Section: Contact Information
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Section: Project Requirements and Description

Group: Requirements to submit AOI
A comprehensive review of previously published data has been completed: Yes
The specific aims are clear and focused: Yes
The investigator has appropriate experience and expertise to develop the concept proposal; if not, has identified a mentor or senior co-investigator: Yes
The investigator agrees to develop an initial draft of the concept proposal within 6 weeks of approval of the AOI and to finalize the concept proposal within 6 months: Yes

Project Title: Breast Imaging Analysis Among Childhood Cancer Survivors Treated with Chest Radiation

Planned research population (eligibility criteria):
1) Females
2) Treated with chest radiation < 30

Proposed specific aims:
Aim 1: Characterize the association of qualitative imaging features of screening mammograms and breast MRIs in women with a history of chest radiation therapy for a childhood, adolescent, or young adult cancer with subsequent breast cancer risk
1a: Characterize breast imaging radiologists' interpretive performance of mammography and breast MRI
1b: Describe and compare the distribution of (a) mammographic breast density and (b) breast MRI background parenchymal enhancement (BPE), both assessed with the Breast Imaging Reporting and Data System (BI-RADS) lexicon, among women with and without breast cancer

Aim 2: Characterize the association of quantitative imaging features of screening mammograms with breast cancer risk and develop a novel radiomics signature for identifying women with a history of chest radiotherapy who have the highest risk of breast cancer.
2a: Describe and compare the distribution of quantitatively assessed mammographic breast percent density and BPE among women with and without breast cancer
2b: Describe the distributions of quantitative markers, including size- and shape-based features and descriptors of image intensity, and evaluate their association with breast cancer risk.
2c: Develop a novel radiomics signature to identify women with the highest risk of breast cancer

Aim 3: Evaluate whether the addition of a newly developed radiomics signature to our
existing breast cancer prediction model increases the ability to discriminate between survivors with and without subsequent breast cancer.
Will the project require non-CCSS funding to complete? : Yes
If yes, what would be the anticipated source(s) and timeline(s) for securing funding? :
We are planning on submitting an R01 to the NCI. We are aiming for a June deadline.

Group: Does this project require contact of CCSS study subjects for:
Additional self-reported information : No
Biological samples : No
Medical record data : Yes
If yes to any of the above, please briefly describe. :
For the study, we need to obtain mammograms and breast MRIs. Participant contact would be required to determine where the images were acquired, request permission to contact the facility(s), and then contact the facilities.

Group: What CCSS Working Group(s) would likely be involved? (Check all that apply)
Second Malignancy : Primary
Chronic Disease :
Psychology / Neuropsychology :
Genetics :
Cancer Control : Secondary
Epidemiology / Biostatistics :

Section: Outcomes or Correlative Factors
Late mortality :
Second Malignancy : Primary

Group: Health Behaviors
Tobacco :
Alcohol :
Physical activity :
Medical screening :
Other :
If other, please specify :

Group: Psychosocial
Insurance :
Marriage :
Education :
Employment :
Other :
If other, please specify :

Group: Medical Conditions
Hearing/Vision/Speech :
Hormonal systems :
Heart and vascular :
Respiratory :
Digestive :
Surgical procedures :
Brain and nervous system:
Other:
If other, please specify: Imaging outcomes and imaging features will be studied.

**Group: Medications**
Describe medications:

**Group: Psychologic/Quality of Life**
BSI-18:
SF-36:
CCSS-NCQ:
PTS:
PTG:
Other:
If other, please specify:

**Group: Other**
Pregnancy and offspring:
Family history:
Chronic conditions (CTCAE v3):
Health status:

**Group: Demographic**
Age: Correlative Factors
Race: Correlative Factors
Sex:
Other:
If other, please specify:

**Group: Cancer treatment**
Chemotherapy: Correlative Factors
Radiation therapy: Correlative Factors
Surgery: Correlative Factors

**Section: Anticipated Sources of Statistical Support**
CCSS Statistical Center:
Local institutional statistician: Yes
If local, please provide the name(s) and contact information of the statistician(s) to be involved: Chaya Moskowitz; Joanne Chou
Will this project utilize CCSS biologic samples?: No
If yes, which of the following?:
If other, please explain:

**Section: Other General Comments**
Other General Comments:
Our plan is to conduct a breast cancer case-control study. We are planning to combine data from CCSS with cases and controls obtained from other institutions including Memorial Sloan Kettering, Duke, Dana-Farber, and St Jude Life.
I agree to share this information with St. Jude: Yes