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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: Radiation Dose Reconstruction Methods for Intensity Modulated Radiation Therapy (IMRT)
Planned research population (eligibility criteria): We intend to initially focus on patients treated with radiation for Hodgkin Lymphoma and Medulloblastoma. We have an existing set of CT scans from patients treated at our institution that we will use to evaluate dose reconstruction methods. However, we would like to obtain ages and BMI for male and female CCSS patients that underwent radiation for these types of cancers. This will enable us to better select representative CT data sets for our study.
Proposed specific aims: The objective our proposed study is to define methods for retrospective dose reconstruction for patients in the CCSS expanded cohort treated with IMRT and to define the dosimetric uncertainty of these methods. Specific Aim 1: Define the variation in dose to organs close to the IMRT target for different IMRT plans calculated using a commercial TPS and CT data sets for representative patients. The results of this aim will help define the uncertainty (for nearby organs) that is introduced by using IMRT treatment plans calculated for representative patients as surrogates for patients' actual IMRT treatment plans. Specific Aim 2: Define the variation in dose to organs far from the IMRT target for different IMRT plans reconstructed in a generic phantom and calculated using an analytical model updated for IMRT. The results of this aim will help define the dosimetric uncertainty (for distant organs) that is introduced by using a simple calculation model with generic phantoms as surrogates for CCSS patients treated with IMRT.
Will the project require non-CCSS funding to complete?: No

If yes, what would be the anticipated source(s) and timeline(s) for securing funding?: The initial phase of the project would not require additional funding.

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.: Summary data of ages and BMI for male and female CCSS patients that underwent radiation for Hodgkin lymphoma and medulloblastoma. Also, we would like to be allowed to use previously abstracted radiation field information, e.g., energy, field borders, field size,prescription dose, etc.

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

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

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: Primary

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: BMI as correlative factor. Organs are closer to field edges and high dose gradients for smaller (generally younger) patients. This will effect the uncertainty in dose reconstructions for IMRT.

Cancer treatment

Chemotherapy:
Radiation therapy:
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: