The CRN Cancer Counter—A Web-based Tool to Count Cancers across Multiple CRN Sites

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Abstract

Introduction

The Cancer Counter enables CRN Researchers to count cancer prevalence by strata (Cancer Site, Morphology, Stage, Behavior, Race, Hispanic Ethnicity, Gender, Age at Diagnosis, Vital Status, Year of Diagnosis, and CRN Health Plan). Interactive and iterative cancer statistical exploration is now possible.

Rationale and Aims

CRN researchers need accurate and rapid counts of cancers, based on specific criteria, to produce proposals in a timely manner. In the past, researchers interested in developing proposals sent a request to site investigators at some, or all, CRN sites for cancer count statistics. While functional, this process was time-consuming and required several people to complete each request.

This Cancer Counter was developed to allow researchers to rapidly analyze counts of cancers and quickly explore multiple scenarios.

The Cancer Counter can be used to:

- Generate tabulations for proposal development.
- Enable the CRN to rapidly respond to NCI and CRN tumor count queries.
- Improve data access for quality assurance purposes.
- Analyze data to generate papers.

Methods

The design of this Cancer Counter was based on a Group Health Cooperative prototype. Each participating CRN site sends a de-identified cancer case summary file from their virtual tumor registry to a Secure Host Server at CHR where the data are checked, cleaned, and subsequently loaded into the application.

Users can select counts using the following variables:

- Cancer Site (Lung, Colon, Liver, etc.)
- Morphology (Type of Tumor Cell)
- Stage (Localized, Regional, Distant, etc.)
- Behavior (Malignant, In situ, Benign, etc.)
- Race
- Hispanic Ethnicity
- Gender
- Age at Diagnosis
- Vital Status
- Year of Diagnosis
- Participating CRN Health Plans

Security considerations:

- The data in this application are de-identified and anonymized as defined under HIPAA and CRN Steering Committee guidelines.
- To access the application requires a UserID and password.
- Participating HMO's are numbered according to CRN coding instructions.
- Reports showing less than 5 will be shown as "less than 5 cases".
- The application records the reason for use, date, and all pages viewed by every user.
- The application is integrated into the Cancer Research Network's national website.
- Queries and results are SSL encrypted.

Applications

Publications / Proposal Tool

- Tool to develop and expedite CRN proposals
- Inexpensive, easy, and quick tool to analyze Tumor Registry data

Analysis Tool

- Quickly respond to NCI queries of study feasibility

Limitations

- The application counts only tumors —persons with multiple tumors are counted multiple times.
- The application cannot identify cancer incidence.
- Not all virtual tumor registry data are used.

Results

The CRN Cancer Counter has been used to develop proposals and answer queries. Users especially appreciate the ability to quickly and iteratively query the data.

Conclusions

CRN Cancer Counter is a simple, yet powerful tool that enables researchers to quickly learn the number of cancer cases for participating health plans using selection criteria. This tool has been useful for developing proposals, running queries, and improving data quality.

Future Work:

- Add cross tabs (frequencies by strata)
- Add more CRN Sites
- Include more tumor registry variables as strata

So, you want to use the Cancer Counter?

- Are you a CRN researcher?
  - If you are, and have website access, you may proceed via the website link.
  - If you are not, contact a CRN researcher for collaborative opportunities.

Cancer Counter Policies

Goals

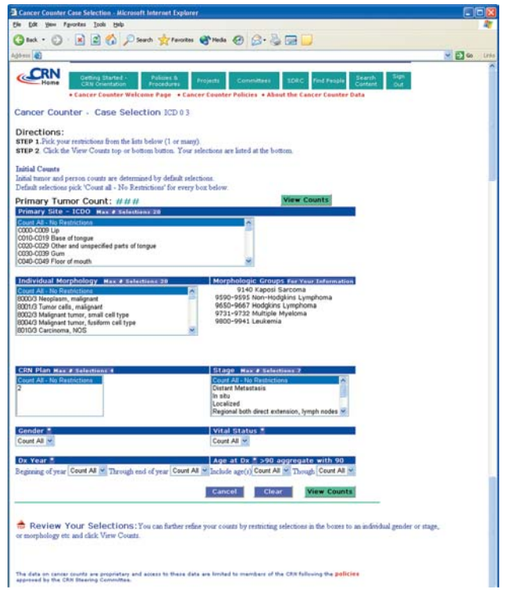
- Improve CRN access to cancer information for grant proposals.
- Improve data access for quality improvement purposes.
- Enable the CRN to rapidly respond to NCI queries.

HIPAA considerations

The data underlying this application are de-identified and anonymized as defined under HIPAA. There are no dates since diagnosis date is aggregated to DX year.

Policies

- Use is limited to those who have access to the CRN website.
- Information that requires the PI's permission before dissemination:
  - Any "public" document where HMO specific numbers are used. The PI will be responsible for handling any necessary IRB approvals at the HMO. Examples:
    - Grant Proposals
    - Reports distributed outside the CRN.
    - Publications.
- Information that does not require the PI's permission before dissemination:
  - Aggregate counts across all the HMOs of the CRN.
  - Information that will not leave the CRN. Examples:
    - Counts of cancers for proposal feasibility purposes.
    - Use of data for data quality improvement.



The HMO CRN Cancer Research Network

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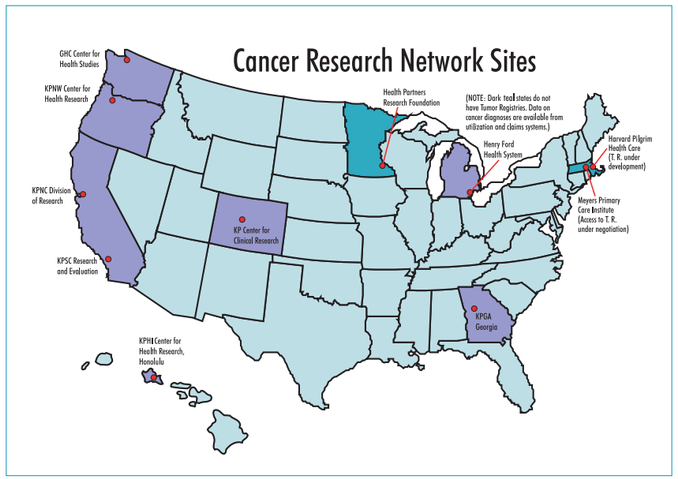
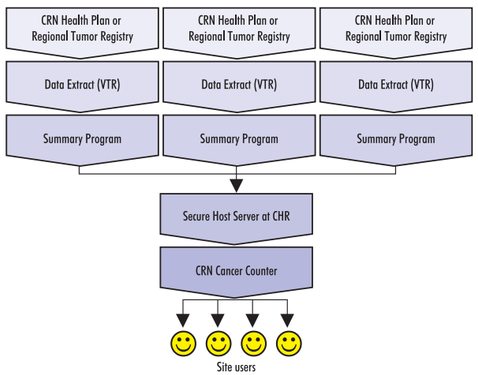
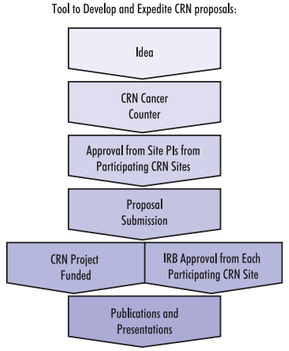
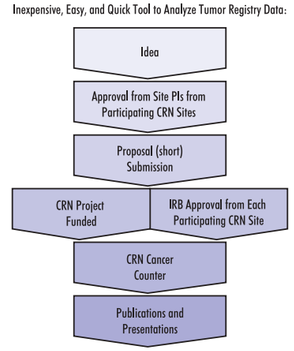
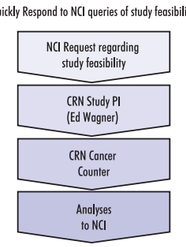


Cancer Counter Data Flow Diagram



Publication/Proposal Tool





Analysis Tool