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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

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Project Title: Dosimetric Uncertainty in Radiation Dose Reconstruction Method used for CCSS

Planned research population (eligibility criteria):

The population will be patients in second cohort of CCSS that had radiation therapy (RT). Specifically, we will query the RT records database for patients treated with whole brain and posterior fossa boost RT. For the identified records, we will analyze the treatment field data e.g., energy, field size, field placement. Then, we will design whole brain and posterior fossa treatment plans for specific aims 1 and 2 based on field data from the queried records. In this study, we are focusing on brain RT, because in the second CCSS cohort, brain RT was conducted in a similar manner among the CCSS institutions; these generally fell into two categories, whole brain and posterior fossa boost, large and small fields, respectively.

Objective: The objective of this project is to quantify dosimetric uncertainty in the radiation dose reconstruction method used for CCSS as a function of distance from the field edge for both large and small RT fields, respectively. While our focus is brain RT, the results of this study will be broadly applicable to other treatment field types because the primary determinants of organ doses are field size and distance from the treatment field to the organ of interest.

Specific Aims

Both aims will be carried-out for whole brain and posterior fossa RT:

A. Quantify the difference between reconstructed and measured doses as a function of distance from the treatment field.

B. Quantify the difference between reconstructed organ doses when organ position is based on patient age and when organ position is precisely known (relative to field location).

Will the project re quire non-CCSS funding to complete?: Yes, funding provided by the CCSS Career Development Award (2014)

If yes, what would be the anticipated source(s) and timeline(s) for securing funding?:

Does this project require contact of CCSS study subjects for. No

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Additional self-reported information: No
Biological Samples: No
Medical record data: Yes
If yes to any of the above, please briefly describe.: Will query the RT records database for field type information for patients who received brain RT.

What CCSS Working Group(s) would likely be involved? (Check all that apply)

Second Malignancy:
Chronic Disease:
Psychology / Neuropsychology:
Genetics:
Cancer Control:
Epidemiology / Biostatistics: Primary

To describe the anticipated scope of the study, please indicate the specific CCSS data to be included as outcome (primary or secondary) or correlative factors. (Check all that apply)

Late mortality:
Second Malignancy:

Health Behaviors

Tobacco:
Alcohol:
Physical activity:
Medical screening:

Other:
If other, please specify:

Psychosocial

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

Medical conditions

Hearing/Vision/Speech:
Hormonal systems:
Heart and vascular:
Respiratory:
Digestive:
Surgical procedures:
Brain and nervous system:
Other:
If other, please specify:

Medications

Describe medications:

Pregnancy and offspring:
Family History:

Psychologic/Quality of Life

BSI-18:
SF-36:
CCSS-NCQ:
PTS:
PTG:
Other:
If other, please specify:

Chronic conditions (CTCAE v3):
Health status:

Demographic

Age: Correlative Factors
Race:
Sex:
Others:
If others, please specify:

Cancer treatment

Chemotherapy:
Radiation therapy: yes
Surgery:

Anticipated sources of statistical support

CCSS Statistical Center: Yes
Local institutional statistician:
If local, please provide the name(s) and contact information of the statistician(s) to be involved.:
Will this project utilize CCSS biologic samples?: No

If yes, which of the following?

Buccal cell DNA:
Peripheral blood:
Lymphoblastoid cell lines:
Second malignancy pathology samples:
Other requiring collection of samples:
If other, please explain:

Other general comments: