BY ELECTRONIC DELIVERY

Patricia Flatley Brennan, RN, PhD
National Library of Medicine
8600 Rockville Pike
Bethesda, MD 20894

RE: Request for Information (RFI), ClinicalTrials.gov Modernization

Dear Director Brennan:

On behalf of the 15 undersigned organizations, we welcome your request for our input on the efforts of the National Library of Medicine (NLM) on behalf of the National Institutes of Health (NIH) to modernize ClinicalTrials.gov. Representing the stakeholder groups of individuals with cancer, their families, and cancer advocacy organizations, we request that you include our recommended changes designed to reduce patient barriers to reliable clinical trial information. While our recommendations are targeted specifically to cancer clinical trials, it is important to note that cancer clinical trials encompass between 40% and 50% of all clinical trials conducted in the United States [1, 2].

We encourage you to incorporate these recommendations into the overall modernization activities of ClinicalTrials.gov. We stand ready to work with your team on specific recommendations and offer our collective expertise. Thank you for your efforts to modernize ClinicalTrials.gov and we look forward to our work together

Listed below are comments that focus on the topic areas outlined specifically in the RFI.

Website Functionality

New Uses

The outcome of a January 2019 clinical trial matching summit sponsored by American Cancer Society Cancer Action Network (ACS CAN), was a consensus of 9 recommendations created to improve trial matching, many of which are relevant to ClinicalTrials.gov [3]. One proposed solution is to provide basic trial screening capabilities using currently required functionality of electronic health records (EHRs), which exist already in nearly all care settings. This “blue button” functionality would enable one-button clinical trial matching within EHRs by providers or by patients themselves through patient portal access to their medical record. Today most cancer clinical trial participants are identified and screened by their provider or treating institution, but the screens that occur are typically only conducted for clinical trials open at that particular institution. Small institutions may not screen patients at all if they do not offer trials, and larger institutions rarely bother to look for offsite trials if a patient does not match to an onsite trial. This means that often many interested patients are never made aware of available trials that may be located at neighboring institutions. This narrow confinement of screening to onsite trials also means that over half of patients will not have any clinical trial opportunities presented to them by their provider [4].

Enabling easy site-agnostic trial screening is critical to changing this paradigm, and ClinicalTrials.gov can play a critical role in this change.

The matching would be realized through the export of a select number of standardized deidentified patient clinical data points to external matching services as well as the receipt back into the EHR of the resulting trials. ACS CAN is leading a workgroup that has identified six high-value clinical criteria and are working on the data standards and protocol for export, with a proof-of-principal pilot expected by late summer of 2020. ClinicalTrials.gov could serve as one of the external matching services that receives data from EHRs and returns matching trials, paving the way for others.

The ability to search by cancer type, cancer subtype and cancer stage/grade via separate fields would be ideal. Currently, these three fields are grouped together in the condition field. Examples of trial finders that match based on separate fields for cancer type, cancer subtype and cancer stage/grade include the Pancreatic Cancer Action Network (https://clinicaltrials.pancan.org), BreastCancerTrials.org, and LUNGevity Foundation (https://clinicaltrials.lungevity.org/).

Below are screenshots from the Pancreatic Cancer Action Network's (PanCAN's) trial database and trial finder that illustrate suggested functionality.

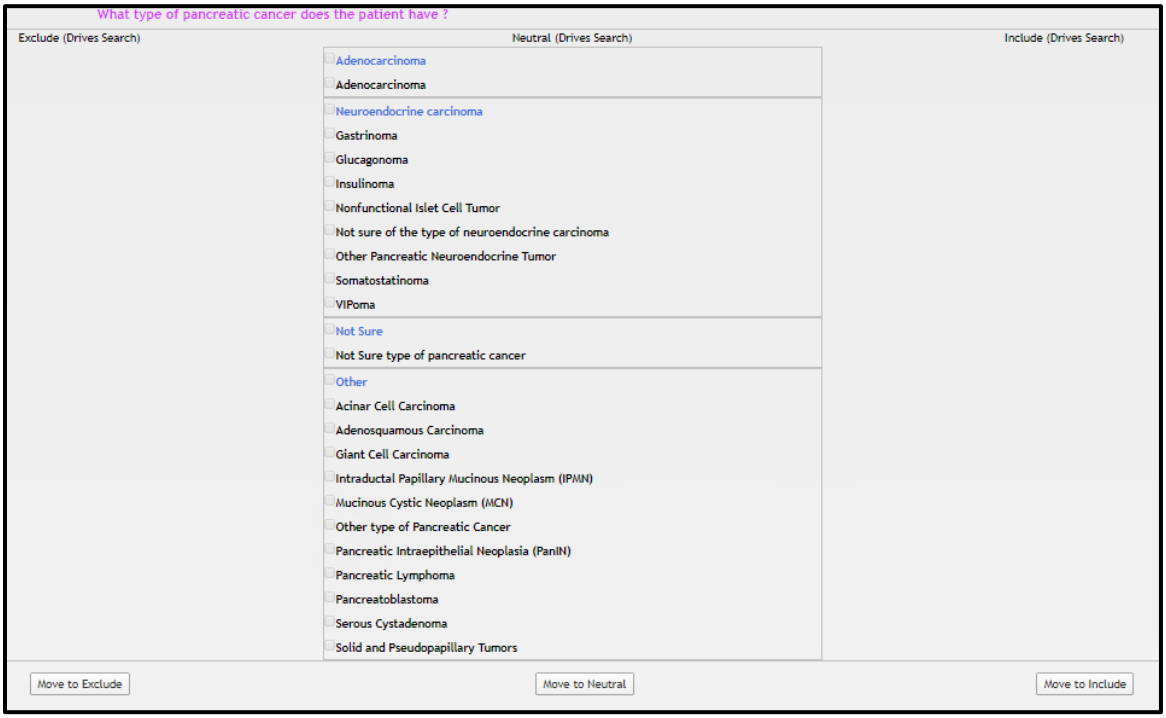


Figure 1: Back-end structuring of pancreatic cancer subtype data from PanCAN's trial database

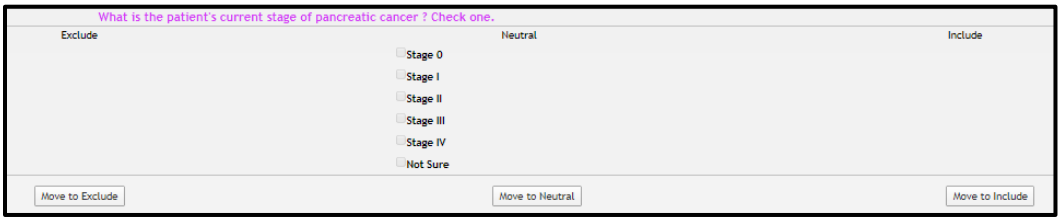


Figure 2: Back-end structuring of pancreatic cancer stage data from PanCAN's trial database

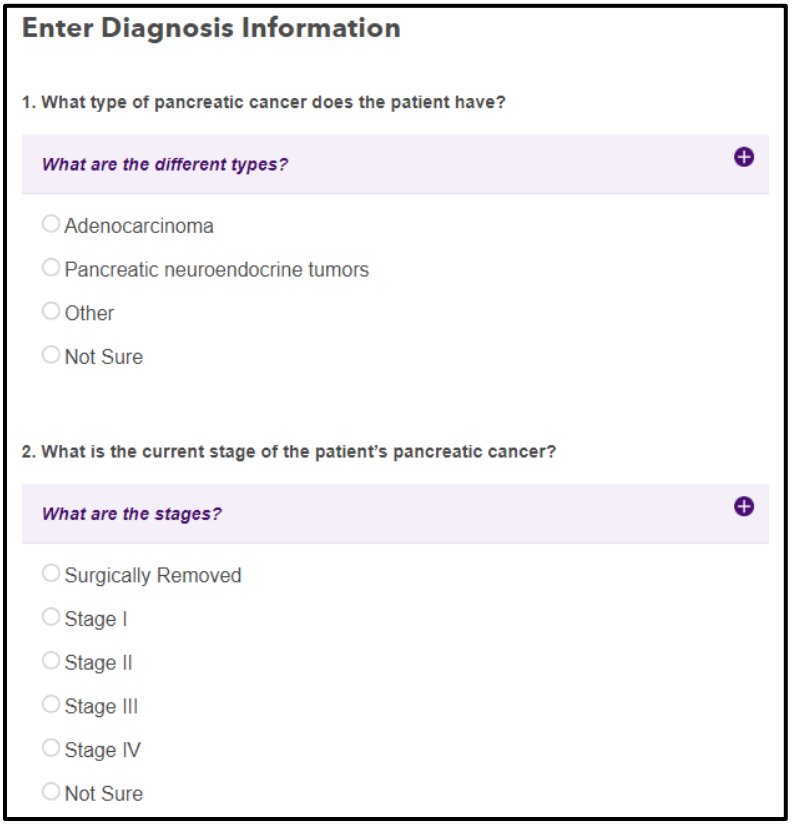


Figure 3: Front-end search by patient using structured data fields for subtype and stage

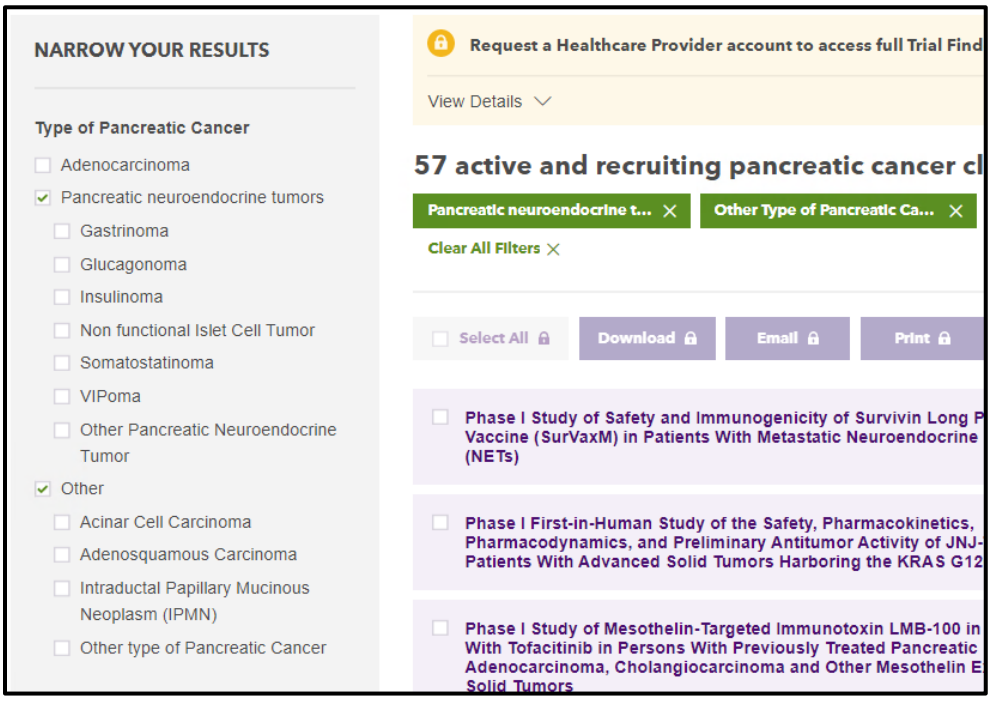


Figure 4: Front-end search by healthcare professional using structured data fields for subtype

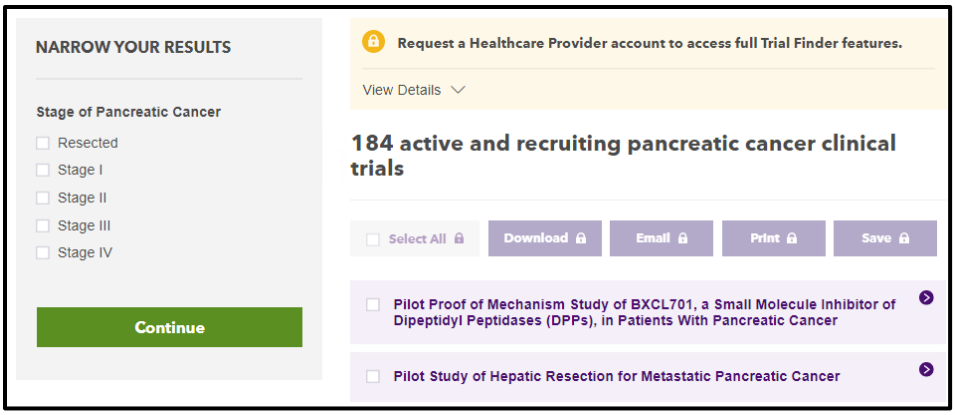


Figure 5: Front-end search by healthcare professional using structured data fields for stage

The ability to search by biomarker status, which may be a subtype for some cancers, is increasingly important for clinical trial matching. It is necessary to be able to search by biomarkers that would exclude patients from clinical trials and biomarkers that are required to be identified for a patient to enroll.

Other important search functions are the ability to search by the categories and names of prior treatments that a patient has received and the number of lines of previous treatment. This would serve as helpful for both healthcare professionals searching on behalf of their patients and patients themselves who come to ClinicalTrials.gov to find clinical trials. Examples of trial finders that match based on prior treatment history include clinicaltrials.pancan.org, BreastCancerTrials.org, and the JasonCarterClinicalTrialsProgram.org.

Below are examples of PanCAN's structured and searchable fields for number and type of prior treatments.

