

# **Cancer Intervention and Surveillance Modeling Network (CISNET) Funding Announcement**

**RFA-CA-19-054**

**Monday November 4, 2019**

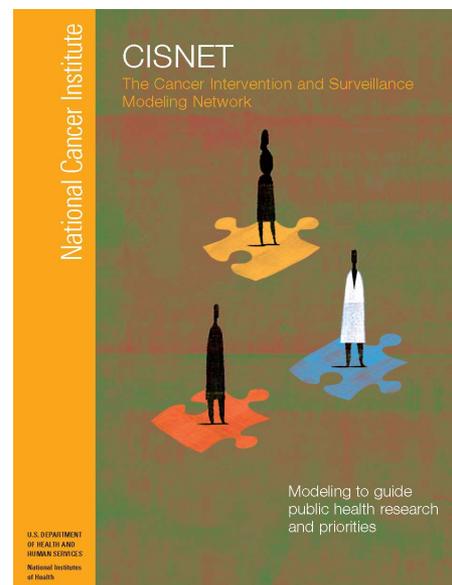
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# Cancer Intervention and Surveillance Modeling Network (CISNET)

- NCI Sponsored Collaborative Consortium (U01) of simulation modelers in Breast, Prostate, Colorectal, Lung, Esophagus, and Cervical cancers formed in 2000
- Extend evidence provided by trial, epidemiologic, and surveillance data using simulation modeling to guide public health research and priorities
  - ◆ Help address the formidable and growing gap between the rapid pace of innovation in cancer research and our ability to efficiently harness it to improve population health



