, or who do not wish to use it? Are there alternative ways in which they can obtain the information, or will there be some assistance available? If this is a clinical trial, these individuals cannot be excluded from the research unless there is a compelling rationale.

For example, consider individuals who lack familiarity with electronic systems, have poor eyesight or impaired motor skills, or who do not have easy email or internet access.

e. How will the research team ensure continued accessibility of consent materials and information during the study?

f. How will additional information be provided to subjects during the research, including any significant new findings (such as new risk information) If this is not an issue, explain why.

8.4 Written documentation of consent. Which of the statements below describe whether documentation of consent will be obtained? NOTE: This question does not apply to screening and recruiting procedures which have already been addressed in question 4.7.

Documentation of consent that is obtained electronically is not considered written consent unless it is obtained by a method that allows verification of the individual's signature. In other words, saying "yes" by email is rarely considered to be written documentation of consent

a. Is written documentation of consent being obtained for:

☐ None of the research procedures	→ Use the table below to provide justification then go to question **8.5.**
☐ All of the research procedures	→ Do not complete the table; go to question **8.4.b.**
☒ Some of the research procedures	→ Use the table below to identify the procedures for which written documentation of consent will not be obtained from adult subjects.

Adult subject group[1]	Describe the procedures or data/specimen collection (if any) for which there will be NO documentation of consent	Will they be provided with a written statement describing the research (optional)? YES	NO
Aim 3 pregnant clients	Eligibility screening	☐	☒
		☐	☐
		☐	☐
		☐	☐
		☐	☐

Table footnotes

1. *If the answer is the same for all adult groups or all procedures, collapse the answer across the groups and/or procedures.*

b. Electronic consent signature. For studies in which documentation of consent will be obtained: will subjects use an electronic method to provide their consent signature?

- *See the GUIDANCE Electronic Informed Consent for information about options (including REDCap e-signature and the DocuSign system) and any associated requirements.*
- *FDA-regulated studies must use a system that complies with the FDA's "Part 11" requirements about electronic systems and records. Note that the UW-IT supported DocuSign e-signature system does not meet this requirement.*
- *Having subjects check a box at the beginning of an emailed or web-based questionnaire is not considered legally effective documentation of consent.*

☒ **No**

☐ **Yes** → If yes, indicate which methodology will be used.

☐ **UW ITHS REDCap** (excludes REDCap Mobile application, which is a separate software application for use with a mobile device for consent when internet service is absent or unreliable)

☐ **Other REDCap installation** → Please name the institutional version you will be using (e.g. Vanderbilt, Univ. of Cincinnati) in the field below and provide a completed **SUPPLEMENT Other REDCap Installation** with your submission.

☐ **UW DocuSign**

☐ **Other** → Please describe in the field below and provide a signed **TEMPLATE Other E-signature Attestation Letter** with your submission.

b.1 Is this method legally valid in the jurisdiction where the research will occur?
NOTE: UW ITHS REDCap (excludes REDCap Mobile application) and UW DocuSign have been vetted for compliance with WA State and federal laws regarding electronic signatures.

☐ **No**

☐ **Yes** → If yes, what is the source of information about legal validity?

b.2 Will verification of the subject's identity be obtained if the signature is not personally witnessed by a member of the study team? Note that this is required for FDA-regulated studies.

See the GUIDANCE Electronic Informed Consent for information and examples

☐ **No** →If no, provide the rationale for why this is not required or necessary to protect subjects or the integrity of the research. Also, what would be the risks to the actual subject if somebody other than the intended signer provides the consent signature?

☐ **Yes** →If yes, describe how subject identity will be verified, providing a non- technical description that the reviewer will understand.

b.3 How will the requirement be met to provide a copy of the consent information (consent form) to individuals who provide an e-signature?

The copy can be paper or electronic and may be provided on an electronic storage device or via email. If the electronic consent information uses hyperlinks or other websites or podcasts to convey information specifically related to the research, the information in these hyperlinks should be included in the copy provided to the subjects and the website must be maintained for the duration of the entire study.

8.5 Non-English-speaking or -reading adult subjects. Will the research enroll adult subjects who do not speak English or who lack fluency or literacy in English?

☐ **No**

☒ **Yes** → If yes, describe the process that will be used to ensure that the oral and written information provided to them during the consent process and throughout the study will be in a language readily understandable to them and (for written materials such as consent forms or questionnaires) at an appropriate reading/comprehension level.

We will work with translators who are fluent in English, Swahili, and Luo to translate consent forms and messages throughout the study. Once consents and messages are translated in Swahili and Luo, they will be back-translated to English by another translator to ensure the meaning is preserved.

a. Interpretation. Describe how interpretation will be provided, and when. Also, describe the qualifications of the interpreter(s) – for example, background, experience, language proficiency in English and in the other language, certification, other credentials, familiarity with the research-related vocabulary in English and the target language.

We will not provide interpretation because we will translate all written communication into the preferred language of participants, which will also be spoken by study staff.

b. Translations. Describe how translations will be obtained for all study materials (not just consent forms). Also, describe the method for ensuring that the translations meet the UW IRB's requirement that translated documents will be linguistically accurate, at an appropriate reading level for the participant population, and culturally sensitive for the locale in which they will be used.

We will work with translators who are fluent in English, Swahili, and Luo to translate consent forms and messages throughout the study. Once consents and messages are translated in Swahili and Luo, they will be back-translated to English by another translator to ensure the meaning is preserved.

8.6 Barriers to written documentation of consent. There are many possible barriers to obtaining written documentation of consent. Consider, for example, individuals who are functionally illiterate; do not read English well; or have sensory or motor impairments that may impede the ability to read and sign a consent form.

a. Describe the plans (if any) for obtaining written documentation of consent from potential subjects who may have difficulty with the standard documentation process (that is, reading and signing a consent form). Skip this question if written documentation of consent is not being obtained for any part of the research.

Examples of solutions: Translated consent forms; use of the Short Form consent process; reading the form to the person before they sign it; excluding individuals who cannot read and understand the consent form.

Study staff will read the form to potential subjects who are illiterate. If the potential participant cannot read the form herself, a witness (not a staff member who obtained the consent) must be present during the entire consent process and must sign the consent form.

8.7 Deception. Will information be deliberately withheld, or will false information be provided, to any of the subjects?

Note: "Blinding" subjects to their study group/condition/arm is not considered to be deception, but not telling them ahead of time that they will be subject to an intervention or about the purpose of the procedure(s) is deception.

☒ **No**

☐ **Yes** → If yes, describe what information and why.

Example: It may be necessary to deceive subjects about the purpose of the study (describe why).

a. Will subjects be informed beforehand that they will be unaware of or misled regarding the nature or purposes of the research? (Note: this is not necessarily required.)

☐ **No**
☐ **Yes**

b. Will subjects be debriefed later? (Note: this is not necessarily required.)

☐ **No**
☐ **Yes** → If yes, describe how and when this will occur. Upload any debriefing materials, including talking points or a script, to ***Zipline***.

8.8 Cognitively impaired adults, and other adults unable to consent. Will such individuals be included in the research?

Examples: individuals with Traumatic Brain Injury (TBI) or dementia; individuals who are unconscious, or who are significantly intoxicated.

☒ **No** → If no, go to question **8.9**.
☐ **Yes** → If yes, answer the following questions.

a. Rationale. Provide the rationale for including this population.

b. Capacity for consent / decision making capacity. Describe the process that will be used to determine whether a cognitively impaired individual is capable of consent decision making with respect to the research protocol and setting.

b.1. If there will be repeated interactions with the impaired subjects over a time period when cognitive capacity could increase or diminish, also describe how (if at all) decision-making capacity will be re-assessed and (if appropriate) consent obtained during that time.

c. Permission (surrogate consent). If the research will include adults who cannot consent for themselves, describe the process for obtaining permission ("surrogate consent") from a legally authorized representative (LAR).

*For research conducted in Washington State, see the **GUIDANCE Legally Authorized Representative** to learn which individuals meet the state definition of "legally authorized representative".*

d. Assent. Describe 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 (and why not). Describe any process that will be used to obtain and document assent from the subjects.

e. Dissent or resistance. Describe how a subject's objection or resistance to participation (including non-verbal) during the research will be identified, and what will occur in response.

8.9 Research use of human fetal tissue obtained from elective abortion. Federal and UW Policy specify some requirements for the consent process. If you are conducting this type of research, check the boxes to confirm these requirements will be followed.

- ☐ Informed consent for the donation of fetal tissue for research use will be obtained by someone other than the person who obtained the informed consent for abortion.
- ☐ Informed consent for the donation of fetal tissue for research use will be obtained after the informed consent for abortion.
- ☐ Participation in the research will not affect the method of abortion.
- ☐ No enticements, benefits, or financial incentives will be used at any level of the process to incentivize abortion or the donation of human fetal tissue.
- ☐ The informed consent form for the donation of fetal tissue for use in research will be signed by both the woman and the person who obtains the informed consent.

8.10 Consent-related materials. Upload to ***Zipline*** all consent scripts/talking points, consent forms, debriefing statements, Information Statements, Short Form consent forms, parental permission forms, and any other consent-related materials that will be used. Materials that will be used by a specific site should be uploaded to that site's **Local Site Documents** page.

- *Translations must be submitted and approved before they can be used. However, we strongly encourage you to wait to provide them until the IRB has approved the English versions.*
- *Combination forms: It may be appropriate to combine parental permission with consent, if parents are subjects as well as providing permission for the participation of their children. Similarly, a consent form may be appropriately considered an assent form for older children.*
- *For materials that cannot be uploaded: upload screenshots or written descriptions that are sufficient to enable the IRB to understand the types of data that will be collected and the nature of the experience for the participant. URLs (website addresses) may also be provided, or written descriptions of websites. Examples of materials that usually cannot be uploaded: mobile apps; computer-administered test; licensed and restricted standardized tests.*

9 PRIVACY AND CONFIDENTIALITY

9.1 Privacy protections. Describe the steps that will be taken, if any, to address possible privacy concerns of subjects and potential subjects.

Privacy refers to the sense of being in control of access that others have to ourselves. This can be an issue with respect to recruiting, consenting, sensitivity of the data being collected, and the method of data collection.
Examples:

- *Many subjects will feel a violation of privacy if they receive a letter asking them to participate in a study because they have ____ medical condition, when their name, contact information, and medical condition were drawn from medical records without their consent. Example: the IRB expects that "cold call" recruitment letters will inform the subject about how their information was obtained.*
- *Recruiting subjects immediately prior to a sensitive or invasive procedure (e.g., in an outpatient surgery waiting room) will feel like an invasion of privacy to some individuals.*
- *Asking subjects about sensitive topics (e.g. details about sexual behavior) may feel like an invasion of privacy to some individuals.*

Asking subjects about sensitive topics (e.g. details about their sexual behavior or intimate partner violence history) may feel like an invasion of privacy to some individuals. To address these privacy concerns, subjects will be reminded that they are free to choose not to answer any question that makes them uncomfortable at any time.

It will also be explained to participants that their name will not be linked to the information they provide. All participants will be assigned a study identification number (ID). Health information and phone numbers will be recorded and stored under this study ID. The list of participants linked to their study ID will be stored in binder in a locked cabinet separately from all other data. Only necessary study staff will have linkage to this linkage binder. The linkage is necessary to for data verification. Study analysts will receive only coded data.

Participants will also be assured that data collected using Kobo Collect will be securely transmitted from the Android tablet used for data collection to the secure Kobo web server. All tablets and computers will be password-protected and accessible only to study staff. The online system used to manage SMS messages will also be password-protected, stored on a secure web server, and accessible only to study staff.

9.2 Identification of individuals in publications and presentations. Will potentially identifiable information about subjects be used in publications and presentations, or is it possible that individual identities could be inferred from what is planned to be published or presented?

- [X] **No**
- [ ] **Yes** → If yes, will subject consent be obtained for this use?
  - [ ] **Yes**
  - [ ] **No** → If no, describe the steps that will be taken to protect subjects (or small groups of subjects) from being identifiable.

9.3 State mandatory reporting. Each state has reporting laws that require some types of individuals to report some kinds of abuse, and medical conditions that are under public health surveillance. These include:

- Child abuse
- Abuse, abandonment, neglect, or financial exploitation of a vulnerable adult
- Sexual assault
- Serious physical assault
- Medical conditions subject to mandatory reporting (notification) for public health surveillance

Are you or a member of the research team likely to learn of any of the above events or circumstances while conducting the research **AND** feel obligated to report it to state authorities?

[X] **No**

[ ] **Yes** → If yes, the UW IRB expects subjects to be informed of this possibility in the consent form or during the consent process, unless you provide a rationale for not doing so:

9.4 Retention of identifiers and data. Check the box below to indicate assurance that any identifiers (or links between identifiers and data/specimens) and data that are part of the research records will not be destroyed until after the end of the applicable records retention requirements (e.g. Washington State; funding agency or sponsor; Food and Drug Administration). If it is important to say something about destruction of identifiers (or links to identifiers) in the consent form, state something like "the link between your identifier and the research data will be destroyed after the records retention period required by state and/or federal law."

This question can be left blank for conversion applications (existing paper applications that are being "converted" into a Zipline application.)

See the "Research Data" sections of the following website for UW Records management for the Washington State research rectords retention schedules that apply in general to the UW (not involving UW Medicine data):
http://f2.washington.edu/fm/recmgt/gs/research?title=R

See the "Research Records and Data" information in Section 8 of this document for the retention schedules for UW Medicine Records: ***https://www.uwmedicine.org/recordsmanagementuwm-records-retention-schedule.pdf***

[X] **Confirm**

9.5 Certificates of Confidentiality. Will a federal Certificate of Confidentiality be obtained for the research data? *NOTE: Answer "No" if the study is funded by NIH or the CDC, because all NIH-funded and CDC-funded studies automatically have a Certificate.*

[X] **No**

[ ] **Yes**

9.6 Data and specimen security protections. Identify the data classifications and the security protections that will be provided for all sites where data will be collected, transmitted, or stored, referring to the **GUIDANCE Data and Security Protections** for the minimum requirements for each data classification level. ***It is not possible to answer this question without reading this document. Data security protections should not conflict with records retention requirements.***

a. Which level of protections will be applied to the data and specimens? If more than one level will be used, describe which level will apply to which data and which specimens and at which sites.

1) Level 2 data and security protections will be applied to data from nurses collected through questionnaires, interviews and focus groups.

2) Level 3 data and security protections will be utilized for text message data received by the Mobile WACh messaging platform and responded to by the nurse and data from perinatal clients' medical records, questionnaires and interviews.

b. Use this space to provide additional information, details, or to describe protections that do not fit into one of the levels. If there are any protections within the level listed in 9.6.a which will *not* be followed, list those here, including identifying the sites where this exception will apply. For example, if you intend to store subject identifiers with study data (not permitted under requirement U9 for Risk Levels 3-5), then indicate this in the box below (e.g., "We will not adhere to requirement U9 for screening data").

NA

10 RISK / BENEFIT ASSESSMENT

10.1 Anticipated risks. Describe the reasonably foreseeable risks of harm, discomforts, and hazards to the subjects and others of the research procedures. For each harm, discomfort, or hazard:

- Describe the magnitude, probability, duration, and/or reversibility of the harm, discomfort, or hazard, AND
- Describe how the risks will be reduced or managed. Do not describe data security protections here, these are already described in Question 9.6.

- *Consider possible physical, psychological, social, legal, and economic harms, including possible negative effects on financial standing, employability, insurability, educational advancement or reputation. For example, a breach of confidentiality might have these effects.*
- *Examples of "others": embryo, fetus, or nursing child; family members; a specific group.*
- *Ensure applicable risk information from any Investigator Brochures, Drug Package Inserts, and/or Device Manuals is included in your description.*
- *Do not include the risks of non-research procedures that are already being performed.*
- *If the study design specifies that subjects will be assigned to a specific condition or intervention, then the condition or intervention is a research procedure - even if it is a standard of care.*
- *Examples of mitigation strategies: inclusion/exclusion criteria; applying appropriate data security measures to prevent unauthorized access to individually identifiable data; coding data; taking blood samples to monitor something that indicates drug toxicity.*
- *As with all questions on this application, you may refer to uploaded documents.*

Physical: The study involves no medical interventions therefore we anticipate no risk of physical harm to participants.

