ANCILLARY REVIEWS

DO NOT DELETE. Submit the completed checklist below with your protocol.

Which ancillary reviews do I need and when do I need them? Refer to HRP-309 for more information about these ancillary reviews.			
Select yes or no	**Does your study…**	*If yes…*	**Impact on IRB Review**
☐ **Yes** ☒ **No**	Include Gillette resources, staff or locations	*Gillette Scientific review and Gillette Research Administration approval is required. Contact:* *research@gillettechildrens.com*	**Required prior to IRB submission**
☒ **Yes** ☐ **No**	Involve Epic, or Fairview patients, staff, locations, or resources?	*The Fairview ancillary review will be assigned to your study by IRB staff* *Contact:* ancillaryreview@Fairview.org	**Approval must be received prior to IRB committee/ designated review.** **Consider seeking approval prior to IRB submission.**
☐ **Yes** ☒ **No**	Include evaluation of drugs, devices, biologics, tobacco, or dietary supplements or data subject to FDA inspection?	*STOP – Complete the Medical Template Protocol (HRP-590)* *The regulatory ancillary review will be assigned to your study by IRB staff* *Contact: medreq@umn.edu* *See https://policy.umn.edu/research/indide*	
	Require Scientific Review? Not sure? See guidance in the Investigator Manual (HRP-103).	*ONLY REQUIRED BIOMEDICAL RESEARCH REVIEWED BY FULL COMMITTEE*	
☒ **Yes** ☐ **No**	Relate to cancer patients, cancer treatments, cancer screening/prevention, or tobacco?	*Complete the CPRC application process.* *Contact: ccprc@umn.edu*	
☐ **Yes** ☒ **No**	Include the use of radiation? (x-ray imaging, radiopharmaceuticals, external beam or brachytherapy)	*Complete the AURPC Human Use Application and follow instructions on*	**Approval from these committees must be**

		the form for submission to the AURPC committee. *Contact: barmstro@umn.edu*	**received prior to IRB approval;** **These groups each have their own application process.**
☐ **Yes** **X No**	Use the Center for Magnetic Resonance Research (CMRR) or MR at Masonic Institute for the Developing Brain (MIDB) as a study location?	*Complete the CMRR pre-IRB ancillary review* *Contact: ande2445@umn.edu*	
☐ **Yes** **X No**	Include the use of recombinant or synthetic nucleic acids, toxins, or infectious agents?	*STOP – Complete the Medical Template Protocol (HRP-590)*	
☐ **Yes** **X No**	Include the use of human fetal tissue, human embryos, or embryonic stem cells?	*STOP – Complete the Medical Template Protocol (HRP-590)*	
X Yes ☐ **No**	Include PHI or are you requesting a HIPAA waiver?	*If yes, HIPCO will conduct a review of this protocol.* *Contact: privacy@umn.edu*	
☐ **Yes** **X No**	Use data from CTSI Best Practices Integrated Informatics Core (BPIC) Formerly the AHC Information Exchange (AHC-IE)?	*The Information Exchange ancillary review will be assigned to your study by IRB staff* *Contact: bpic@umn.edu*	**Approval must be received prior to IRB approval.** **These groups do not have a separate application process but additional information from the study team**
☐ **Yes** **X No**	Use the Biorepository and Laboratory Services to collect tissue for research?	*STOP – Complete the Medical Template Protocol (HRP-590)* *The BLS ancillary review will be assigned to your study by IRB staff.* *Contact: Jenny Pham Pham0435@umn.edu*	
X Yes ☐ **No**	Have a PI or study team member with a conflict of interest?	*The CoI ancillary review will be assigned to your study by IRB staff* *Contact: becca002@umn.edu*	

X Yes **☐ No**	Need to be registered on clinicaltrials.gov?	*If you select "No" in ETHOS, the clinicaltrials.gov ancillary review will be assigned to your study by IRB staff* *Contact:* fencl003@umn.edu	**may be required.**
X Yes **☐ No**	Require registration in OnCore?	*If you select "No" or "I Don't Know" in ETHOS, the OnCore ancillary review will be assigned to your study by IRB staff* *Contact: oncore@umn.edu*	**Does not affect IRB approval.**

PROTOCOL COVER PAGE

Protocol Title	App-Assisted Day Reconstruction to Reduce Treatment Burden and Logistic Toxicity in Cancer Patients – Aim 1
Principal Investigator/Faculty Advisor	Name: Rachel I. Vogel
	Department: Obstetrics, Gynecology, and Women's Health
	Telephone Number: 612-624-6928
	Email Address: isak0023@umn.edu
Student Investigator	Name:
	Current Academic Status (Student, Fellow, Resident):
	Department:
	Telephone Number:
	Institutional Email Address:
Scientific Assessment	Nationally-based, federal funding organizations
Version Number/Date:	4.0, 01/05/2023