<https://cisnet.cancer.gov/>

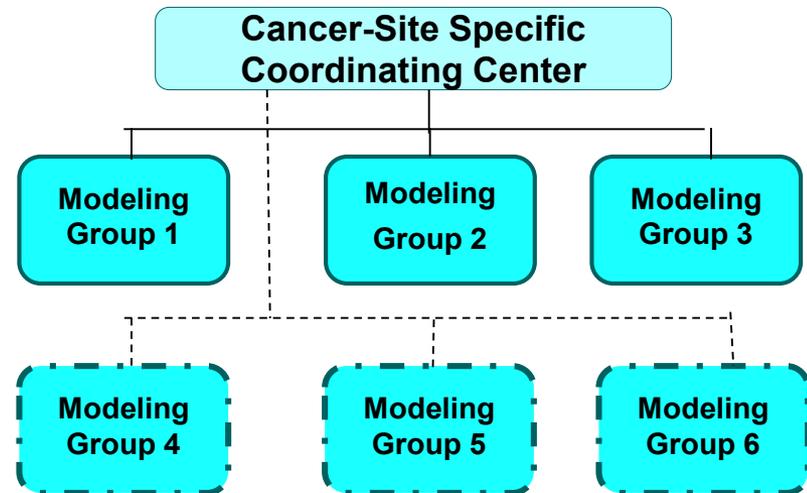


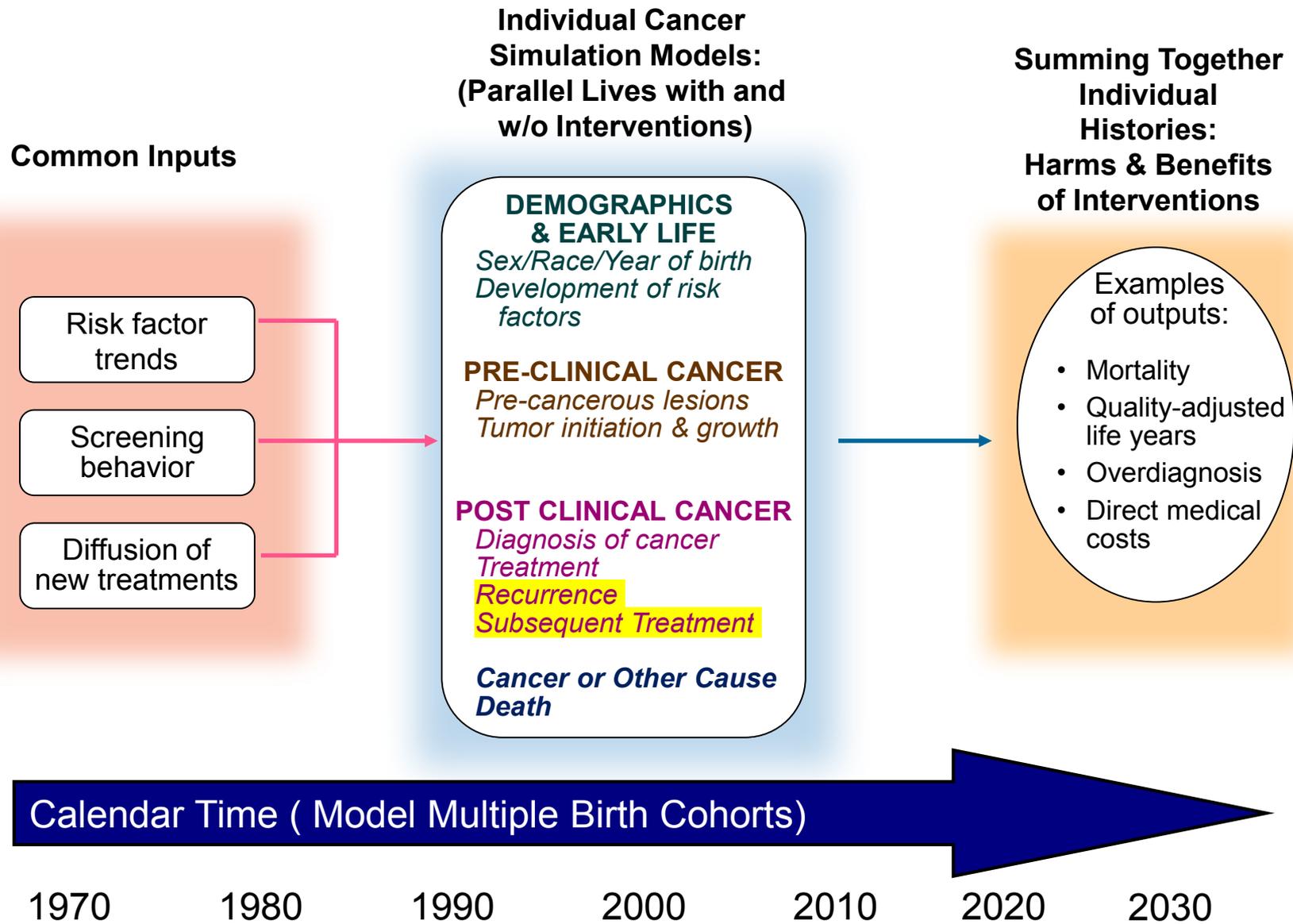
**In many instances individual modeling efforts yield different results that are difficult to reconcile**

## **Approach Innovated by CISNET: Systematic Comparative Modeling**

- Central questions to be addressed by groups collaboratively with a common set of inputs and outputs
  - ◆ Reproducibility across models adds credibility to results
  - ◆ Differences point out areas for further study in a systematic way

- Six multiple-PI grants each focused on a different cancer site with a coordinating center and between 3-6+ modeling groups





- Each application covers a single cancer site
  - ◆ 6 sites (breast, prostate, colorectal, lung, esophageal, and cervical cancer)
  - ◆ NCI's general intent is to fund one project per each "eligible" cancer type
- Open competition including current grantees and new applicants
- Put forward a comprehensive program of comparative modeling with coverage across the important cancer control areas and relevant specific priority areas for the selected organ site
- Focus on:
  - ◆ Areas of public health impact amenable to modeling
  - ◆ Take advantage of relevant new results or anticipated new results that will become available during the grant period

# Relevant Dates

- Letter of Intent – 30 days prior to the application due date
- Application – December 10, 2019
- Earliest Start Date – September 2020

- Each applicant team must propose the following elements:
  - ◆ Modeling Groups (three to six+ groups per application);
  - ◆ A Coordinating Center (one per application);
  - ◆ Leadership: Multiple PIs
    - Generally one PI for each modeling group, although other arrangements are allowable with proper justification.
  - ◆ A plan for comparative modeling
  - ◆ A plan to manage the use of rapid response funds
  - ◆ A plan to facilitate professional enhancement opportunities for junior investigators
  - ◆ A plan to further the goal of model accessibility

