Received 5.25.09
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Project Title Cost Effectiveness of Cardiac Guideline for Survivors of Pediatric Cancers
Planned research population (eligibility criteria) 5-y survivors of childhood cancer exposed to anthracycline
Proposed specific aims The objective of this study is to examine the cost-effectiveness of the Children's Oncology Group screening guideline for detecting subclinical cardiac dysfunctions (CD) in pediatric cancer survivors treated with Anthracycline. The guideline recommends screening frequencies using echocardiogram, which varies according to age at treatment, Anthracycline dose, and exposure to chest radiation. Screening should help extend the life of survivors by detecting subclinical CD to which intervention can be applied. This study will examine the cost-effectiveness of implementing the screening guideline. First, a Markov model consisting of four states (no CD, asymptomatic CD, symptomatic CD, death) will be set up to simulate the natural history of cardiac dysfunction. A simulated patient will transition from one state to another according to the transition probabilities between states. This will enable calculation of the expected (quality-adjusted) life years. Second, screening will be included in the Markov model according to the guideline. Third, various costs associated with treatment of CD with and without screening will be assessed using the same Markov model to estimate the expected cost. Finally, incremental cost-effectiveness ratio (ratio of the difference in the monetary costs of two screening schedules and the difference of quality-adjusted life years of the two schedules) will be computed to determine the most cost-effective screening intervals. The CCSS data will enable direct estimation of the probabilities of death as a function of the years of follow-up for pediatric cancer survivors exposed to Anthracycline, with or without chest radiation, according to sex and age at diagnosis for various types of childhood cancer. These mortality estimates will be applied in the Markov model as transition probabilities between no CD and death. The direct estimates obtained from the CCSS data will offer more credibility to the Markov model and the results.
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? I already have funding from the Lance Armstrong Foundation to conduct this research.

Does this project require contact of CCSS study subjects for . . .

Additional self-reported information No
Biological Samples No
Medical record data No
If yes to any of the above, please briefly describe.

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

Second Malignancy
Primary - No Secondary - No

Chronic Disease

Primary - No Secondary - No

Reproductive
Primary - No Secondary - No

Neurologic
Primary - No Secondary - No

Psychology / Neuropsychology
Primary - No Secondary - No

Genetics
Primary - No Secondary - No

Cancer Control
Primary - No Secondary - No

Epidemiology / Biostatistics
Primary - Yes Secondary - No

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
Primary - Yes Secondary - No Correlative Factors - No

Second Malignancy
Primary - No Secondary - No Correlative Factors - Yes

Health Behaviors

Tobacco
Primary - No Secondary - No Correlative Factors - No

Alcohol
Primary - No Secondary - No Correlative Factors - No

Physical activity
Primary - No Secondary - No Correlative Factors - No

Medical screening
Primary - No Secondary - No Correlative Factors - No

Other
Primary - No Secondary - No Correlative Factors - No

If other, please specify

Psychosocial

Insurance
Primary - No Secondary - No Correlative Factors - No

Marriage

Primary - No | Secondary - No | Correlative Factors - No

Education
Primary - No | Secondary - No | Correlative Factors - No

Employment
Primary - No | Secondary - No | Correlative Factors - No

Other
Primary - No | Secondary - No | Correlative Factors - No

If other, please specify

Medical conditions

Hearing/Vision/Speech
Primary - No | Secondary - No | Correlative Factors - No

Hormonal systems
Primary - No | Secondary - No | Correlative Factors - No

Heart and vascular
Primary - Yes | Secondary - No | Correlative Factors - No

Respiratory
Primary - No | Secondary - No | Correlative Factors - No

Digestive
Primary - No | Secondary - No | Correlative Factors - No

Surgical procedures
Primary - No | Secondary - No | Correlative Factors - No

Brain and nervous system
Primary - No | Secondary - No | Correlative Factors - No

Other
Primary - No | Secondary - No | Correlative Factors - No

If other, please specify

Medications

Describe medications

Pregnancy and offspring
Primary - No | Secondary - No | Correlative Factors - No

Family History
Primary - No | Secondary - No | Correlative Factors - No

Psychologic/Quality of Life

BSI-18
Primary - No | Secondary - No | Correlative Factors - No

SF-36
Primary - No | Secondary - No | Correlative Factors - No

CCSS-NCQ
Primary - No | Secondary - No | Correlative Factors - No

PTS
Primary - No | Secondary - No | Correlative Factors - No

PTG
Primary - No | Secondary - No | Correlative Factors - No

Other
Primary - No | Secondary - No | Correlative Factors - No

If other, please specify

Chronic conditions (CTCAE v3)
Primary - No | Secondary - No | Correlative Factors - No

Health status
Primary - No | Secondary - No | Correlative Factors - No

Demographic

Age
Primary - Yes | Secondary - No | Correlative Factors - No

Race
Primary - Yes | Secondary - No | Correlative Factors - No

Sex
Primary - Yes | Secondary - No | Correlative Factors - No

Others
Primary - No | Secondary - No | Correlative Factors - No

If others, please specify

Cancer treatment

Chemotherapy
Correlative Factors - Yes

Radiation therapy
Correlative Factors - Yes

Surgery
Correlative Factors - No

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. Lennie Wong (self)
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