REVISION HISTORY

Revision #	Version Date	Summary of Changes	Consent Change?
1	07/27/2022	Clarify that study team may screen participants in the clinic and that participants may complete consent in-person as well (in addition to electronic consent).	N
2	08/09/2022	Remove Aims 2 and 3 from this protocol as those will be submitted to a commercial IRB separately due to conflict of interest concerns for those aims; this will be led by Daynamica	N
3	09/06/2022	Increase number to be consented from 20 to 30, goal remains the same to obtain interviews from 20 participants.	N
4	01/05/2023	Allow for follow-up survey to be completed online (original plan) or paper (new)	N

Table of Contents

ABBREVIATIONS/DEFINITIONS

AUC	Area under the curve
EHR	Electronic Health Record
CAB	Community Advisory Board
MARS	Mobility App Rating Scale
PETS	Patient Experience with Treatment and Self-Management
POI	Point of interest
TBQ	Treatment Burden Questionnaire

1.0 Objectives

1.1 Purpose: The number of new cases of cancer diagnosed in the U.S. was 1.7 million in 2017 and is expected to increase by 35% to 2.3 million in 2030[1]. Cancer treatments often create numerous logistic challenges in prioritizing and managing treatment and everyday life priorities and how these challenges affect their everyday lives and well-being (hence "logistic toxicity"). However, there are no established reliable tools to monitor patients' logistic challenges and the associated impacts; and logistic toxicity has been largely unaddressed in cancer care delivery. Our objective is to develop the first **digital health app for cancer patients** to continuously monitor logistic toxicity in their daily lives. The app will combine **objective data** from mobile sensing with **subjective self-reported data** to form an app-assisted day reconstruction system that captures activity engagement and well-being information associated with cancer treatment-related activities and trips throughout the day.

The proposed patient monitoring app that captures logistic toxicity information on an ongoing basis will empower patients to advocate for care that better fits their life, give providers new insights into potential reasons for treatment non-adherence and nonresponse, and allow health systems to design more patient-centered care regimens.

We will use a participatory design approach to inform the design of our system, engaging an 8-member community advisory board (CAB; including 2 patients, 2 oncologists, 1 nurse, 1 patient advocate, 1 payer, and 1 hospital administrator), and performing in-depth interviews and follow-up surveys with 20 diverse patients undergoing treatment for cancer. Patients will supply examples of logistic toxicity and how they would like to measure and communicate logistic toxicity across scenarios. Follow-up surveys will ask participants to provide satisfaction ratings towards user interface sketches and app function narratives.

2.0 Background

2.1 Significance of Research Question/Purpose: Symptom burden and financial toxicity have been widely acknowledged side-effects of cancer, but logistic toxicity—the toxic effects of the logistic burden of carrying out cancer treatment tasks on patient well-being - has only recently received any attention.[2-7] Sources of logistic toxicity include scheduling and attending appointments, engagement with different care providers, pharmacy visits, consultations, insurance paperwork, managing drugs, transportation, and wait times. The well-being effects of these burdens can be biographical (loss of freedom, independence, and time availability to engage in meaningful activities), relational (strained family and social relations), and emotional (feelings of anger, anxiety, frustration, worry, and guilt).[8]

Logistical challenges in treatment burden can lead to poor treatment adherence, low quality of life, and worsening of disease; and it negatively affects family and

friends, employers, and healthcare payers and providers.[9-15] Further, burdens of cancer and cancer treatments disproportionately affect disadvantaged patients such as racial and ethnic minorities, and hence logistic toxicity is likely to reinforce persistent inequities in cancer care and outcomes.[16-19]

The cancer care landscape has rapidly evolved to accommodate COVID-19 precautions, transitioning toward telehealth, greater emphasis on patient self-management, and opportunities for providers to tailor treatment plans. Oncology clinical practices can potentially adopt interventions such as minimally disruptive medicine, care coordination, and telemedicine that could reduce logistic toxicity in cancer care delivery.[20, 21] However, implementing these interventions requires tools that can reliably track patients' behavior and well-being in navigating the day-to-day logistic burden of undertaking cancer treatment tasks.

2.2 Preliminary Data: The concept of logistic toxicity in cancer care is similar to the concepts described in treatment burden in chronic disease management, Burden of Treatment Theory, and the Cumulative Complexity Model.[22, 23] Within these frameworks, instruments such as the Treatment Burden Questionnaire (TBQ) and the Patient Experience with Treatment and Self-management (PETS) have been developed to collect self-reported, recall-based data on treatment burden.[24, 25] Building upon this prior research, effective monitoring of logistic toxicity needs to capture the **objective treatment workload** (i.e., activities and trips carried out by the patient for treatment purposes) as well as the **subjective effects** of that workload on well-being (i.e., including biographical, relational, and emotional effects).[3-7] Objective measures of logistic toxicity to date have relied on electronic health records (EHR) and claims data, which cover medical and pharmacy visits only and offer limited information on other important sources of logistic toxicity such as scheduling time, transportation, and wait time. Subjective measures to date are research-oriented retrospective measurements that are not timely enough to inform or help the patient.

(1) Our app will offer a remote patient monitoring platform to capture logistic toxicity information on a timely and ongoing basis; 2) it will apply machine learning techniques to automatically infer cancer treatment-related activities and trips as a way to minimize the need for manual input, and 3) it will integrate objective mobile sensing with subjective patient input to generate more accurate and complete summaries of logistic toxicity.

On this project, we will collaborate with Daynamica Inc. In 2013-2015, Daynamica developed an app-assisted day reconstruction system that integrates smartphone sensing and surveying capabilities capturing spatiotemporal and other details of daily activities and trips, leading to a US Patent titled "Travel and Activity Capturing".[26-27] The system was later augmented with experience sampling capabilities to capture well-being during the day. Since then, the Daynamica app has

been deployed in a wide range of research studies across the U.S. to collect daily activity engagement and well-being data, and Daynamica developed a HIPAA-compliant version of the app that is currently being trialed in two medical research studies at the University of Minnesota, including "Using smartphone sensor technology to characterize ambulatory patterns of patients with peripheral artery disease receiving supervised exercise training", and "Implementing Personalized Exercise Prescriptions through Mobile Health in Rural Elderly Cancer Survivors".[27-30]

2.3 Existing Literature: The relevant literature is cited in sections 2.1 and 2.2 above. There is an urgent need for a tool that generates accurate, comprehensive, and timely measures of logistic toxicity.

3.0 Study Endpoints/Events/Outcomes

3.1 Primary Endpoint/Event/Outcome:

Interviews: Identify themes to develop 1) a cancer-specific, multi-tiered activity/trip classification system to organize cancer treatment-related activities and trips in the app; and 2) user stories to describe what the users want to do with the proposed app.

Follow-up survey: Overall satisfaction with proposed system design will be measured using a 5-point Likert scale from not at all satisfied to very satisfied. The primary endpoint will be the proportion of participants who report an overall satisfaction score of 4.0 or above.

4.0 Study Intervention(s)/Interaction(s)

4.1 Description: 20 individuals with cancer will be asked to complete 45-minute interviews for input on features that the app should include.

5.0 Procedures Involved

5.1 Study Design: Qualitative interviews with follow-up surveys.

5.2 Study Procedures:

CAB: All aspects of the proposed work will be conducted with input from a CAB to be led by Drs. Vogel and Blaes. In quarterly and ad hoc virtual meetings, the CAB will assist in finalizing strategies for major project tasks. CAB engagement will focus on determining the preliminary format and contents of the app-generated logistic toxicity summary reports. To enable patients to solicit help from the cancer care system, the summary reports need to be meaningful and digestible to all CAB members.

Patient interviews: We will perform 45-minute interviews via phone or Zoom among 20 English-speaking individuals >18 years old who are currently receiving

treatment for cancer. After recruitment and obtaining informed consent, an interviewer trained by Drs. Vogel and Fan will use a semi-structured guide including open-ended questions. Following review by the research team and CAB, the interview guide will be assessed after the first five interviews for any necessary changes. If significant edits are made, those interviews will be treated as pilot data and left out of the analysis. Interviews will be digitally recorded and transcribed verbatim.

After the system design, the 20 interview participants will be sent a follow-up survey (approximately 15 minutes) online via REDCap or paper via mail to review the user interface sketches and app function narratives. Participants will be asked to provide open-ended feedback as well as their satisfaction ratings with each user interface sketch and app function narrative using a 5-point Likert scale from not at all satisfied to very satisfied. For each participant, the satisfaction ratings will be averaged to derive an overall satisfaction score.

5.3 Follow-Up: Survey data will be collected.

5.4 Individually Identifiable Health Information: We will obtain written HIPAA agreement from participants and authorization to communicate via email if that is the participant's preference.

6.0 Data Banking N/A

7.0 Sharing of Results with Participants

7.1 We will not share results with participants.

8.0 Study Duration

8.1 Individual participants will participate for approximately 2 hours over a 5 month time frame.

We will enroll all participants within 6 months and anticipate all study procedures and data analysis will be completed within 24 months.

9.0 Study Population

9.1 Inclusion Criteria:

≥18 years of age, currently receiving treatment for cancer, able to read/write/speak in English, and able to provide voluntary informed consent.

9.2 Exclusion criteria: Those who are currently incarcerated or have opted out of research contact within M Health Fairview system.

9.3 Screening: Participants will confirm their eligibility criteria via screening in-person, online (REDCap) or phone call with study coordinator.

10.0 Vulnerable Populations

10.1 Vulnerable Populations:

Population / Group	Identify whether any of the following populations will be primary focus of the research (targeted), included but not the focus of the research or excluded from participation in the study.
Children	Excluded
Pregnant women/fetuses/neonates	included but not the focus
Prisoners	Excluded
Adults lacking capacity to consent and/or adults with diminished capacity to consent, including, but not limited to, those with acute medical conditions, psychiatric disorders, neurologic disorders, developmental disorders, and behavioral disorders	Excluded
Non-English speakers	Excluded
Those unable to read (illiterate)	Excluded
Employees of the researcher	Excluded
Students of the researcher	Excluded
Undervalued or disenfranchised social group	included but not the focus

Active members of the military (service members), DoD personnel (including civilian employees)	included but not the focus
Individual or group that is approached for participation in research during a stressful situation such as emergency room setting, childbirth (labor), etc.	Excluded
Individual or group that is disadvantaged in the distribution of social goods and services such as income, housing, or healthcare.	included but not the focus
Individual or group with a serious health condition for which there are no satisfactory standard treatments.	included but not the focus
Individual or group with a fear of negative consequences for not participating in the research (e.g. institutionalization, deportation, disclosure of stigmatizing behavior).	included but not the focus
Any other circumstance/dynamic that could increase vulnerability to coercion or exploitation that might influence consent to research or decision to continue in research.	Excluded

10.2 Additional Safeguards:

All participants will have had a cancer diagnosis, which is a serious health condition. This study specifically aims to understand the time burdens of cancer care.

The proposed research will not specifically seek military members or DOD personnel, disadvantaged individuals or members of undervalued or disenfranchised social groups, however, if volunteers meets the inclusion criteria

and also happen to be from one of the groups checked above, they will be eligible to participate in the study.

11.0 Number of Participants

11.1 Number of Participants to be Consented: up to 30, 20 participants to complete interviews

12.0 Recruitment Methods

12.1 Recruitment Process:

CAB: CAB members will be recruited by study team members directly via phone calls and emails. This will not involve recruitment of MHealth Fairview patients.

Cancer Patients: Dr. Blaes and study staff will identify potentially eligible participants in the clinic and/or through BPIC, who will review the electronic medical records of patients at MHealth Fairview using inclusion criteria. Patients who have opted out of research, including being approached for new studies, will not be contacted or approached. Potential participants will be approached in the clinic before or after a scheduled appointment and/or via MyChart using Fairview Research Services. Research activities will not impact or interfere with patient's appointment times or clinical care. They will be given time to whether they would like to participate and provided information to contacting the study coordinator at a later time/date if they want to consider further.

12.2 Source of Participants: MHealth Fairview cancer clinics

12.3 Identification of Potential Participants: M Health Fairview medical records will be queried by BPIC to identify eligible individuals who have been diagnosed and treated for cancer within the past two years and who have not opted out of research.

12.4 Recruitment Materials: Mail recruitment documents for Aims 1 are provided.

12.5 Payment:

Each CAB member will be compensated $500 for their 12-month project participation.

Interview participants will receive a $50 gift card upon completion of the interview. Participants will receive an additional $20 gift card for survey completion after evaluating the initial app design draft.

13.0 Withdrawal of Participants

13.1 Withdrawal Circumstances: No participant will be withdrawn from the study against their will. Participants will only be withdrawn from the study if they ask to withdraw or become too ill or die prior to completing the study. If participants become too ill,

they will not be withdrawn from the study until they have given their voluntary consent for study withdrawal.

13.2 Withdrawal Procedures: If a participant chooses to withdraw at any point, their decisions will be respected without repercussions. Data collected until the point of withdrawal will be used unless the participant specifies otherwise.

13.3 Termination Procedures: Participants will not be terminated for any reason.

14.0 Risks to Participants

14.1 Foreseeable Risks: This study carries minimal risk and will comply with the University of Minnesota IRB reporting requirements. We identified the following 2 possible risks to subjects:

Risk to confidentiality: Inadvertent breaches of confidentiality by investigators or their staff are unlikely but may occur. Identifying information will be kept private and all identifiers will be removed prior to any data being given to researchers. The records will be identified only with a unique ID number on an encrypted database. Data transfer will only occur with de-identified data with encrypted transfer of all information containing protected health information between participants and study databases.

Discomfort while answering interview or survey questions: There is a possibility that some participants may feel uncomfortable answering interview or survey questions which may remind them of their cancer diagnosis. They will be reminded that they can skip any questions or discontinue at any time.

14.2 Reproduction Risks: N/A

14.3 Risks to Others: N/A

15.0 Incomplete Disclosure or Deception

15.1 Incomplete Disclosure or Deception: N/A

16.0 Potential Benefits to Participants

16.1 Potential Benefits: There are likely no direct benefits to individual participants.

17.0 Statistical Considerations

17.1 Data Analysis Plan:

Evaluating the interviews: Two coders will read the patient interview transcripts and identify themes grounded in the transcripts by using a computer-assisted qualitative data analysis system (NVivo) and applying the grounded theory approach and constant comparative method. Major categories in the classification system will be broad enough to remain relevant across contextual examples of logistic toxicity. Each major category will include subcategories to cluster specific activity examples.

The patient interview data will also be used to develop user stories, an approach that is widely used in agile software development to identify key app requirements and provide good business cases for these requirements. Based on the interview findings, we will develop user interface sketches and app function narratives using established usability guidelines to illustrate functionality and appearance of the app.

Surveys will be scored using standard methods. Mean scores and score distributions will be evaluated.

17.2 Power Analysis:

A sample size of 20 participants will allow us to estimate the overall satisfaction rate with a margin of error of ±18%.

17.3 Statistical Analysis: N/A

17.4 Data Integrity: Data integrity and completeness will be monitored on an ongoing basis by the study coordinator and statistician, using both the reporting tools provided by REDCap and the study/data management dashboard provided by Daynamica.

18.0 Health Information and Privacy Compliance

18.1 Select which of the following is applicable to your research:

☐ My research does not require access to individual health information and therefore assert HIPAA does not apply.

X I am requesting that all research participants sign a HIPCO approved HIPAA

Disclosure Authorization to participate in the research (either the standalone form or the combined consent and HIPAA Authorization).

☐ I am requesting the IRB to approve a Waiver or an alteration of research participant authorization to participate in the research.

☐ An external IRB (e.g. Advarra) is reviewing and we are requesting use of the authorization language embedded in the template consent form in lieu of the U of M stand-alone HIPAA Authorization. Note: External IRB must be serving as the privacy board for this option.

18.2 Identify the source of Private Health Information you will be using for your research (Check all that apply)

X I will use the Informatics Consulting Services (ICS) available through CTSI (also referred to as the University's Information Exchange (IE) or data shelter) to pull records for me

X I will collect information directly from research participants.

☐ I will use University services to access and retrieve records from the Bone Marrow Transplant (BMPT) database, also known as the HSCT (Hematopoietic Stem Cell Transplant) database.

☐ I will pull records directly from EPIC.

☐ I will retrieve record directly from axiUm / MiPACS

☐ I will receive data from the Center for Medicare/Medicaid Services

☐ I will receive a limited data set from another institution

☐ Other. Describe:

18.3 Explain how you will ensure that only records of patients who have agreed to have their information used for research will be reviewed.

We will obtain information about potentially eligible patients through BPIC which will filter out patients who do not agree to have their records used for research.

18.4 Approximate number of records required for review: 3000

18.5 Please describe how you will communicate with research participants during the course of this research. Check all applicable boxes

☐ This research involves record review only. There will be no communication with research participants.

☐ Communication with research participants will take place in the course of treatment, through MyChart, or other similar forms of communication used with patients receiving treatment.

X Communication with research participants will take place outside of treatment settings. If this box is selected, please describe the type of communication and how it will be received by participants.

Communication with participants will occur through phone calls and email based on participant preference for scheduling appointments and by email through REDCap or mail for survey completion. We will ask participants to complete an authorization to receive unsecured emails from study staff if they prefer that mode of contact.

18.6 Access to participants

Participants will complete consent and HIPAA forms prior to any data collection. After they agree to participate, all data will be provided by the participants.

18.7 Location(s) of storage, sharing and analysis of research data, including any links to research data (check all that apply).

X In the data shelter of the Information Exchange (IE)

X Store X Analyze ☐ Share

☐ In the Bone Marrow Transplant (BMT) database, also known as the HSCT (Hematopoietic Stem Cell Transplant) Database

☐ Store ☐ Analyze ☐ Share

X In REDCap (recap.ahc.umn.edu)

X Store ☐ Analyze X Share

☐ In Qualtrics (qualtrics.umn.edu)

☐ Store ☐ Analyze ☐ Share

☐ In OnCore (oncore.umn.edu)

☐ Store ☐ Analyze ☐ Share

X In the University's Box Secure Storage (box.umn.edu)

☐ Store ☐ Analyze X Share

X In an AHC-IS supported server. Provide folder path, location of server and IT Support Contact:

\\cancer.ahc.umn.edu\cancer\CancerCenter\Biostat\CCSG\Vogel, RI\ Daynamica_STTR\data

X Store X Analyze ☐ Share

☐ In an AHC-IS supported desktop or laptop.

Provide UMN device numbers of all devices:

☐ Store ☐ Analyze ☐ Share

☐ Other.

Indicate if data will be collected, downloaded, accessed, shared or stored using a server, desktop, laptop, external drive or mobile device (including a tablet computer such as an iPad or a smartphone (iPhone or Android devices) that you have not already identified in the preceding questions

☐ I will use a server not previously listed to collect/download research data:

☐ I will use a desktop or laptop not previously listed

☐I will use an external hard drive or USB drive ("flash" or "thumb" drives) not previously listed

☐I will use a mobile device such as a tablet or smartphone not previously listed

18.8 Consultants. Vendors. Third Parties. N/A

18.9 Links to identifiable data: When patients agreed to participate, they will be given a study ID which will be used for the remainder of the study. The identifying information will be stored in REDCap (survey data collection) with the study ID and all other data will be stored using this ID alone.

18.10 Sharing of Data with Research Team Members. Data will be shared using Box and REDCap.

18.11 Storage of Documents: Paper consent forms may be collected during in-person recruitment. Paper documents will be stored in a locked cabinet in the PI's locked office. They will be stored up to 10 years.

18.12 Disposal of Documents: Following publication and dissemination (up to 10 years post study initiation), all paper documents will be shredded and all identifying information in REDCap will be removed.

19.0 Confidentiality

19.1 Data Security: All study investigators and staff will be fully trained on data safety and participant confidentiality using appropriate CITI and University of Minnesota courses. An electronic copy of the signed consent form will be stored on an AHC-IS supported server. The consent form and other research information will NOT be placed in the participants' medical record.

Electronic data will be entered by the study coordinator and will be stored on the secure REDCap database. Study data will be de-identified before data analysis. Only the researchers directly involved with the study will have access to the data. Identifying data will be stored until completion of the study and manuscript submission.

20.0 Provisions to Monitor the Data to Ensure the Safety of Participants

20.1 Data Integrity Monitoring. The PI will review all signed consent forms for completeness at the time of participant entry into the study.

Data collection will occur primarily using REDCap, which will be set up to ensure data are clean and ready for analysis. Reports within REDCap will be used to identify missing data.

20.2 Data Safety Monitoring. This study carries minimal risk and therefore the PI will assume responsibility for monitoring and reporting safety concerns/events to the University of Minnesota IRB. Events requiring prompt reporting include any adverse event that requires a change to the protocol or consent form, any unauthorized disclosure of confidential information, any unresolved subject complaint or any protocol deviation that resulting in harm or the unanticipated death of an enrolled subject.

21.0 Compensation for Research-Related Injury

21.1 Compensation for Research-Related Injury: N/A

21.2 Contract Language: N/A

22.0 Consent Process

22.1 Consent Process (when consent will be obtained): In-person paper or electronic consent will be obtained for participants. Individuals who consent in-person will be provided with a copy of the signed documents. Online consents and HIPAA forms will obtain signatures captured electronically via the e-consent functionality in REDCap. At the bottom of the e-consent participants are asked whether they wish to receive signed copies or opt out of receiving them. Those wishing to receive them will provide their mailing address to receive paper copies through the USPS mail. Additionally, participants will also have the option to download signed copies of these documents to their own computer or electronic device directly from REDCap.

Paper consent forms will be stored in a locked cabinet in a locked office. Electronic signatures will be stored within REDCap as well as a copy on the Academic Health Center (AHC) secure servers. Access to these records will be limited to the study team as needed or required.

22.2 Waiver or Alteration of Consent Process (when consent will not be obtained, required information will not be disclosed, or the research involves deception): N/A

22.3 Waiver of Written/Signed Documentation of Consent (when written/signed consent will not be obtained): N/A

22.4 Non-English Speaking Participants: N/A

22.5 Participants Who Are Not Yet Adults (infants, children, teenagers under 18 years of age): N/A

22.6 Cognitively Impaired Adults, or adults with fluctuating or diminished capacity to consent: N/A

22.7 Adults Unable to Consent: N/A

23.0 Setting

23.1 Research Sites: All study procedures will be conducted remotely or on the University of Minnesota campus. Participants will be recruited through the MHealth Fairview network.