Other: SMS: There is a potential risk of disclosure of an individual's person information to others in situations where phones are shared or stolen, which could lead to psychological or physical harm. We will minimize these risks through counseling in the informed consent process and ensuring women understand the type of messaging that will occur. We will remind participants that they may want to erase messages when sensitive or stigmatized topics are discussed.

Access to clinical records: There could be a breach of confidentiality in the process of retrieving participants' medical records. This will be mitigated by training all study staff on data management and storage to ensure confidentiality of sensitive data is maintained.

Loss of Confidentiality in IDI and FGD: Participants will be notified that by participating in the IDI or FGD, loss of confidentiality is a possible risk of participating. They will be informed that every measure will be taken by the study team to ensure confidentiality. FGD participants will further be informed that while the study team will protect study data, the study team cannot control what other members of the FGD share with others outside of the group setting.

Discussion of sensitive topics: There is a risk of psychological distress due to discussing sensitive topics such as perinatal depression or maternal or infant illness by SMS or in interviews. Participants will be reminded that they are not obliged to answer every question or SMS message. Study staff will be trained in sensitive communication with participants.

10.2 Reproductive risks. Are there any risks of the study procedures to men and women (who are subjects, or partner of subjects) related to pregnancy, fertility, lactation or effects on a fetus or neonate?

Examples: direct teratogenic effects; possible germline effects; effects on fertility; effects on a woman's ability to continue a pregnancy; effects on future pregnancies.

[X] **No** → If no go to question 10.3
[ ] **Yes** → If yes, answer the following questions:

a. Risks. Describe the magnitude, probability, duration and/or reversibility of the risks.

b. Steps to minimize risk. Describe the specific steps that will be taken to minimize the magnitude, probability, or duration of these risks.

Examples: inform the subjects about the risks and how to minimize them; require a pregnancy test before and during the study; require subjects to use contraception; advise subjects about banking of sperm and ova.

If the use of contraception will be required: describe the allowable methods and the time period when contraception must be used.

c. Pregnancy. Describe what will be done if a subject (or a subject's partner) becomes pregnant

For example; will subjects be required to immediately notify study staff, so that the study procedures can be discontinue or modified, or for a discussion of risks, and/or referrals or counseling?

10.3 MRI risk management. A rare but serious adverse reaction called nephrogenic systemic fibrosis (NSF) has been observed in individuals with kidney disease who received gadolinium-based contrast agents (GBCAs) for the scans. Also, a few healthy individuals have a severe allergic reaction to GBCAs.

a. Use of gadolinium. Will any of the MRI scans involve the use of a gadolinium-based contrast agent (GBCA?)

[X] **No**
[ ] **Yes** → If yes, which agents will be used? *Check all that apply.*

	Brand Name	Generic Name	Chemical Structure
[ ]	Dotarem	Gadoterate meglumine	Macrocylic
[ ]	Eovist / Primovist	Gadoxetate disodium	Linear
[ ]	Gadavist	Gadobutro	Macrocyclic
[ ]	Magnevist	Gadpentetate dimeglumine	Linear
[ ]	MultiHance	Gadobenate dimeglumine	Linear
[ ]	Omniscan	Gadodiamide	Linear

☐	OptiMARK	Gadoversetamide	Linear
☐	ProHance	Gadoteridol	Macrocyclic
☐	Other, provide name:		

1.) The FDA has concluded that gadolinium is retained in the body and brain for a significantly longer time than previously recognized, especially for linear GBCAs. The health-related risks of this longer retention are not yet clearly established. However, the UW IRB expects researchers to provide a compelling justification for using a linear GBCA instead of a macrocyclic GBCA, to manage the risks associated with GBCAs.

Describe why it is important to use a GBCA with the MRI scan(s). Describe the dose that will be used and (if it is more than the standard clinical dose recommended by the manufacturer) why it is necessary to use a higher dose. If a linear GBCA will be used, explain why a macrocyclic GBCA cannot be used.

2.) Information for subjects. Confirm by checking this box that subjects will be provided with the FDA-approved Patient Medication Guide for the GBCA being used in the research or that the same information will be inserted into the consent form.

