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**