- 3 to 6+ modeling groups – the models should be complementary
  - ◆ May propose the application, extension, refinement and/or merging of existing models. If well justified, an existing model can be reformulated using a more robust statistical/mathematical framework. However, de novo model development will NOT be supported.
- Not all groups need to participate in every comparative modeling exercise
  - ◆ Combination of all groups (for most important activities), smaller number of groups (other activities) – specialized workgroups for specific themes
- Could potentially have full fledged modeling groups that participate in the full range of activities, and other modeling groups with smaller budget that participate in a limited way
  - ◆ Justify the number of modeling groups, how they complement each other, and the role they will play

- Formulating, prioritizing, and coordinating work on base case and other questions;
- Negotiating common requests for outside data sources;
- Preparing inputs and collecting and processing common outputs for model comparisons;
- Consensus building and coordinating critical evaluation of disparate results;
- Organizing conference calls and setting meeting agendas.
- CC PI is a member of the overall CISNET steering committee
- Although the Coordinating Center will provide oversight, it is expected that certain coordination activities will be distributed across the modeling groups
- Generally the PI for the coordinating center is also a modeling PI, and the contact PI for the application (but neither of these is required)

- Respond to important cancer control issues not originally anticipated
- Examples of use of funds:
  - ◆ Gaining access to specialized expertise for particular tasks
  - ◆ Gaining access to data sources
  - ◆ Providing funds to modeling groups to mount important efforts not originally anticipated
  - ◆ Cross-cancer site work along certain themes (e.g. active surveillance, biomarkers, targeted therapy, overdiagnosis) could be proposed, although cross-cancer type collaborations would be dependent on the other cancer types that are funded, and their interests

- Within and cross cancer type activities that will expose junior investigators (pre-doc, post-doc, junior faculty) to situations that will test and improve their skills and leadership abilities, provide enhanced opportunities for professional growth, and create an atmosphere and setting conducive to learning
- Ideas for cross-consortium activities
  - ◆ Cross-consortium workgroup will consider ideas for implementation post award

- Resource Sharing Plan (not included in Research Strategy page count)
  - ◆ Plan for your cancer-type application – components include:
    - Model documentation
      - ◆ Model profiles (detailed documentation), Model registry (model overviews)
    - Executable model software or model interfaces (sometimes in the form of interactive patient decision aids or policy decision tools)
    - Openness to inquiries from those outside of CISNET to pose questions or scenarios (possibly based on national or regional issues of interest) amenable to modeling
    - Adhere to evolving CISNET policies regarding the transparency of models, and dissemination of modeling results, making models runs and software accessible whenever possible to the scientific community & releasing source code as appropriate (e.g., in the context of collaborations)

## ➤ Model Accessibility

- ◆ While it is recognized that there are no standards for the release and accessibility of complex microsimulation models, continued thinking about barriers to accessibility and how to overcome them, and the evolving development of policies, methods and standards for model accessibility are critically important. CISNET is committed to the transparency of models, and dissemination of modeling results, models runs, and software (whenever possible) to the scientific community.
- ◆ Propose cross-consortium ideas (beyond what is described in resource sharing)
  - Cross-consortium workgroup will consider ideas for implementation post award
- ◆ The consortium will be collectively working through opportunities and barriers to making models more accessible

# Priority Areas

- NCI's way of saying that there are some important cross-cancer site issues that we would like you to focus on
- Gathered from discussions with staff at NCI, modelers, and other organizations
- Not a good idea to try to cover all of them – pick and choose those most relevant for your cancer site
- Part of the application is the justification for why you have chosen to focus on specific areas

## 9 Priority Areas to Focus Modeling Efforts

1. *Precision Screening and New Screening Technologies*
2. *Precision Treatment*
3. *Overdiagnosis and Active Surveillance*
4. *Decision Aids (Individual and Policy)*
5. *Understanding Screening in Real-World Settings and Determining the Best Routes to Optimize the Processes*
6. *State, Local, and International Cancer Control Planning*
7. *Suggesting Optimal Routes to Reduce Health Disparities*
8. *Methods Development*
9. *Cancer Site-Specific Opportunities*