☐ **Confirmed**

b. Who will (1) calculate the dose of GBCA; (2) prepare it for injection; (3) insert and remove the IV catheter; (4) administer the GBCA; and (5) monitor for any adverse effects of the GCBA? Also, what are the qualifications and training of these individual(s)?

c. Describe how the renal function of subjects will be assessed prior to MRI scans and how that information will be used to exclude subjects at risk for NSF.

d. Describe the protocol for handling a severe allergic reaction to the GBCA or any other medical event/emergency during the MRI scan, including who will be responsible for which actions.

10.4 Unforeseeable risks. Are there any research procedures that may have risks that are currently unforeseeable?

Example: using a drug that hasn't been used before in this subject population.

☒ **No**

☐ **Yes** → If yes, identify the procedures.

10.5 Subjects who will be under regional or general anesthesiology. Will any research procedures occur while patients are under general or regional anesthesia, or during the 3 hours preceding general or regional anesthesia (supplied for non-research reasons)?

[X] **No**

[ ] **Yes** → If yes, check all the boxes that apply.

- [ ] Administration of any drug for research purposes
- [ ] Inserting an intra-venous (central or peripheral) or intra-arterial line for research purposes
- [ ] Obtaining samples of blood, urine, bone marrow or cerebrospinal fluid for research purposes
- [ ] Obtaining a research sample from tissue or organs that would not otherwise be removed during surgery
- [ ] Administration of a radio-isotope for research purposes**
- [ ] Implantation of an experimental device
- [ ] Other manipulations or procedures performed solely for research purposes (e.g., experimental liver dialysis, experimental brain stimulation)

If any of the boxes are checked:
Provide the name and institutional affiliation of a physician anesthesiologist who is a member of the research team or who will serve as a safety consultant about the interactions between the research procedures and the general or regional anesthesia of the subject-patients. If the procedures will be performed at a UW Medicine facility or affiliate, the anesthesiologist must be a UW faculty member, and the Vice Chair of Clinical Research in the UW Department of Anesthesiology and Pain Medicine must be consulted in advance for feasibility, safety and billing.

*** If the box about radio-isotopes is checked: the study team is responsible for informing in advance all appropriate clinical personnel (e.g., nurses, technicians, anesthesiologists, surgeons) about the administration and use of the radio-isotope, to ensure that any personal safety issues (e.g., pregnancy) can be appropriately addressed. This is a condition of IRB approval.*

10.6 Data and Safety Monitoring. A Data and Safety Monitoring Plan (DSMP) is required for clinical trials (as defined by NIH). If required for this research, or if there is a DSMP for the research regardless of whether it is required, upload the DSMP to ***Zipline***. If it is embedded in another document being uploading (for example, a Study Protocol) use the text box below to name the document that has the DSMP. Alternatively, provide a description of the DSMP in the text box below. For guidance on developing a DSMP, see the ITHS webpage on Data and Safety Monitoring Plans.

See attached DSMP.

10.7 Un-blinding. If this is a double-blinded or single-blinded study in which the participant and/or relevant study team members do not know the group to which the participant is assigned: describe the circumstances under which un-blinding would be necessary, and to whom the un-blinded information would be provided.

NA

10.8 Withdrawal of participants. If applicable, describe the anticipated circumstances under which participants will be withdrawn from the research without their consent. Also, describe any procedures for orderly withdrawal of a participant, regardless of the reason, including whether it will involve partial withdrawal from procedures and any intervention but continued data collection or long-term follow-up.

NA

10.9 Anticipated direct benefits to participants. If there are any direct research-related benefits that some or all individual participants are likely to experience from taking part in the research, describe them below:

Do not include benefits to society or others, and do not include subject payment (if any). Examples: medical benefits such as laboratory tests (if subjects receive the results); psychological resources made available to participants; training or education that is provided.

Women may benefit directly from the education that will be provided as part of the study. The intervention could potentially enhance women's engagement with the health care system and optimize their follow-up and retention in care. Women will receive additional counseling, information and support. This has potential to improve both women's and infants' clinical outcomes.

10.10 Return of individual research results.

In this section, provide your plans for the return of individual results. An "individual research result" is any information collected, generated or discovered in the course of a research study that is linked to the identity of a research participant. These may be results from screening procedures, results that are actively sought for purposes of the study, results that are discovered unintentionally, or after analysis of the collected data and/or results has been completed.

*See the **GUIDANCE Return of Individual Results** for information about results that should and should not be returned, validity of results, the Clinical Laboratory Improvement Amendment (CLIA), consent requirements and communicating results.*

a. Is it anticipated that the research will produce any individual research results that are clinically actionable?

"Clinically actionable" means that there are established therapeutic or preventive interventions or other available actions that have the potential to change the clinical course of the disease/condition, or lead to an improved health outcome.

In general, every effort should be made to offer results that are clinically actionable, valid and pose life-threatening or severe health consequences if not treated or addressed quickly. Other clinically actionable results should be offered if this can be accomplished without compromising the research.

☐ **No**

☒ **Yes** → If yes, answer the following questions (a.1-a.3).

a.1. Describe the clinically actionable results that are anticipated and explain which results, if any, could be urgent (i.e. because they pose life-threatening or severe health consequences if not treated or addressed quickly).

Examples of urgent results include very high calcium levels, highly elevated liver function test results, positive results for reportable STDs.

Actionable results may be identified in the enrollment and follow-up questionnaires completed by perinatal participants in Aim 3. We will screen participants for elevated depression symptoms. If these are detected they will be communicated to the participant and a referral made to local facility services.

a.2. Explain which of these results will be offered to subjects.

Findings of elevated symptoms on the depression instrument will be offered to subjects.

a.3. Explain which results will not be offered to subjects and provide the rationale for not offering these results.

Reasons not to offer the results might include:

- *There are serious questions regarding validity or reliability*
- *Returning the results has the potential to cause bias*
- *There are insufficient resources to communicate the results effectively and appropriately*
- *Knowledge of the result could cause psychosocial harm to subjects*

None

b. Is there a plan for offering subjects any results that are not clinically actionable?

Examples: non-actionable genetic results, clinical tests in the normal range, experimental and/or uncertain results.

[X] **No**

[ ] **Yes** → If yes, explain which results will be offered to subjects and provide the rationale for offering these results.

c. Describe the validity and reliability of any results that will be offered to subjects.

The IRB will consider evidence of validity such as studies demonstrating diagnostic, prognostic, or predictive value, use of confirmatory testing, and quality management systems.

We are using the widely used and well-validated Edinburgh postpartum depression scale, which is routinely used in clinical care.

d. Describe the process for communicating results to subjects and facilitating understanding of the results. In the description, include who will approach the participant with regard to the offer of results, who will communicate the result (if different), the circumstances, timing, and communication methods that will be used.

The study nurse administering the questionnaire will communicate the results to the participant. Results will be communicated at the end of the questionnaire. Results will be phrased in such a way to ensure that the participant's experience is normalized and the nurse communicates empathy. Communication of the result will be accompanied by referral to supportive resources.

e. Describe any plans to share results with family members (e.g. in the event a subject becomes incapacitated or deceased).

Results will only be shared with the participant.

f. Check the box to indicate that any plans for return of individual research results have been described in the consent document. If there are no plans to provide results to participants, this should be stated in the consent form.

*See the **GUIDANCE Return of Individual Results** for information about consent requirements.*

[X] **Confirmed**

10.11 Commercial products or patents. Is it possible that a commercial product or patent could result from this study?

[X] **No**

[ ] **Yes** → If yes, describe whether subjects might receive any remuneration/compensation and, if yes, how the amount will be determined.

11 ECONOMIC BURDEN TO PARTICIPANTS

11.1 Financial responsibility for research-related injuries. Answer this question only if the lead researcher is not a UW student, staff member, or faculty member whose primary paid appointment is at the UW.

For each institution involved in conducting the research: Describe who will be financially responsible for research-related injuries experienced by subjects, and any limitations. Describe the process (if any) by which participants may obtain treatment/compensation.

NA

11.2 Costs to subjects. Describe any research-related costs for which subjects and/or their health insurance may be responsible (examples might include: CT scan required for research eligibility screening; co-pays; surgical costs when a subject is randomized to a specific procedure; cost of a device; travel and parking expenses that will not be reimbursed).

No costs

12 RESOURCES

12.1 Faculty Advisor. (For researchers who are students, residents, fellows, or post-docs.) Provide the following information about the faculty advisor.

- Advisor's name
- Your relationship with your advisor (for example: graduate advisor; course instructor)
- Your plans for communication/consultation with your advisor about progress, problems, and changes.

NA

12.2 UW Principal Investigator Qualifications. Upload a current or recent Curriculum Vitae (CV), Biosketch (as provided to federal funding agencies), or similar document to the Local Site Documents page in Zipline. The purpose of this is to address the PI's qualifications to conduct the proposed research (education, experience, training, certifications, etc.).

For help with creating a CV, see http://adai.uw.edu/grants/nsf_biosketch_template.pdf and https://education.uwmedicine.org/student-affairs/career-advising/year-4/residency-applications/curriculum-vitae/

[X] **The CV will be uploaded.**

12.3 UW Study team qualifications. Describe the qualifications and/or training for each UW study team member to fulfill their role on the study and perform study procedures. (You may be asked about non-UW study team members during the review; they should not be described here.) You may list these individuals by name, however if you list an individual by name, you will need to modify this application if that individual is replaced. Alternatively, you can describe study roles and the qualifications and training the PI or study leadership will require for any individual who might fill that role. The IRB will use this information to assess whether risks to subjects are minimized because study activities are being conducted by properly qualified and trained individuals.

Describe: The role (or name of person), the study activities they will perform, and the qualifications or training that are relevant to performing those study activities.

Examples:
Research Study Coordinator: Obtain consent, administer surveys, blood draw. Will have previous experience coordinating clinical research and be a certified phlebotomist in WA.
Undergraduate Research Assistant: Obtain consent, perform all study procedures. Will have had coursework in research methods, complete an orientation to human subjects protections given by the department, and will receive training from the PI or the graduate student project lead on obtaining consent and debriefing subjects.
Acupuncturist: Perform acupuncture procedures and administer surveys. Must be licensed with WA State DoH and complete training in administering research surveys given by the project director, an experienced survey researcher.
Co-Investigator: Supervise MRI and CT scan procedures and data interpretation, obtain consent. MD, specialty in interventional radiology and body imaging. 5-years clinical research experience.

Mentors: Provide technical assistance and guidance to the principal investigator in developing and executing the study. This project is an NIH mentored career development award. Mentors have expertise in clinical trial conduct, digital health, and computer science.

Site PI: Provide leadership and close guidance in study implementation. Medical doctor with 20 years' experience in clinical medicine, and women's health research in Kenya.

Obstetrics and Gynecology Collaborator: Provide technical assistance on pilot intervention development. Medical doctor with 15 years' experience in clinical medicine, women's health research in Kenya and mHealth interventions.

Computer Science Collaborators: Provide technical and analytical expertise, including developing natural language processing models, supporting human-centered design activities, and developing SMS system software. Masters or PhD degree training and 5-10 years' expertise in human-centered design, computer science, and software development.

12.4 Study team training and communication. Describe how it will be ensured that each study team member is adequately trained and informed about the research procedures and requirements (including any changes) as well as their research-related duties and functions.

☐ **There is no study team.**

The study team will participate in an initial training at study launch to ensure all team members understand study procedures. The team will also have weekly calls and use e-mail communication to share any protocol updates.

13 OTHER APPROVALS, PERMISSIONS, and REGULATORY ISSUES

13.1 Approvals and permissions. Identify any other approvals or permissions that will be obtained. For example: from a school, external site/organization, funding agency, employee union, UW Medicine clinical unit.

Do not attach the approvals and permissions unless requested by the IRB.

Kenyatta National Hospital Ethics and Research Committee

13.2 Financial Conflict of Interest. Does any UW member of the team have ownership or other Significant Financial Interest (SFI) with this research as defined by UW policy GIM 10?

[X] **No**

[ ] **Yes** → If yes, has the Office of Research made a determination regarding this SFI as it pertains to the proposed research?

- [ ] **No** → If no, contact the Office of Research (206.616.0804, research@uw.edu) for guidance on how to obtain the determination
- [ ] **Yes** → If yes, upload the Conflict Management Plan for every UW team member who has a FCOI with respect to the research, to ***Zipline***. If it is not yet available, use the text box to describe whether the Significant Financial Interest has been disclosed already to the UW Office of Research and include the FIDS Disclosure ID if available.