



**NATIONAL CANCER INSTITUTE**



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## ABBREVIATIONS

<b>AACR</b>	American Association for Cancer Research
<b>ASCO</b>	American Society of Clinical Oncology
<b>ASPO</b>	American Society for Preventive Oncology
<b>CCSG</b>	Cancer Center Support Grant
<b>CGH</b>	Center for Global Health
<b>CSO</b>	Common Scientific Outline Code
<b>FY2018</b>	Fiscal Year 2018
<b>FY2021</b>	Fiscal Year 2021
<b>LMICs</b>	Low- and middle-income countries
<b>HICs</b>	High income countries
<b>NCI</b>	National Cancer Institute
<b>PI</b>	Principal investigator

## CONTACT INFORMATION

Additional information about the survey and results is available on the NCI Center for Global Health [website](#). Questions and data requests can be directed to Elise Garton ([elise.garton@nih.gov](mailto:elise.garton@nih.gov)), Mishka Kohli Cira ([mishka.cira@nih.gov](mailto:mishka.cira@nih.gov)), and Kalina Duncan ([kalina.duncan@nih.gov](mailto:kalina.duncan@nih.gov)).

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## INTRODUCTORY MESSAGE

It is our great pleasure to share with you the 2021 Global Oncology Survey of NCI-Designated Cancer Centers Summary Report. This report is a collaborative effort between the National Cancer Institute (NCI), the American Society of Clinical Oncology (ASCO), the American Association for Cancer Research (AACR), the American Society of Preventive Oncology (ASPO), and the 71 NCI-Designated Cancer Centers across the US.

The NCI's Center for Global Health (CGH) was established to promote the integration of cancer control into broader global health programs, foster relevant research throughout the NCI, and cultivate collaborations among researchers with shared global health objectives. In 2021, a new CGH Strategic Plan was launched to maximize NCI's impact with respect to global cancer research and control. A primary goal in the CGH Strategic Plan is to promote NCI engagement with key global health partners, which includes supporting the continued growth of global oncology at NCI-Designated Cancer Centers.

The 2021 survey is a remarkable testament to the continued commitment of NCI-Designated Cancer Centers to having truly worldwide impact. While NCI remains the largest funder of cancer research in the world, the survey described in this report is focused on global oncology activities supported from sources other than NCI. Capturing these data are challenging, but we believe this report to be the most systematic and comprehensive effort to document the full breadth of non-NIH-funded global oncology activities. Together with publicly available NIH funding data, this complementary report helps provide a more holistic view of global oncology commitment and activities at NCI-Designated Cancer Centers. We are extremely grateful to the cancer centers for their willingness to share their non-NIH-funded portfolio of global oncology work. The work described includes collaborators in 143 countries. As you read the report and accompanying appendices, you will find investments in research and training that touch every point along the cancer control continuum. Substantive efforts are also described related to training and capacity building, especially with collaborators in low- and middle-income countries.

Since the survey was last conducted, the COVID-19 pandemic has drastically impacted cancer control around the world. COVID-19 is exacerbating global cancer morbidity and mortality because of major disruptions in cancer care. An additional goal of this year's survey was to understand how COVID impacted global oncology activities, and these data are described in the report.

This report is ultimately intended to facilitate information sharing, program development, and collaboration. We encourage NCI-Designated Cancer Centers to reach out to NCI if we can help facilitate connections with colleagues working on similar research topics and in similar geographic settings. We also hope that this report will serve as a catalyst for the global oncology community to discuss ways to better prioritize and coordinate global oncology research and training. To that end, we encourage you and your colleagues to sign up for email updates for upcoming events and discussions hosted by the NCI Center for Global Health. For more information about this year's survey, please contact Elise Garton at [elise.garton@nih.gov](mailto:elise.garton@nih.gov).