## 2. Precision Treatment

- Evolving “big data” resources from electronic claims, labs, and health records, and their potential linkage to population-based registry data, will generate detailed information on first-line and salvage therapies and dose, recurrence, and the genomic characterization of disease
- Types of questions (just examples—do not feel limited by these):
  - ◆ Population impact of therapies
  - ◆ Quantifying possible overdiagnosis of recurrence – e.g. biochemical PSA-based recurrence
  - ◆ Value-based “threshold pricing” of new therapies – cost set so that the cost effectiveness ratio is equal to established regimens
  - ◆ When is genomic characterization of tumors cost effective
  - ◆ Trial design and evaluation – considering different endpoints, eligibility criteria, extrapolating long-term outcomes including QALYs (esp. important in de-escalation trials), simulating the chance of a positive trial result as a function of trial design options

- Methods must be directly motivated by applications, and then must be applied after development to demonstrate their practical utility.
- Examples (do not feel limited by these):
  - Role of advanced algorithms & high performance computing in calibration and probabilistic sensitivity analyses of CISNET models
  - Incorporating statistical models (e.g. risk models, models of time to recurrence) into simulation models
  - Further developments in meta-modeling – combining trials that are too different to combine using standard meta-analysis
  - Simulation model emulators (statistical models which "emulate" the relationships between CISNET model inputs and outputs, providing simplified ways to make model results available to stakeholders)

- Budgets will vary, depending on the scale of work and, in particular, the number of modeling groups proposed.
- Absolute Cap - \$1.33M direct costs per year
- Suggested Caps (justify deviations)
  - ◆ \$790K, \$970K, \$1.15M, and \$1.33M direct costs per year for 3, 4, 5, and 6 (or more) modeling groups, respectively
  - ◆ Modeling Groups (\$180K direct costs per year per group)
  - ◆ Coordinating Center (\$110K direct costs per year)
  - ◆ Rapid Response Funds (\$140K direct costs per year)
    - Approximately \$40K of this amount designated for cross-consortium projects providing professional enhancement activities for junior investigators)
- Travel – 2 consortium meetings a year
  - ◆ Annual in DC area
  - ◆ Mid-Year – at one of the sites – plan to host one meeting during 5 yr funding cycle

- Research Strategy (30 pages maximum)
  - ◆ *Sub-section A. Overall Objectives and Significance*
    - State concisely the importance and health relevance of the research described in this application by relating the specific aims to the broad, long-term objectives
  - ◆ *Sub-Section B. Project Leadership and Coordination, Advisory Groups, Professional Enhancement, and Model Accessibility*
    - *B.1 Team Leadership and Coordination*
    - *B.2 Rapid Response Projects (including professional enhancement)*
    - *B.3 Advisory Panel (optional)*
    - *B.4 Model Accessibility*
  - ◆ *Sub-Section C. Modeling Groups, Their Models, and Previous Model Applications*
  - ◆ *Sub-Section D. Proposed Model Extensions, Applications and Comparative Modeling*
    - *This represents the description of what you will be doing (i.e. the aims and how they fit into the priority areas and how they span across the cancer control spectrum)*

- Other Attachments: not to exceed 10 pages.
  - ◆ Attachment 1: Model Characteristics -Table summarizing key model differences and similarities.
  - ◆ Attachment 2: Model Applications - Table summarizing prior model applications.
  - ◆ Attachment 3: Modeling Projects - Table summarizing modeling projects indicating items such as the area of coverage (e.g. prevention/screening/treatment and/or which priority area it represents, modeling groups included, timeline, coordinator, etc.).

- Significance
- Innovation
- Investigators
- Approach
- Environment
- Coordinating Center and Program Integration

# Questions?

- If you have questions that are very specific to your application, they would be better addressed by e-mailing me (Rocky Feuer) or Carol Perry (for strictly financial/grants management issues)
  - ◆ E-mail addresses are at the end of the RFA
- Any question (with a response) that is relevant to all applicants will be posted at <https://surveillance.cancer.gov/funding/>
  - ◆ A recording of this webinar will be posted at the same place
  - ◆ This link is available on NOT-CA-20-005 (Notice announcing this webinar)