23.2 International Research: N/A

- Community Based Participatory Research: N/A

24.0 Multi-Site Research N/A

25.0 Coordinating Center Research N/A

26.0 Resources Available

26.1 Resources Available:

Research team and Funding

All investigators are committed to this project and will provide appropriate effort as needed. This study will be supported by an NIH STTR grant to Daynamica, with Dr. Vogel as a subcontract PI for the University of Minnesota. Dr. Vogel will have appropriate dedicated time to oversee and conduct the research described.

All members of the study team have reviewed and approved the protocol and study procedures. They have understood their duties and study roles, and provide the skills needed to conduct the study and study analyses. All members of the research team have relevant publication records. They have also completed appropriate trainings and these trainings will be revisited as appropriate, particularly for those involved directly with participants in the consent process and/or data collection

Facilities

The University of Minnesota is one of the state's greatest assets. It is one of the most comprehensive universities in the United States and ranks among the most prestigious. The University, with more than 370 fields of study, offers more choices and unique opportunities for its 60,000 students. It is both the state land-grant university and Minnesota's only research university, where new knowledge, new products, and new services improve the quality of life for all Minnesotans. Another major resource is the

University of Minnesota's research activities. The University is one of the leading recipients of federal research awards. The University received more than $520 million in grant and contract awards from federal, state, and private sources in fiscal year 2010 and ranks in the top 10 of all public and private research universities. The University conducts 98% of all sponsored academic research in Minnesota. Some of the many major resources at the University of Minnesota include an extensive library system. The University of Minnesota Libraries is one of the University's and the state's greatest intellectual and capital assets. Housed in 14 facilities on the three Twin Cities campuses, the University Libraries' collections contain 6.2 million print volumes, nearly 37,000 serial subscriptions, 6.3 million microforms, 2.65 million government documents, and 423,000 maps, making it the 16th largest research library in North America. Finally, the University of Minnesota has taken an aggressive, proactive stance in creating an atmosphere that is compliant with the Health Insurance Portability and Accountability Act (HIPAA). All personnel with any access whatsoever to human subject data, including custodians, are required to take a 3-part HIPAA training session. In addition, all individuals who work directly with human subjects data are required to take a course in protection of human subjects and all key personnel are required to take a 2-part course on the responsible conduct of research. The Medical School provides assistance in technical writing and an extensive biomedical library is readily available.

Clinical and Translational Science Institute

The University of Minnesota is also one of approximately 60 Clinical and Translational Science Award Institutions (TL1R002493 and UL1TR002494). The Clinical and Translational Science Institute (CTSI) is part of the University's Academic Health Center. The CTSI and its Clinical Translational Research Services (CTRS) team will provide access to technologies, services and scientific consultation that facilitate interaction and enhance scientific productivity. The shared resources provide stability, reliability, cost-effectiveness, and quality control that would be difficult to achieve otherwise. Clinical support services provide support at all levels of research:

- Planning
    - Review background and rationale
    - Identify endpoints and covariates
    - Design experiments and surveys
    - Estimate sample size and calculate power
    - Develop databases
    - Write statistical component of grant/research protocols
- Monitoring

- Registration with ClinicalTrials.gov
- IRB submission and ongoing IRB completion
- Regular monitoring visits
- Data query resolution
- Process, store and retrieve data
- Monitor accrual
- Provide quality control
- Adverse event (AE) /serious adverse event (SAE) reviews
- Compliance consultation services
- Assist with continuation/stopping decisions
- Review of subject specific documents, including but not limited to:
- Signed informed consent/HIPAA documents
- Case report forms (CRFs)
- Medical records (for AEs/SAEs)
- Regulatory binders
- Communication with FDA/IRB

- Analysis
  - Conduct statistical analyses
  - Assist with interpretation of results
  - Recommend presentation methods
  - Author statistical analysis components of manuscripts

Masonic Cancer Center

The Masonic Cancer Center serves to advance knowledge by creating a collaborative research environment focused on the causes, prevention, detection, and treatment of cancer; applying that knowledge to improve quality of life for patients and survivors; and sharing its discoveries with other scientists, students, professionals, and the community. It was founded in 1991, and is part of the University's Academic Health Center, which also includes the Medical School, Dental School, College of Pharmacy, and Schools of Public Health and Veterinary Medicine. The Masonic Cancer Center includes more than 500 faculty and staff members. It is home to some of the world's top cancer researchers in bone marrow transplantation, breast cancer, bone cancer, cancer genetics, tobacco research, immunology, new therapies development, pediatric oncology,

chemoprevention, and epidemiology. The National Cancer Institute (NCI) designated the Masonic Cancer Center, University of Minnesota a comprehensive cancer center in 1998, and in 2003, 2009, 2013, and 2018 NCI renewed this designation. The Masonic Cancer Center is one of only 71 institutions in the United States to hold this designation. It is awarded only to institutions that make ongoing, significant advances in cancer research, treatment, and education.

The Department of Obstetrics, Gynecology and Women's Health (Vogel):

The department is a nationally recognized entity that maintains several highly productive established programs while regularly adding new initiatives. Today the department hosts four active academic divisions: Gynecology Oncology, Maternal-Fetal Medicine, Obstetrics, Gynecology, Midwifery and Family Planning and Female Pelvic Medicine and Reconstructive Surgery. On an annual basis, The Department of Obstetrics and Gynecology successfully compete for significant Federal and private funding. These endeavors regularly involve partnerships with other units within the Academic Health Center.

The Division of Gynecologic Oncology is heavily engaged in funded laboratory and clinical research. All faculty members are members of the Masonic Cancer Center and receive additional support from an NCI Cancer Center Support Grant. Support for the Division's extensive research activities including funding from the National Institutes of Health, Department of Defense Ovarian Cancer Research Program and American Cancer Society.

Department of Medicine at the University of Minnesota (Blaes)

The department is a nationally recognized entity that maintains several highly productive, established programs while regularly adding new initiatives. The collective mission of the Department of Medicine is to improve the health and well-being of people, now and in the future, by providing exemplary medical care, discovering and applying new knowledge, and training the next generation of physicians in the science and practice of medicine.

While the department has an expanding primary care practice, its core expertise is in areas of tertiary and quaternary care such as advanced lung disease, oncology, hematology, bone marrow transplant, critical care, electrophysiology, all cardiovascular services, complex hematologic abnormalities and solid organ transplantation. The department has extremely talented physicians who devote the majority of their efforts toward these programs.

The Department is an innovative leader in medical education and has developed new, exciting curricula for medical student and resident education. We provide developmental opportunities for students or residents interested in primary care, global health, hospital medicine, medical education, clinical research, or basic science. The Department is a

national leader in training subspecialty physicians and has NIH-funded training grants in six divisions.

The Department of Medicine is one of the top research departments in the United States and represents the largest research faculty group at the University of Minnesota. Core areas of excellence in research include cardiovascular medicine, diabetes, infectious diseases, stem cell biology, vascular disease, hemostasis, auto immunology, fibrotic lung disease, medical genetics and cancer.

The Department of Medicine at the University of Minnesota is here to serve local, national and international communities with all aspects of its mission. The Division of adult Hematology/Oncology/Transplantation is the top producing, and grant funded division within the department.

Offices

All investigators has private offices on the University of Minnesota campus. Dr. Vogel has a private office in the Division of Gynecologic Oncology on the 12th floor of Moos Tower (Room 12-262) at the University of Minnesota. The 12th floor also provides space for research staff to work. Each desk includes a desktop computer and/or a network connection for a laptop. Two conference rooms are available on the same floor for group meetings.

Computers

All communication and data collection for this study will be completed online. Each member of the research team at the University of Minnesota has a personal computer which is linked via the internet and connected to the University of Minnesota's central servers and the Academic Health Center Information Services (AHC-IS) protected health information (PHI)-compliant environment. All have local or network printers, as well as support for standard software through AHC-IS. The University of Minnesota has a high-end server, and network equipment. Multiple software packages are available for qualitative and quantitative analysis (SAS, NVivo), word processing (Microsoft Word), creation of tables and figures (Microsoft office, Microsoft Excel), and for citation management (EndNote). Information Technology (IT) staff are available to maintain the hardware, local area network (LAN), wireless area network (WAN), and the software used. A dedicated server is housed off-site and backs-up all of the data nightly. Appropriate network security is present via firewalls. Virus protection and encryption software for all computers and servers is supplied and managed centrally using the most up-to-date versions of antivirus detection and cleaning software.

Support Services

The Department of OB/GYN works with the Department of Pediatrics to employ full-time staff of professional administrators to ensure that sponsored research projects, including research budgets, are appropriately managed and receive oversight to ensure responsible

use of funds from sponsored research. These staff include an executive administrator, an office manager, a team of accountants, pre- and post-award grants managers and administrative assistants. These local services are supported by centralized university services including the Sponsored Projects Administration and the Institutional Review Board, which are housed within the Office of the Vice-President for Research (OVPR). The University has numerous policies established for the protection of research subjects and the responsible management and oversight of the research conducted by University employees. These policies are available through the OVPR website.

27.0 References

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