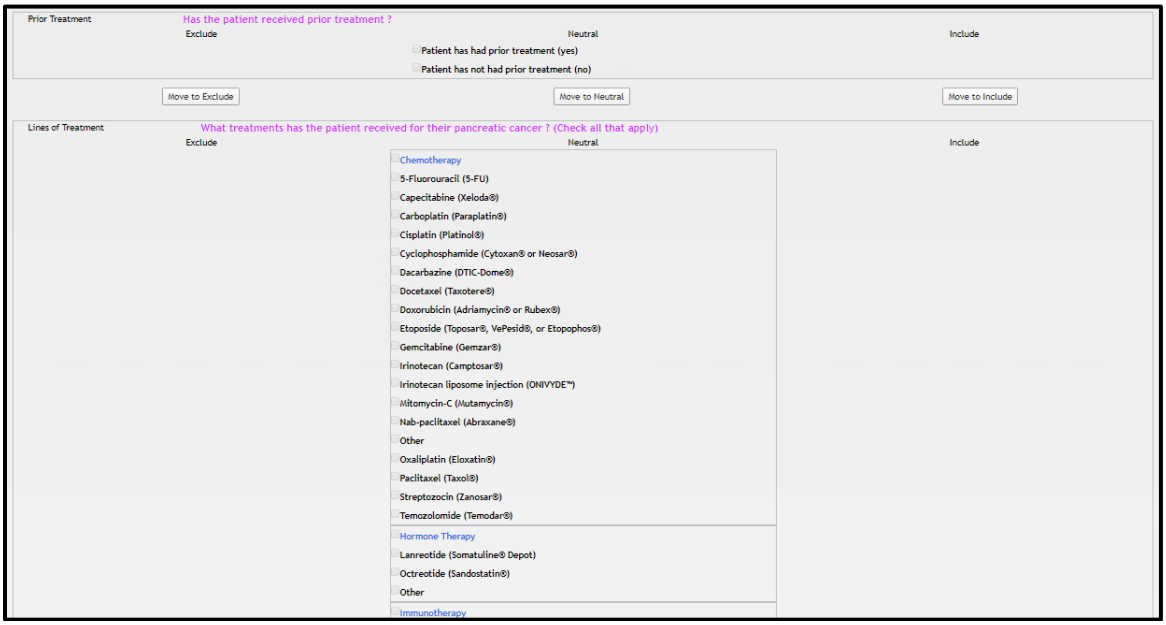


Figure 6: Back-end structuring of prior treatment data

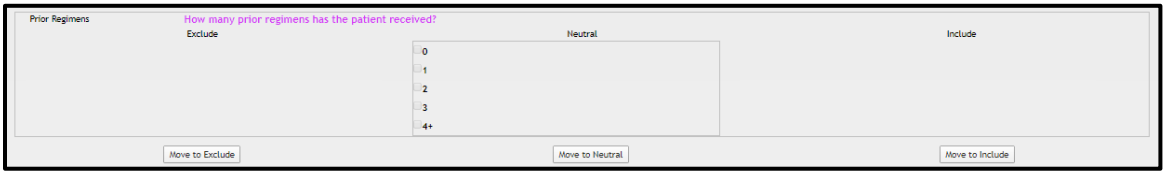


Figure 7: Back-end structuring of lines of treatment data

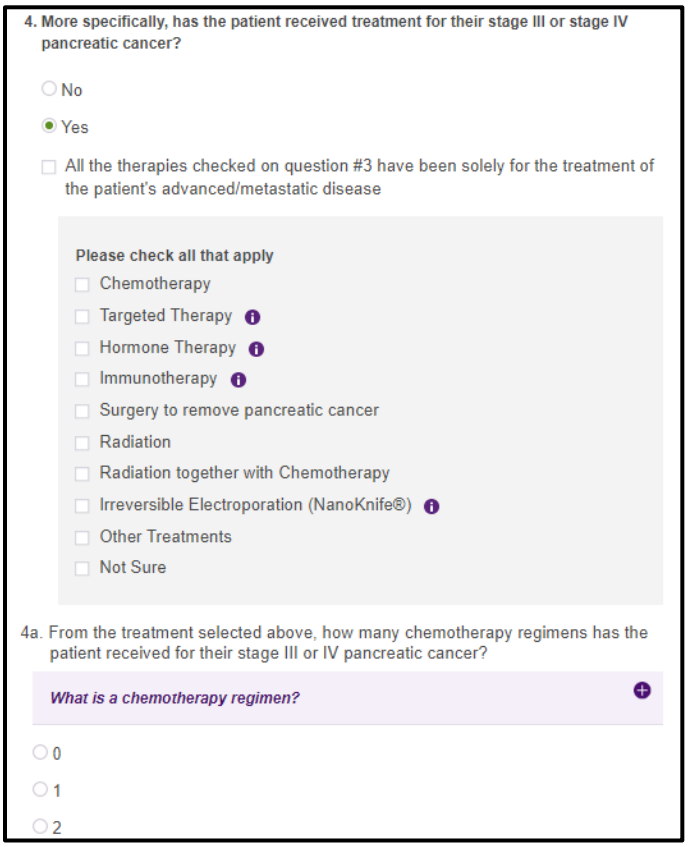


Figure 8: Front-end patient search by prior types and lines of treatment

Figure 9: Back-end structuring of line of treatment studied in clinical trial

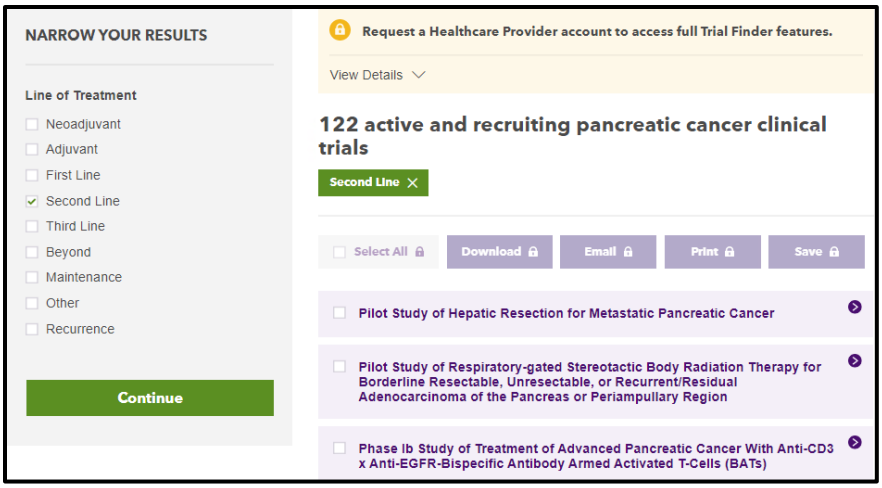


Figure 10: Front-end healthcare professional search by line of treatment studied in a clinical trial

HYPERLINK: "https://www.breastcancertrials.org/BCTIncludes/FindATrial/GetStarted.html"

Useful Resource Links

We recommend linking to websites of disease-focused patient advocacy groups that provide resources for clinical trial patient education, matching, and navigation. Many of these organizations provide educational materials and personal assistance to patients navigating their cancer care, including encouraging enrollment in clinical trials. As NLM understands, ClinicalTrials.gov cannot directly serve each disease community with pertinent information and this linkage provides an opportunity to navigate patients to respective expert communities. From the cancer perspective, some potential advocacy groups include:

- American Cancer Society (cancer.org)
- American Society for Clinical Oncology (https://www.cancer.net/)
- BreastCancerTrials.Org
- The Jason Carter Clinical Trials Program, offered by Be The Match® (https://www.jasoncarterclinicaltrialsprogram.org/)
- Leukemia & Lymphoma Society (LLS) (https://www.lls.org/)
- LUNGevity Foundation (https://lungevity.org/)
- PanCAN (pancan.org and clinicaltrials.pancan.org)
- Susan G. Komen (https://ww5.komen.org/)

Similar examples of such links to external groups from NIH websites include: https://supportorgs.cancer.gov/home.aspx?js=1 and https://www.ninds.nih.gov/Disorders/All-Disorders/Sleep-Apnea-Information-Page/2794/organizations/1256

In addition to advocacy groups, government-funded education materials related to clinical trials, such as the resources on cancer.gov, would also be helpful links to educate patients on clinical trials.

Linking to publications of the published and presented results from completed clinical trials, including both positive and negative results, would be beneficial resources for not only researchers and clinicians, but also for patients considering clinical trial enrollment. Transparency in clinical trial

results will continue to move research forward. Additionally, it would be helpful to explore the linking of publications and meeting abstracts automatically on the results tab by referencing the national clinical trial (NCT) numbers often included in these publications.

Current Uses

Use of the Application Programming Interface (API)

For patient advocacy groups who utilize the ClinicalTrials.gov API to access and download posted data on ClinicalTrials.gov studies, there is limited structured information provided. This requires that each of the advocacy groups download the data into their databases and manually curate it in order to make it structured and to make the data useable for clinical trial matching. This serves as very redundant work done by multiple advocacy groups. In addition to structuring the data, the advocacy groups also write patient-friendly summaries for each of the clinical trials and reach out to sponsors to ask clarifying questions of the vague eligibility criteria as well as gather important details on the trials for patients, such as the frequency of visits to the site to participate in the trial. For example, both BreastCancerTrials.org and PanCAN estimate that it takes 3-5 people hours per clinical trial to structure the data for matching, to write patient-friendly summaries, and to correspond with the sponsors to verify and gather additional information that is needed for patient matching and decision-making.

Given the labor and resources involved in this curation, our primary request is to increase the number of structured fields in the database. Increased structure assists not only third-party search services that utilize ClinicalTrials.gov data, but it can also increase the site's own native search functions. For example, the ability to search on non-patient clinical characteristics, such as patient preference fields like study type, study location, study phase, funder type, and access to study protocols is a very useful feature. These filter options are possible because of the structure of the underlying data. A multi-stakeholder group has identified high-priority data fields that would be most useful to have structured for oncology trials. These specific fields that would be helpful to have sponsors enter data in a structured way and include: 1) cancer type, 2) cancer subtype, 3) biomarker status, 4) stage/grade of cancer/presence of metastases, 5) number of prior therapies allowed/excluded, and 6) categories of or names of excluded or required prior treatments.

The lack of consistency in trial sites and names when trials are offered at the same institution also creates extra work for patient advocacy groups utilizing the API. For example, because of the lack of consistency in the sites within the ClinicalTrials.gov record, PanCAN does not utilize the site information through the API and instead maintains a consistent list of sites within their clinical trial database. From there, PanCAN staff must manually add these sites and the site contacts to each trial that is added to the database. Sites must also be manually removed from trial records in the PanCAN database as sites close. For the National Cancer Institute (NCI) National Clinical Trial Network (NCTN) group trials, which can include hundreds to a thousand sites, this can take up to 20 people hours for a single NCTN trial. Having consistency in site records on ClinicalTrials.gov will allow advocacy group resources to be better spent in patient education and navigation of clinical trial matching and ultimately, lead to more enrollments. See the images below for inconsistencies in both site name and contact information.

Information from the National Library of Medicine NIH NLM

To learn more about this study, you or your doctor may contact the study research staff using the contact information provided by the sponsor.

Please refer to this study by its ClinicalTrials.gov identifier (NCT number): ***NCT04229004***

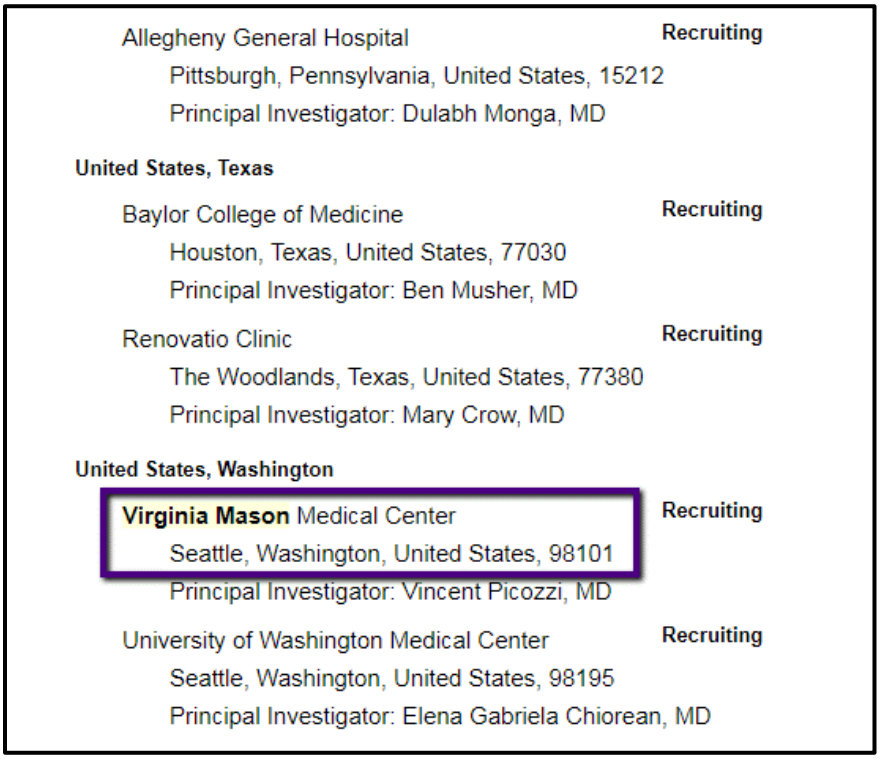
Locations

United States, New York

New York University Langone Medical Center - Perlmutter Cancer Center — **Recruiting**
New York, New York, United States, 10016
Contact: Keith Kallas 929-455-2433 keith.kallas@nyumc.org

United States, Washington

Virginia Mason Hospital & Seattle Medical Center — **Recruiting**
Seattle, Washington, United States, 98101
Contact: Vincent Picozzi 206-223-6193 vincent.picozzi@vmmc.org
Contact: Anas Najjar 206-287-6271 anas.najjar@virginiamason.org



Allegheny General Hospital — **Recruiting**
Pittsburgh, Pennsylvania, United States, 15212
Principal Investigator: Dulabh Monga, MD

United States, Texas

Baylor College of Medicine — **Recruiting**
Houston, Texas, United States, 77030
Principal Investigator: Ben Musher, MD

Renovatio Clinic — **Recruiting**
The Woodlands, Texas, United States, 77380
Principal Investigator: Mary Crow, MD

United States, Washington

Virginia Mason Medical Center — **Recruiting**
Seattle, Washington, United States, 98101
Principal Investigator: Vincent Picozzi, MD

University of Washington Medical Center — **Recruiting**
Seattle, Washington, United States, 98195
Principal Investigator: Elena Gabriela Chiorean, MD

Figures 11 a and b: The same facility is represented in multiple ways within the ClinicalTrials.gov database

For both the API utilization and when viewing trial records when searching on ClinicalTrials.gov, we recommend adding the ability to easily identify the clinical trials that have had impactful modifications to the eligibility criteria and the arms without combing through the history of changes. Many times, records indicate that there has been a change, but when looking at the history of

changes, there have simply been minor formatting changes and not changes to the actual criteria. This serves as unnecessary wasted time by users of ClinicalTrials.gov, including the advocacy groups utilizing the API that would be better spent in patient education and navigation.

Using the website

ClinicalTrials.gov serves as the most used search engine by oncology professionals when looking beyond their own facility for clinical trials for their patients. In the preliminary analysis of a recent survey conducted by several of the undersigned organizations, it overwhelmingly was cited as the go-to resource for providers, regardless of practice size or setting.[1] When speaking with advocacy groups, patients also report the use of ClinicalTrials.gov to locate clinical trials for which they may be eligible. Advocacy groups also rely on ClinicalTrials.gov to find clinical trial information for patients to whom they are providing personalized assistance.

The ability to download search results of trials of interest is a helpful feature for healthcare professionals, patients and advocacy groups. This allows users to be able to have a list of matched trials when discussing clinical trial options during patient and healthcare professional communications. It also makes it relatively easy for advocacy groups to share a curated list of clinical trials for which a patient may qualify to that individual patient.

The world map feature is a valuable tool for patients to understand the location of trials beyond just those close to a given zip code. Patients may have extended networks of friends and family that could serve as host locations for a patient to stay during a trial, or the trial may be located close to an available hospitality house like the Hope Lodge network. Limiting trials to proximity of one single zip code, therefore, restricts the ability for mobile patients to explore alternate sites. The map provides a useful interface for that exploration.

As previously mentioned, the ability to search on non-patient clinical characteristics, such as patient preference fields like study type, study location, study phase, funder type, and access to study protocols is a very useful feature. To augment, we suggest including more of these features, including the ability to search by frequency and number of study visits, access to consent forms, and pre-enrollment requirements. As just-in-time sites become more common for clinical trials, it would also be helpful to be able to search for clinical trials that are designed to open a study site at the patient's treating facility.

Listed in *Appendix A* is a sampling of cancer type choices available from the ClinicalTrials.gov drop-down menu. These choices combine the cancer type, subtype and stage into one category. As prior mentioned, it would be more useful for website users and API users, to separate these into separate selection criteria. Also, the descriptions listed have some overlap in terms of disease descriptions, and while the search engine utilizes a synonym function to search against multiple terms, not all synonyms are recognized. For example, a recent search for Phase III trials actively recruiting for metastatic pancreas cancer returned 10 results. A search for Phase III trials actively recruiting for pancreas cancer stage IV resulted in no trials. Stage IV cancer, by definition, is metastatic so these

[1] The results are presently being analyzed and will be published later in 2020 by several of the undersigned organizations.

searches should have yielded the same results but did not. We recommend more work to improve mapping synonyms.

Other disease relationship functions need to be similarly improved. For example, searching for clinical trials for pancreas cancer does not yield trials open to any solid tumor even though pancreas cancer is a type of solid tumor. Increasingly cancer trials are open to multiple tumor types, so this lack of sophistication in understanding the mapping of cancer types to broader categories means patients are not being exposed to potential matching trials. At the same time, it would also be very helpful to have functionality for users to be able to filter out solid tumor trials if they would specifically like to find trials that are only studying their specific cancer diagnosis, as this is a desire for some patients.

Currently, the synonym mapping that is done is viewable in the search details tab which is not intuitive to users. Meaning, users may not know that they can view which search terms and synonyms were searched based on their own search terms. It would be helpful to have that information more visible to users, such as in the scenario below, stating "Also searched for Pancreatic Neoplasm, Neoplasm and 24 other terms – See Search Details."

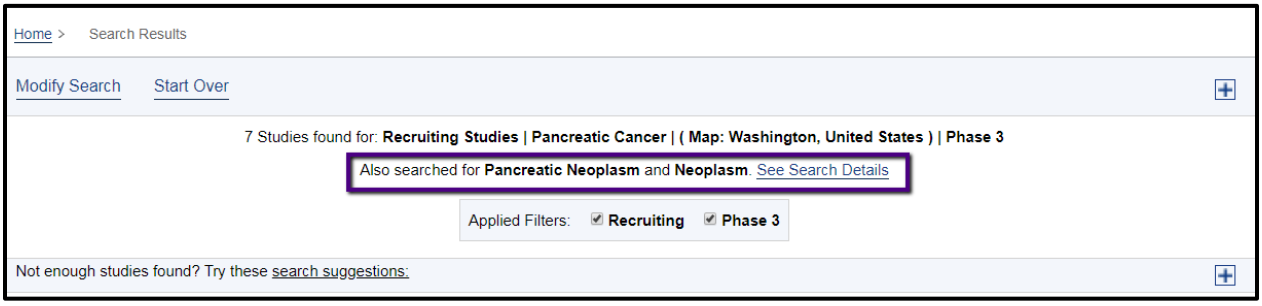


Figure 12: Depiction of synonyms used in search

In addition to improved synonym mapping, the functionality to search by multiple terms in a single field could also mitigate the current shortcomings of the mapping of cancer types. For example, this could allow users to search by breast cancer and breast carcinoma at the same time, potentially yielding more accurate results.

Better functionality is needed to be able to search for keywords in the "other terms" search box. For example, in searching for pancreatic cancer trials in the second-line setting that are actively recruiting in the United States, the search results yielded only four clinical trials. However, when using PanCAN's clinical trial finder (clinicaltrials.pancan.org), where trial information about the line of treatment being studied is structured, the search yields 119 clinical trials. This is an example of where structured data on the line(s) of therapy being studied would assist users in finding applicable trials.

There is a lack of patient-friendly descriptions of the clinical trials, especially when describing the purpose of the clinical trial, the arms being studied in the clinical trial and eligibility criteria. One option is to add a new field labeled lay summary for clinical trial sponsors to submit lay-level descriptions and eligibility criteria for their trials. Another option would be to explore collaborations with disease advocacy groups who already create patient-friendly versions of the clinical trial listings to explain the design and purpose of the trial and the eligibility criteria and include links in the clinical

trial posting that will direct to these clinical trial listings on advocacy group websites. This will help to enhance the conversations that patients have with their providers regarding clinical trials of interest.

Current uses

The primary purpose of ClinicalTrials.gov for our organizations is to utilize a limited range of studies, specifically studies for the different types of cancers. When searching for these limited range of studies, it would be helpful to be able to see a tiered list of studies that includes 1) the studies that only the disease indication that is searched is being studied 2) any all-comer/solid tumor trials that are also matches.

Within the limited range of studies, it would be helpful to have criteria to further limit the list of studies. Limiting criteria should include required/excluded biomarkers, required/excluded prior treatments, required type of cancer, required subtype of cancer, and the required stage of cancer. It would also be helpful to continue to be able to narrow down the results using the map feature to narrow in on a specific county and state. It is also helpful to be able to narrow down by a radius from a specific zip code.

When looking at the landscape of clinical trials available for cancer patients, it is also helpful to look a slightly broader range of studies that are cancer studies, including the geographic locations of the studies, the types of studies (interventional versus observational) and intervention types, such as immunotherapy versus chemotherapy.

Information Submission

Registration improvements

As previously mentioned, in 2018, ACS CAN issued a report that provided 23 recommendations for overcoming barriers to patient enrollment. These consensus recommendations identified areas that would benefit from improvement, including standardized syntax submissions, more structured data fields, the ability for sponsors to share “private” information, such as proprietary biomarkers that may not be listed in the text, but would allow for trial matching, and more accurate and consistent site information.

ClinicalTrials.gov is positioned to influence how future clinical trial protocols are both written and submitted. All clinical trial protocol design will be impacted by what ClinicalTrials.gov allows and mandates when clinical trial information is submitted to the site. ClinicalTrials.gov represents the single source of truth when it comes to clinical trial information, but some of the information continues to be inaccurate or incomplete due to current limitations.

As more sponsors recognize the importance of and gain the ability to provide structured data, it would be beneficial to offer multiple ways to enter data. This would provide sponsors who have the ability to enter structured data the opportunity to do so and create better records, while maintaining flexibility for those sponsors who would like to continue with the existing free-text entry or do not have the ability to presently change their process.

In regards to structured data, specific fields that would be helpful to have sponsors enter data in a structured way include: cancer type, cancer subtype, biomarker status, stage of cancer/grade of

cancer/presence of metastases, number of prior therapies allowed/excluded, and categories of/names of excluded or required prior treatments.

It would be helpful to have a mechanism whereby sponsors can easily notify ClinicalTrials.gov when a Phase I/II trial switches from Phase I to Phase II. It makes it very difficult when there are different cohorts for each phase to know which phase is currently enrolling and what the current eligibility criteria is. If possible, please require or incentivize sponsors to update what portion of the trial they are currently recruiting for and update the eligibility for the current phase of the trial that is recruiting.

Regarding site information, there is both a lack of specificity and consistency in site names and contact information for the sites. In the figures below, there are examples of non-specific (Figure 13) and specific (Figure 14) site names and contact information.

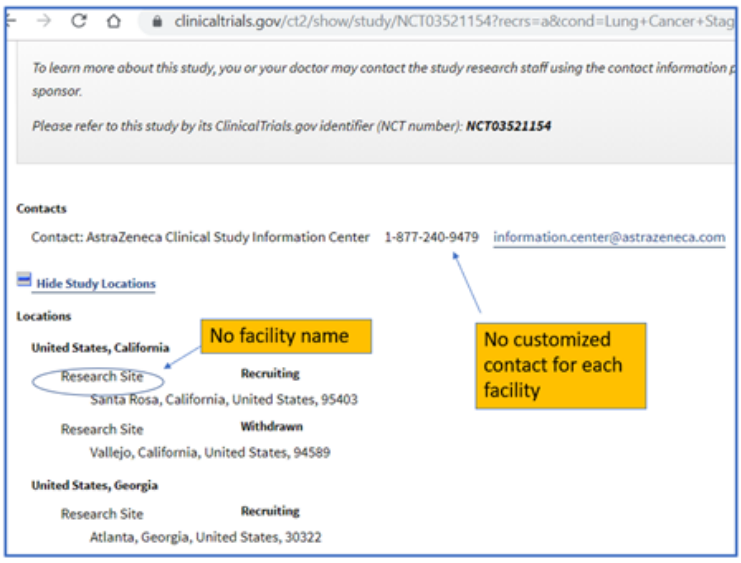


Figure 13: Sites lack names and contact information

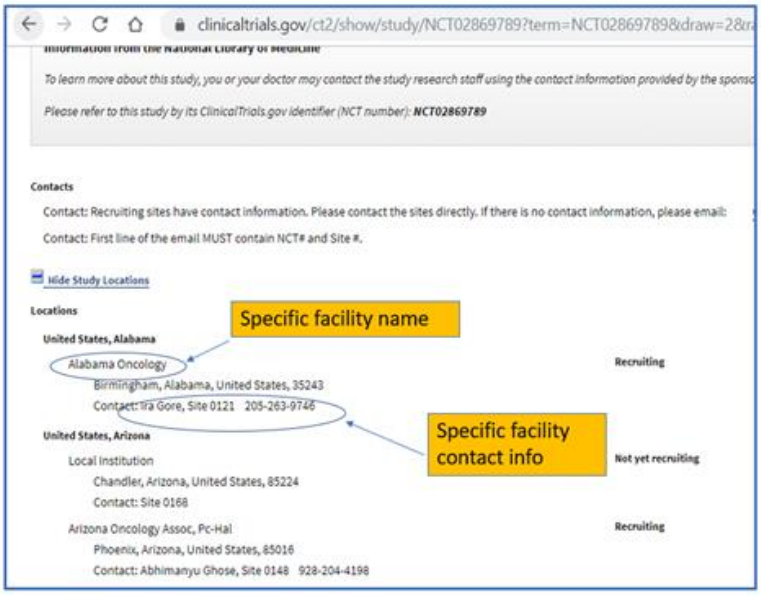


Figure 14: Sites include full name and unique contact information

We suggest exploring if there is a universal facility number that already exists and could be used to create consistency in site names or exploring the creation of a structured table of sites for sponsors to pick from in order to bring more consistency to the site names. Furthermore, it would be tremendously helpful if sponsors were required to provide the actual site information, including contact information and zip code and not just the city and state.

Credits, incentives and recognition for submission of accurate and timely information

It may be helpful to show results in an order that lists the most recently updated clinical trials at the top of the list. This could incentivize sponsors to ensure their records are up to date.

While not directly an incentive to sponsors, it may be helpful to include some sort of direct feedback loop/reporting capability (maybe a button in the clinical trial record) to allow various stakeholders, including advocacy groups, patients, physicians, and or investigators to inform ClinicalTrials.gov of out-of-date information. This may serve as a way for the ClinicalTrials.gov staff to prompt the sponsor for updated information. Currently, when advocacy groups hear from patients that a trial is closed, a site contact information is wrong, or other incorrect information is listed on ClinicalTrials.gov, the advocacy groups are spending time to reach out to the sponsors or sites to gather the correct information. This information is shared with the patient who is inquiring but is not updated on ClinicalTrials.gov. Once more, this serves as unnecessary wasted time by advocacy groups that could be used for clinical trial patient navigation and education.

Data Standards

Balancing standards while retaining flexibility in submitted information

We recommend creating capabilities to submit both free-text eligibility criteria and standard machine-coded criteria through separate data entry fields. This allows trial sponsors or reporting intermediaries who have more advanced capabilities to submit structured data, while still preserving the legacy free-text entry. It is critical that ClinicalTrials.gov allow advanced sponsors to increase the structure and utility of their data as much as possible, and not restrict website or database improvements based on the slowest adopting or least sophisticated trial sponsors.

In addition to/in place of free-form text field for “standard set” of eligibility, we recommend that ClinicalTrials.gov provide a list of dropdowns/checkboxes to indicate eligible or ineligible patient populations. One common area of clarification needed is around the use of the term “advanced disease” as an eligibility criterion. As mentioned previously, there is overlap in the use of “stage IV,” “metastatic,” and “advanced” as descriptions of cancer status. Having multi-select dropdown or checkboxes that only allow the selection of specific stages of disease, such as stage III and/or stage IV would mitigate this issue. Also, for all-comer trials in the solid tumor space, requiring a multi-select dropdown or checkboxes that only allow the selection of specific types of solid tumors such as pancreatic adenocarcinoma, non-small-cell lung carcinoma, etc., could mitigate some of the issues with solid tumor trials not appearing in results.

Having an improved search engine that recognizes the sameness between “pancreatic cancer” being a “solid tumor” and likely “pancreatic adenocarcinoma” (if a subtype was not provided) and better mapping of cancer types will also mitigate issues in search results.

Many patients are more likely to search for "pancreatic cancer" rather than "pancreatic adenocarcinoma," so the mapping of cancer terms is imperative to account for variations in the health literacy of users, as healthcare providers and patient advocacy groups using the site are more likely to use the appropriate cancer type and subtype when searching.

Another area that would be helpful to capture structured data is around performance status. Some clinical trials provide ECOG performance scores, while others provide Karnofsky performance scores. Requiring that these fields be a structured dropdown selection and that both fields are required, will help with patient advocacy groups who utilize performance status in clinical trial matching.

As mentioned above, separating out the type of cancer, subtype of cancer and stage of cancer in to separate structured fields is ideal for assisting users in both entering the correct data for their trial and for users searching for appropriate trials for a patient.

Names and references to specific standards

We recommend the utilization of "syntax standard" along with a universal data standard to improve data quality. ACS CAN has convened a diverse set of stakeholders, including staff from ClinicalTrials.gov to develop a pragmatic "syntax standard" which could be implemented in the near term while longer-term database modifications and investigator infrastructure changes are being made to accommodate machine-readable standards. This syntax standard would continue to be text based, but syntax and terminology rules would dictate the form in which the criteria were presented with the goal of creating unambiguous phrases that are more easily interpreted by natural language processing (NLP), while retaining human readability. NLP is increasingly being used to translate free text into more structured data in an automated way. The workgroup is currently developing the syntax framework and hopes to pilot test and validate the end product by the end of 2020. The collaborative community will share results of that project when completed.

In parallel to the syntax standard, we strongly recommend that ClinicalTrials.gov adopts a machine-readable data standard for eligibility criteria. For example, the new Minimal Common Oncology Data Elements project or mCODE™ offers an example of an open source, non-proprietary data model for common data standards and language. This collaboration between ASCO and the MITRE corporation serves as an example of accessible interconnectivity and data standards across different systems. The group of stakeholders convened by ACS CAN and the mCODE™ group are willing to work together with the ClinicalTrials.gov staff to assist in the adoptions of these standards. We also suggest working with other groups outside of cancer that are working on standardization for other disease areas. EHRs continue to use different nomenclatures, so if ClinicalTrials.gov moves in the direction of standards, it will influence and activate others to move in the same direction.

In closing, we would like to thank you for the opportunity to share our experiences and recommendations for improving ClinicalTrials.gov. The website and database are valuable national resources that have assisted countless patients and providers in their quests to find clinical trial opportunities. As cancer clinical trials become more specialized and restrictive, it is more critical than ever to have state-of-the-art matching capabilities for patients to understand their options. While ClinicalTrials.gov was not originally designed or intended for patient matching, the reality is that today it is the go-to site for this function.

While the site must continue to serve its statutory role as a trial registry, it should also embrace its dual role in helping patients find clinical trials to participate in. We encourage NLM to be forward looking in its approach to the database architecture and website functionality of ClinicalTrials.gov and create an infrastructure that will allow the most advanced sponsors to submit trial records with greater structure and utility. Updates to ClinicalTrials.gov must not be tailored with the least sophisticated or slowest technology adopters as the primary design consideration. Instead, modernization should facilitate progress while continuing to provide a way for slow adopters to fulfil their registration obligations until they are capable of submitting more structured data.

We have developed a collaborative community of cancer organizations focused on the challenges of matching patients to clinical trials, and we offer ourselves as an ongoing resource as you carry out the modernization process. If you have any questions, please do not hesitate to contact either Cassadie Moravek (cmoravek@pancan.org) or Mark Fleury (mark.fleury@cancer.org). Once more, we applaud your efforts!

Sincerely,

American Cancer Society Cancer Action Network (ACS CAN)
American Cancer Society (ACS)
American Society of Clinical Oncology (ASCO)
Association of American Cancer Institutes (AACI)
Association of Community Cancer Centers (ACCC)
BreastCancerTrials.org (BCT)
Friends of Cancer Research (Friends)
Leukemia & Lymphoma Society (LLS)
LUNGevity Foundation
Massive Bio, Inc.
National Brain Tumor Society (NBTS)
Oncology Nursing Society (ONS)
Pancreatic Cancer Action Network (PanCAN)
SignalPath
The Jason Carter Clinical Trials Program, offered by Be The Match® (JCCTP)

References

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Appendix A: Cancer type drop-down menu choices *ClinicalTrials.gov Search Results*		
Solid Tumor Examples		
Bladder	**Liver**	**Skin**
Bladder Cancer; Bladder Cancer Stage; Bladder Cancer Stage 0; Bladder Cancer Stage I; Bladder Cancer Stage II; Bladder Cancer Stage IV; Bladder Cancer TNM Staging Primary Tumor (T) T2A; Bladder Cancer TNM Staging Primary Tumor (T) T2B; Bladder Cancer TNM Staging Primary Tumor (T) T3A; Bladder Cancer TNM Staging Primary Tumor (T) T3B	Liver Cancer; Liver Cancer, Adult; Liver Cancer, Adult Primary; Liver Cancer, Childhood, Group I; Liver Cancer, Childhood, Group II; Liver Cancer, Childhood, Group IV; Liver, Cancer of, Non-Resectable; Liver, Cancer of, Primary; Liver Cancer Pediatric; Liver Cancer Stage IV	Skin Cancer; Skin Cancer, Basal Cell; Skin Cancer Face; Skin Cancer Melanoma; Skin Cancer, Non-Melanoma; Skin Cancer Metastatic; Skin Cancer, Recurrent; Skin Cancer, Squamous Cell; Skin Cancer Stage III; Skin Cancer Stage IV;
Breast	**Lung**	**Thyroid**
(BREAST CANCER SEARCH RESULTS): Breast Cancer; Breast Cancer Female; Breast Cancer Lymphedema; Breast Cancer Stage; Breast Cancer, Stage 0; Breast Cancer Stage I; Breast Cancer Stage II; Breast Cancer Stage IIA; Breast Cancer Stage III; Breast Cancer Stage IV; *(BREAST CANCER STAGE SEARCH RESULTS):* Breast Cancer Stage; Breast Cancer Stage 0; Breast Cancer Stage I; Breast Cancer Stage II; Breast Cancer Stage IIA; Breast Cancer Stage III; Breast Cancer Stage IIIA; Breast Cancer Stage IIIc; Breast Cancer Stage IV	(LUNG CANCER SEARCH RESULTS): Lung Cancer; Lung Cancer Metastatic; Lung Cancer, Nonsmall Cell; Lung Cancer Non-small Cell Stage IV; Lung Cancer Recurrent; Lung Cancer, Small Cell; Lung Cancer Stage I; Lung Cancer Stage II; Lung Cancer Stage III; Lung Cancer Stage IV (LUNG CANCER STAGE SEARCH RESULTS): Lung Cancer Stage I; Lung Cancer Stage II; Lung Cancer Stage III; Lung Cancer Stage IV;	Thyroid Cancer; Thyroid Cancer, Anaplastic; Thyroid Cancer, Hurthle Cell; Thyroid Cancer, Medullary; Thyroid Cancer Metastatic; Thyroid Cancer, Papillary; Thyroid Cancer, Recurrent; Thyroid Cancer Stage I; Thyroid Cancer Stage II; Thyroid Cancer Stage IV
Colon and Rectum	**Pancreas/Pancreatic**	**Uterine Cervix**
(COLON CANCER SEARCH RESULTS): Colon Cancer; Colon Cancer Duke; Colon Cancer Metastatic to Liver; Colon Cancer Liver Metastasis; Colon Cancer Stage; Colon Cancer Stage I; Colon Cancer Stage II;	*(PANCREAS CANCER SEARCH RESULTS):* Pancreas Cancer; Pancreas Cancer, Acinar Cell Adenocarcinoma; Pancreas Cancer Cellular Diagnosis; Pancreas Cancer, Duct Cell Adenocarcinoma;	*(UTERINE CERVIX CANCER SEARCH RESULTS):* Uterine Cervix Cancer; Uterine Cervix Cancer, Stage 0; Uterine Cervix Cancer Stage I; Uterine Cancer, Stage IA; Uterine Cancer, Stage IB; Uterine Cervix Cancer Stage II;

Colon Cancer Stage III; Colon Cancer Stage iv; Colon Cancer Stage 4; *(COLORECTAL CANCER SEARCH RESULTS):* Colorectal Cancer; Colorectal Cancer, Genetics of; Colorectal Cancer Metastatic; Colorectal Cancer Recurrent; Colorectal Cancer Somatic; Colorectal Cancer Stage 0; Colorectal Cancer Stage I; Colorectal Cancer Stage II; Colorectal Cancer Stage III; Colorectal Cancer Stage IV; *(RECTAL CANCER SEARCH RESULTS):* Rectal Cancer; Rectal Cancer, Adenocarcinoma; Rectal Cancer Dukes D; Rectal Cancer Metastatic; Rectal Cancer Recurrent; Rectal Cancer Stage I; Rectal Cancer Stage II; Rectal Cancer Stage III;	Pancreas Cancer, Metastatic; Pancreas Cancer, Recurrent; Pancreas Cancer, Stage 1; Pancreases Cancer, Stage II; Pancreas Cancer, Stage III; Pancreases Cancer, Stage IV *(PANCREAS CANCER STAGE SEARCH RESULTS):* Pancreas Cancer Stage I; Pancreas Cancer Stage II; Pancreas Cancer Stage III; Pancreas Cancer Stage IV; *(PANCREATIC CANCER SEARCH RESULTS):* Pancreatic Cancer; Pancreatic Cancer, Adult; Pancreatic Cancer Metastatic; Pancreatic Cancer Non-resectable; Pancreatic Cancer, Resectable; Pancreatic Cancer Stage; Pancreatic Stage III; Pancreatic Stage II; Pancreatic Cancer Stage IV; Pancreatic Cancer Stage IVA *(PANCREATIC CANCER STAGE SEARCH RESULTS):* Pancreatic Cancer Stage; Pancreatic Cancer Stage I; Pancreatic Cancer, Stage IA; Pancreatic Cancer, Stage IB; Pancreatic Cancer Stage II; Pancreatic Cancer, Stage IIA; Pancreatic Cancer, Stage IIB; Pancreatic Cancer Stage III; Pancreatic Cancer Stage IV; Pancreatic Cancer Stage IVA	Uterine Cerix Cancer, Stage IIB; Uterine Cervix Cancer, Stage III; Uterine Cervix Cancer, Stage IV; Uterine Cervix Cancer, Stage IVA; *(CERVICAL CANCER SEARCH RESULTS):* Cervical Cancer; Cervical Cancer Stage; Cervical Cancer Stage IB2; Cervical Cancer Stage II; Cervical Cancer Stage IIa; Cervical Cancer Stage IIB; Cervical Cancer Stage IIIA; Cervical Cancer Stage IIIB; Cervical Cancer Stage IVA; Cervical Cancer Stage IVB; *(CERVIX CANCER SEARCH RESULTS):* Cervix Cancer; Cervix Cancer Recurrent; Cervix Cancer, Stage 0; Cervix Cancer, Stage I; Cervix Cancer, IA; Cervix Cancer Stage IB; Cervix Cancer Stage II; Cervix Cancer, Stage III; Cervix Cancer, Stage IV; Cervix Cancer, Stage IVA
Kidney and Renal Pelvis	**Prostate**	
(KIDNEY CANCER SEARCH RESULTS): Kidney Cancer; Kidney Cancer, Clear Cell Carcinoma; Kidney Cancer Metastatic; Kidney Cancer Recurrent; Kidney Cancer Stage I; Kidney Cancer Stage II; Kidney Cancer Stage III; Kidney Cancer Stage IV; *(RENAL CANCER SEARCH RESULTS):* Renal Cancer; Renal Cancer Metastastic; Renal Cancer Recurrent; Renal Cancer Stage I;	Prostate Cancer Adenocarcinoma; Prostate Cancer Aggressiveness; Prostate Cancer Metastatic; Prostate Cancer Metastatic to Bone; Prostate Cancer Recurrent; Prostate Cancer Stage; Prostate Cancer Stage I; Prostate Cancer Stage II; Prostate Cancer Stage III	

Renal Cancer Stage II; Renal Cancer Stage III; Renal Cancer Stage IV		
Blood Cancer Examples		
ALL	**DLBCL**	**MDS**
ALL, Childhood ALL, Adult ALL in Remission ALL, L1 Adult ALL, L2 Adult ALL, Recurrent, Adult ALL, Adult T Cell ALL, Adult B Cell ALL, L2 Childhood	Dlbcl-Ci DLBCL Unclassifiable DLBCL Activated B-Cell Type DLBCL Germinal Center B-Cell Type DLB	MDS-EB MDS/MPN MDS-RS MDS-EB-2 Mds-Mld MDS-EB-1 MDS/MPN-U MDS-Rs-Mld MDS/MPN with Ring Sideroblast and Thrombocytosis
AML	**Leukemia**	**Myeloma**
AML AML, adult AML/MDS AML M3 AML M4 AML M6 AML Childhood AML in remission AML FAB-M1 AML with Maturation	Leukemia Leukemia, Myeloid Leukemia, Chronic Leukemia, Acute Leukemia, Myeloid, Acute Leukemia, Lymphocytic Leukemia, Lymphoblastic Leukemia, T Cell Leukemia, B-Cell Leukemia Relapse	Myeloma Multiple Myeloma, Solitary Myeloma, Smoldering
CLL	**Lymphoma**	**NHL**
CLL/SLL CLL Progression CLL Transformation CLLS2 CLL Stage 1 CLL Stage 0 CLL, Relapsed CLL, Refractory CLL Stage II	Lymphoma Lymphoma, Non-Hodgkin Lymphoma, B-Cell Lymphoma, Follicular Lymphoma, T-Cell Lymphoma, Nonhodgkin Lymphoma, Mantle-Cell Lymphoma, Hodgkin Lymphoid Leukemia Lymphoma, High-Grade	NHL NHL, Adult NHL, Childhood NHL, Burkitt's NHL, Lymphoblastic NHL, Indolent, nos NHL, Metastatic Adult NHL, Stage I Adult NHL, Aggressive, nos NHL, Relapsed, Adult
T-Cell		
T-cell Lymphoma T-cell Leukemia T-cell Prolymphocytic Leukemia T-Cell Lymphoctosis T-Cell Large Granular Lymphocyte Leukemia T-Cell Lymphoma Stage IV T-Cell Lymphoma Stage III T-cell Childhood Acute Lymphoblastic Leukemia T-cell Lymphoma Adults T-Cell ALL		