Best Regards,

Satish Gopal, MD, MPH  
Director, Center for Global Health

Henry Ciolino, PhD  
Director, Office of Cancer Centers

## BACKGROUND

### NCI CENTER FOR GLOBAL HEALTH

The Center for Global Health (CGH) at the US National Cancer Institute (NCI), National Institutes of Health (NIH) was established in 2011 to contribute to improved cancer control worldwide. CGH supports the NCI mission by advancing global cancer research, coordinating NCI engagement in global cancer control, representing NCI in international research partnerships, and playing a key role in coordinating multinational research efforts for global benefit. The core values of impact, equity, and collaboration drive our **2021-2025 strategic plan** and activities. The value of collaboration reflects an awareness of the enormity of global cancer as a public health problem, beyond the capacity of CGH or NCI to address alone. Strategic partnerships, like those with the NCI-Designated Cancer Centers and their collaborators, are essential to achieving the CGH mission.

Key opportunities for CGH are the recent major growth of global cancer activities at NCI-Designated Cancer Centers, an increasing and sustained effort by countries to develop national cancer strategies inclusive of research priorities, and a strong global cancer interest among trainees and early career investigators in the NCI intramural and extramural communities living in the United States and abroad. NCI works to encourage increased global engagement by NCI-Designated Cancer Centers by developing research and training programs that are responsive to global cancer control needs and priorities and providing opportunities for connection and collaboration that are beneficial to investigators, collaborators, and the populations they serve.

The Global Oncology Survey of NCI-Designated Cancer Centers is intended to be a resource to understand and provide a more holistic view of cancer research and training. While NCI remains the largest funder of cancer research, cancer centers lead a great deal of non-NIH funded global oncology work. This survey is unique in its attempt to gather and disseminate information on cancer centers' non-NIH funded projects and programs and to assess the current state, priorities, and trends of global oncology at the NCI-Designated Cancer Centers.

### NCI-DESIGNATED CANCER CENTERS

The NCI Cancer Centers Program was created as part of the National Cancer Act of 1971 with the mission of fostering highly interactive transdisciplinary and translational cancer research through supporting formalized and centralized infrastructures in cancer research-intensive institutions. NCI recognizes cancer centers across the United States that have successfully met a spectrum of rigorous standards with the **Cancer Center Support Grant (CCSG)** and accompanying NCI designations, and both are renewed every five years through a competitive application and review process. Over the past several decades, the number of NCI-designated Cancer Centers has grown steadily, **and as of 2022, there are 71 NCI-Designated Cancer Centers** located in a variety of organizational settings in 36 states and the District of Columbia [2]. Although each NCI-Designated Cancer Center primarily serves a defined catchment area from which the center draws most of its patients, many centers have also expanded their reach beyond the surrounding local areas and conduct global oncology research and/or training.

## HISTORY OF THE GLOBAL ONCOLOGY SURVEY OF NCI-DESIGNATED CANCER CENTERS

CGH has conducted the global oncology survey four times, beginning in 2012. The first iteration of the survey consisted of informational interviews of known global oncology contacts at 31 cancer centers. The survey and its methods have since been continuously modified with each iteration. A summary of survey respondents, methodology, and response rates

is shown in Table 1. Of note, questions about the existence of a global oncology program were not asked until 2018, and the definition of a program was adjusted from 2018 to 2021 to include only dedicated, centralized programs rather than any organized activity, which accounts for the apparent decrease in programs.

**TABLE 1.** Historical comparison of global oncology surveys, 2012 - 2021

	2012	2014	2018	2021
<b># of NCI-Designated Cancer Centers</b>	66	67	70	71
<b># of Respondents</b>	31 (47%)	54 (81%)	67 (96%)	67 (94%)
<b># of Global Oncology Projects Reported</b>	175	258	613	517
<b># of Global Oncology Programs Reported</b>	N/A	N/A	33	28
<b>Methods for data collection</b>	Informational interviews (phone) with known contacts	Emails to known contacts with Excel documents	Google Form to known contacts, directors, and other cancer center representatives	Online survey tool to known contacts, directors, and principal investigators

## INTRODUCTION TO THE 2021 GLOBAL ONCOLOGY SURVEY

The 2021 survey integrates lessons learned from the previous survey iterations to systematize the global oncology survey and to better measure trends in academic global oncology over time. ASCO, AACR, ASPO, and collaborators from five NCI-Designated Cancer Centers – Memorial Sloan-Kettering Cancer Center, Norris Cotton Cancer Center at Dartmouth, Sidney Kimmel Comprehensive Cancer Center,

University of Texas MD Anderson Cancer Center, and University of Wisconsin Carbone Cancer Center – to design and pilot test the 2021 survey. Results of the survey are analyzed alongside previous survey results and data about cancer centers' NIH-funded global oncology portfolios to create a comprehensive picture of global oncology at NCI-Designated Cancer Centers.

The 2021 Global Oncology Survey of NCI-Designated Cancer Centers had six key objectives:

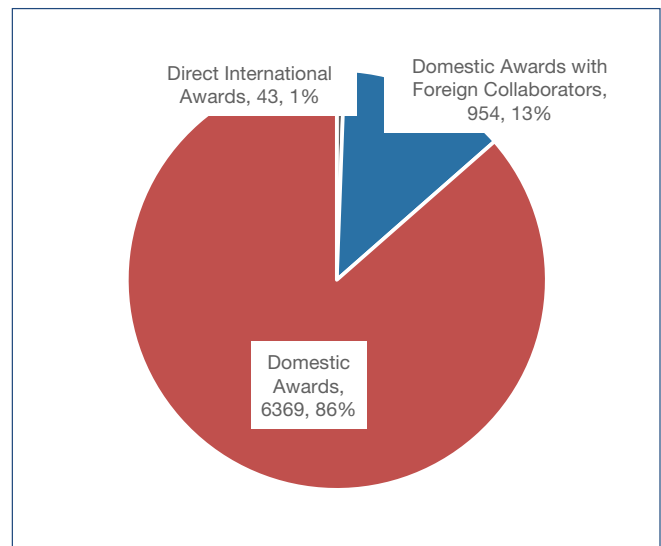
1. Provide a holistic view of global oncology activities led by NCI-Designated Cancer Centers beyond the NIH-funded portfolio;
2. Track the trends of the academic global oncology field;
3. Facilitate collaboration between global oncology researchers at NCI-Designated Cancer Centers and partner institutions;
4. Share evidence to help NCI-Designated Cancer Centers strengthen their own global oncology activities;
5. Inform the development of impactful NCI and partner initiatives in global oncology;
6. Understand the impact of COVID-19 on global oncology activities.

### NCI-FUNDED INTERNATIONAL RESEARCH PORTFOLIO

The results of the Global Oncology Survey describe the non-NIH funded cancer research and control activities at NCI-designated Cancer Centers. As such, it is helpful to understand the overall NIH-funded cancer research portfolio to look holistically at the full picture of global oncology activities happening at NDCCs.

### EXTRAMURAL AWARDS

**FIGURE 1.** NIH Extramural Portfolio, FY2021



The NIH extramural cancer research portfolio includes domestic awards and awards with an international principal investigator or international collaborator. In fiscal year 2021 (FY2021), domestic awards made up 86% (6,369 awards) of the overall NIH FY2021 extramural portfolio (7,366 awards). Awards with one or more foreign collaborators made up 13% (954 awards) of the portfolio. There were 43 direct awards to principal investigators at institutions based outside of the United States [3, 4].

### INTRAMURAL PROJECTS

The NIH intramural cancer research portfolio includes research conducted by NCI investigators, in some cases with domestic or international collaborators. In FY2021, NCI investigators led 338 projects with international collaborators [5].



## METHODOLOGY

### SURVEY DESIGN

The 2021 Global Oncology Survey of NCI-Designated Cancer Centers was designed by NCI/CGH in collaboration with the partners listed in the previous section. Questions on the survey were divided into three parts:

1. *NCI-Designated Cancer Center Director's survey* (sent to 71 cancer center directors), consisting of 19 multiple-choice questions focused on global oncology priorities, budget, and future directions;
2. *NCI-Designated Cancer Center Program survey* (sent to 71 global oncology contact persons at cancer centers), consisting of 61 questions focused on global oncology programs at cancer centers, global oncology activities, faculty/staff participation in global oncology, global oncology training opportunities, sources of funding for global oncology activities, collaboration with other Cancer Centers on global oncology activities, and the impact of COVID-19 on global oncology activities;
3. *NCI-Designated Cancer Center Project survey* (sent to 394 principal investigators (PIs) of projects), consisting of 23 questions focused on active non-NIH-funded global oncology projects led by the cancer centers with at least one international collaborator.

The NCI-Designated Cancer Center Director's responses were collected via an online Microsoft Forms survey. The NCI-Designated Cancer Center Program and Project responses were collected via Verint® Survey Management software. Respondents were also able to view a PDF of the survey. The survey questionnaires are available in Annex 4.

### DATA COLLECTION

The Cancer Center Directors' Survey was sent via email to directors in July 2021. Periodic reminders were also sent via email. The survey closed on September 24, 2021.

Pilot testing of the Program and Project surveys was completed by the five cancer center representatives included as partners. Representatives provided feedback on the survey program and the survey was revised based on the pilot test. The Program survey was out via email to the remaining 66 cancer centers who did not participate in the pilot in August 2021. For each cancer center, the survey was sent to the cancer center director, administrator, and the relevant global oncology contact persons. Global oncology contact persons were identified by the 2018-2019 Survey and these contacts were invited to two one-hour informational webinars held by NCI/CGH in July and August 2021 to describe the survey process and answer specific questions. Updated contact information was gathered through the webinar invitation process, prior to the launch of the full survey. Once launched, periodic reminders were sent out via email. The Program survey closed on November 1, 2021.

Global oncology contact persons were responsible for completing the Program survey, including answering questions on global oncology programs, activities, and training efforts at their cancer center. Contact persons also identified active and new global oncology projects. A list of global oncology projects reported in the 2018 survey were provided in part one of the survey. Contacts indicated the status for each project (active or inactive). Contacts then reported new global oncology projects not reported in the 2018 survey.

The PI(s) listed for active and new projects by the global oncology contacts in part one then received an email link to the Project survey tied to their project(s). PI(s) of active projects received a pre-populated project survey with data from the 2018 survey to verify and update. PI(s) of new projects received a blank project survey to complete. The Project survey closed on January 31, 2022.

## DATA CLEANING AND ANALYSIS

Data was cleaned in Microsoft Excel. Reported non-NIH funded projects were cross-referenced with titles and grant numbers of NIH grants awarded to cancer centers and reported projects that were fully or partially funded by NIH were removed. Although the definition of *global oncology project* included a collaborator at an institution outside of the United States, 35% (156 projects) did not report specific foreign collaborating institutions. However, these projects were left in the dataset as it could not be confirmed that they were domestic projects only, and they often referenced work done in other countries or with foreign collaborators in the project description.

Cleaned data was reviewed by the project team, and aggregate results were validated by the survey partners and leadership at the NCI Center for Global Health.

## IMPACT OF COVID-19

The survey was designed and fielded during the COVID-19 pandemic which had significant impacts on respondents' personal and professional bandwidth and the ability of many Cancer Centers to engage in global oncology activities and research. CGH chose to use the survey as a "snapshot in time" and thus responses are based on activities and challenges present at the time of survey completion (July 2021 through January 2022). This should be considered when assessing results of the 2021 survey compared to the 2018 survey.

## SCOPE AND LIMITATIONS

Data presented in this report are based on responses from the 67 cancer center directors that responded to the survey between May and July 2021, the 67 global oncology points-of-contact at cancer centers that responded between July and October 2021, and the 337 PIs of global oncology projects that responded between July 2021 and January 2022. Many cancer centers reported challenges tracking and reporting information requested by this survey especially those without a formal global oncology program and those that operate under a consortium structure. There are several factors related to survey methodology and survey timing that may impact the accuracy and completeness of this report.

## DATA COMPLETENESS

- While most questions required an answer for the survey to be submitted, some questions, particularly those related to project details, were not required and were left blank by some respondents.
- Respondents from cancer centers with large programs and with affiliated academic institutions shared that tracking the number and type of trainees was very challenging and often provided broad estimates rather than accurate counts of trainees.
- Respondents noted that collaborator details and project locations were especially challenging to report, and many respondents left these fields blank or submitted general responses such as "Global" or "several institutions in Southeast Asia"; these responses were not included in the results analysis.
- Global oncology points-of-contact at 53 cancer centers reported a total of 517 active non-NIH funded projects. These projects were then routed to their PIs to submit project details, but only 447 of the projects (86%) were returned by PIs. As a result, there are more non-NIH funded global oncology projects led by cancer centers than those included in results analysis.

- Some cancer centers opted to report zero non-NIH funded projects despite knowing that such projects exist; they did not have the ability to collect required information.

## DATA VARIABILITY

- The level of granularity of non-NIH funded projects reported by cancer centers varied. For example, some cancer centers reported broad initiatives that may encompass many smaller activities, whereas other cancer centers reported smaller projects or individual collaborations at a more granular level. As a result, projects between cancer centers should not be compared in some ways.
- The definition of a non-NIH funded global oncology project as reported by the cancer centers and the criteria used to identify NIH-funded global oncology

awards to cancer centers are not in alignment, and thus presenting these data comparatively comes with limitations. Definitions used for each type of project are below:

- Non-NIH funded global oncology project:* Projects led by or convened by a PI at your cancer centers in partnership with an international collaborator in a setting outside the United States, including unfunded projects. Projects should be underway or paused at the time of survey response (July 2021 – January 2022).
- NIH extramural award led by a Cancer Center:* Funded extramural awards active in fiscal year 2021 with a PI institution of the cancer center or affiliated institution (e.g., Harvard University and Dana-Farber Cancer Institute) and at least one international collaborator.

## RESULTS

This section provides analysis of the survey results synthesized into several major thematic areas. For a more detailed breakdown of survey results by cancer center refer to Annex 2. Where possible, the self-reported results of the 2021 Global Oncology Survey are compared to the NIH-funded international research grant data from FY2021 to examine overall trends in global cancer research. Results are also compared with 2018 survey results where questions were the same [1].

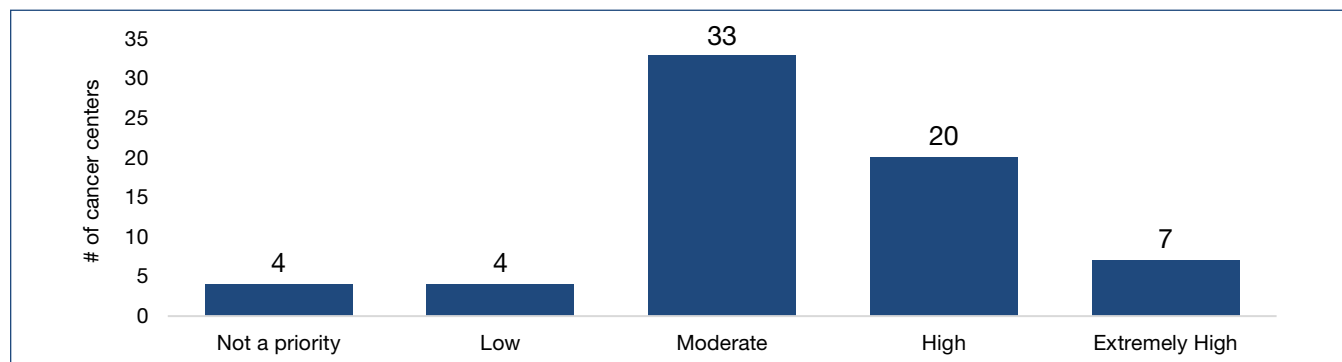
### CANCER CENTER DIRECTORS' SURVEY

Sixty-seven of 71 cancer center directors responded to the Cancer Center Directors' Survey.

### PRIORITY AND INTEREST IN GLOBAL ONCOLOGY

Most cancer center directors ranked global oncology as having a moderate or high importance at their cancer center relative to other priorities.

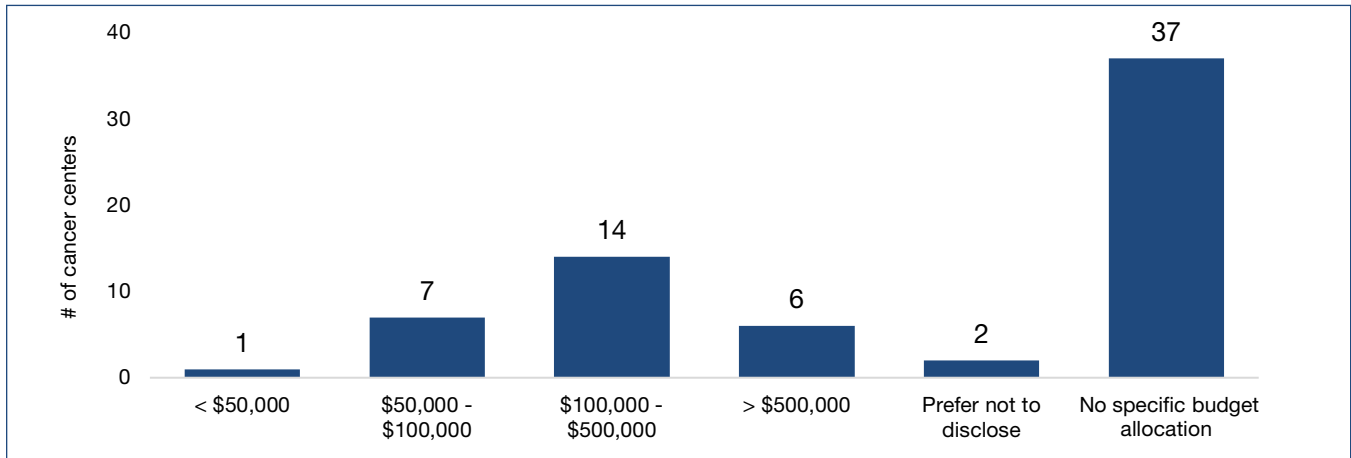
**FIGURE 2.** Prioritization of global oncology according to cancer center directors



These rankings align with the approximate budget allocation to fund global oncology activities reported by cancer center directors. Of the 30 cancer centers with specific budget for global oncology, about half (14) have a budget between \$100,000 and \$500,000 per year. The six cancer centers with a budget greater than

\$500,000 are all comprehensive cancer centers and describe global oncology as a high or extremely high priority to their cancer center. For more information about funding sources for these budgets, refer to the **Global Oncology Funding section** of the report.

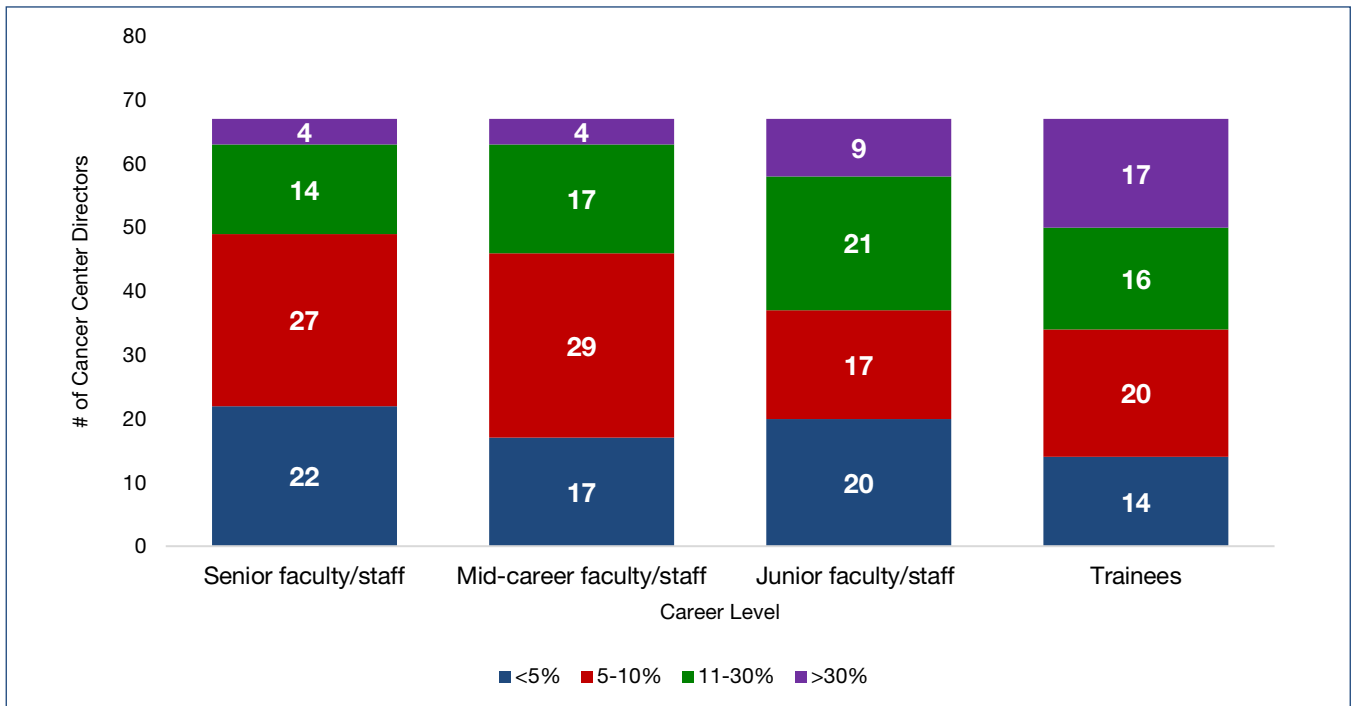
**FIGURE 3.** Estimated annual global oncology budget according to cancer center directors



Cancer center directors estimated varying degrees of interest in global oncology among their faculty and staff. Overall, directors estimated the highest interest among trainees, with 17 directors reporting that over

30% of trainees were interested in global oncology. Interest was also high among junior faculty/staff and decreased in mid-career and senior faculty/staff.

