

Name	I-Chan Huang
Institution	St Jude Children's Research Hospital
Address	262 Danny Thomas Place, Mail S Memphis, TN, 38105-3678 United States
Email Address	i-chan.huang@stjude.org

Project Requirements and Description

Requirements to submit AOI

Requirements to submit AOI (all answers must be "yes" to proceed)

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	Weather Extremes and Long-Term Health Risk in Childhood Cancer Survivors
----------------------	--

Planned research population (eligibility criteria)

CCSS: Adult survivors of childhood cancer and siblings.

SJLIFE: Adult survivors of childhood cancer

Proposed specific aims

Aim 1: Determine the effects of extreme weather on late mortality (>5 years from diagnosis) and whether childhood cancer survivors exhibit greater susceptibility than individuals without a history of childhood cancer.

- Approach 1: Using CCSS, we will estimate associations with all-cause and cause-specific late mortality among survivors and sibling comparison participants and test whether associations differ by survivor status. We will independently replicate the survivor-specific exposure-mortality associations in SJLIFE using harmonized definitions for exposures, outcomes, and analyses.
-

Aim 2: Determine the impact of extreme weather on clinically assessed chronic health condition (CHC) progression among childhood cancer survivors.

- Approach 2: Using longitudinal, protocol-driven SJLIFE assessments, we will determine associations of overall extreme-weather burden with progression of global CHC severity and prespecified organ-specific CHCs. Specific extreme weather events will be evaluated as secondary exposures.

Aim 3: Identify survivor characteristics that modify the effects of extreme weather on mortality and CHC progression and translate findings into the Survivorship Climate-Smart Information Platform (SCIP).

- Approach 3: We will test whether extreme weather-mortality and extreme weather-CHC progression associations (Aims 1-2) vary by survivor characteristics. Primary modifiers include diagnosis, treatment exposures, and genetic susceptibility using prespecified polygenic risk scores; secondary modifiers include individual socioeconomic status and neighborhood vulnerability. We will integrate derived risk estimates and vulnerability factors into vulnerability profiles linked to impending extreme-weather hazards and evidence-based preventive strategies and evaluate prototype usability and acceptability in survivors and clinicians.

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?

NIH R01

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? (Select all that apply)

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

Outcomes or Correlative Factors

	Primary	Secondary	Correlative Factors
Late Mortality	✓		
Second Malignancy			

Health Behaviors

	Primary	Secondary	Correlative Factors
Tobacco			✓
Alcohol			✓
Physical Activity			✓
Medical Screening			✓
Other			

If other, please specify

Psychosocial

	Primary	Secondary	Correlative Factors
Insurance			✓
Marriage			✓
Education			✓
Employment			✓
Other			

If other, please specify

Medical Conditions

	Primary	Secondary	Correlative Factors
Hearing/Vision/Speech			✓
Hormonal Systems			✓
Heart and Vascular			✓

	Primary	Secondary	Correlative Factors
Respiratory			✓
Digestive			✓
Surgical Procedures			✓
Brain and Nervous System			✓
Other			

If other, please specify

Medications

Describe medications

Psychologic/Quality of Life

	Primary	Secondary	Correlative Factors
BSI-18			✓
SF-36			✓
CCSS-NCQ			
PTS			
PTG			
Other			

If other, please specify

Other

	Primary	Secondary	Correlative Factors
Pregnancy and Offspring			
Family History			
Chronic Conditions (CTCAE v3)			
Health Status			

Demographic

	Primary	Secondary	Correlative Factors
Age			✓
Race			✓
Sex			✓
Other			

If other, please specify

Cancer Treatment

	Correlative Factors
Chemotherapy	✓
Radiation Therapy	✓
Surgery	✓

Anticipated Sources of Statistical Support

CCSS Statistical Center	Yes
Local Institutional Statistician	Yes

If local, please provide the name(s) and contact information of the statistician(s) to be involved.

Sadie Mirzaei

Will this project utilize CCSS biologic samples?

No

If yes, which of the following?

If other, please explain

Other General Comments

Key exposures require geocoded residential address information to link participants to extreme weather, ADI, SVI, and other social and environmental measures.