**FIGURE 4.** Estimated interest in global oncology among faculty/staff/trainees at NCI-Designated Cancer Centers

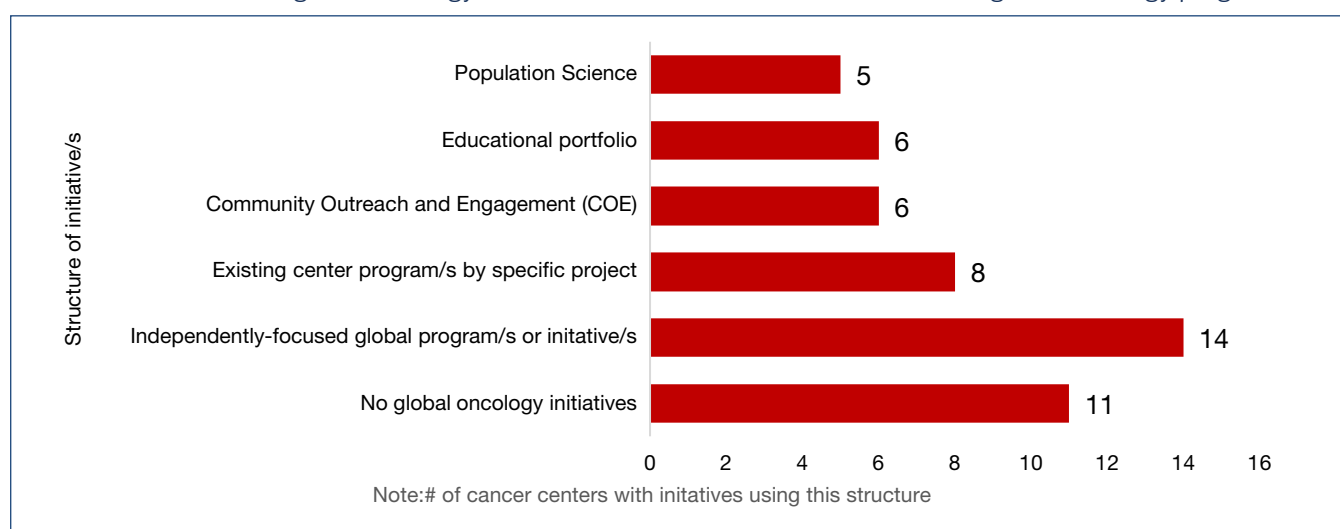


## GLOBAL ONCOLOGY PROGRAMS AND FOCUS AREAS

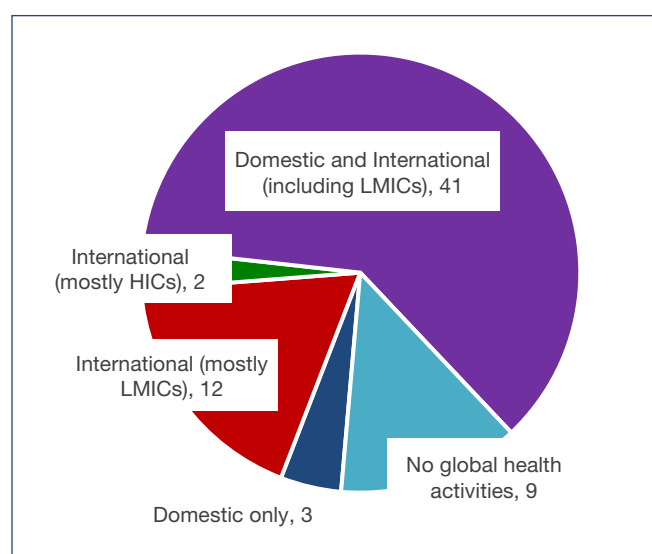
Twenty-eight cancer center directors indicated that their cancer center already had a dedicated global oncology program, and ten cancer centers plan to establish a formal program in the next 3-5 years. Of these ten, three indicate that they are working to appoint or recruit a global oncology program leader, three are currently learning more and attempting to expand existing activities, and one is working to

secure funding. The 29 cancer centers with no plans to establish a formal program shared many reasons for this: seven were basic or non-clinical cancer centers without global research capacity, five did not have sufficient funding or faculty, and three mentioned that their priority was communities within their catchment area. However, all but eleven of the directors of cancer centers without a formal program reported engaging in global oncology initiatives.

**FIGURE 5.** Structures of global oncology initiative at cancer centers without a formal global oncology program



**FIGURE 6.** Population focus of global health activities at cancer centers



Directors of cancer centers with formal global oncology programs or global health activities shared more information about their geographic areas of focus. Most cancer centers (41) focus on both domestic and international populations for their global health activities, including LMICs. Of the cancer centers that focused exclusively on international populations, twelve emphasized work with LMICs and two emphasized work with HICs.

To better understand collaborations supporting these activities, cancer center directors were asked to describe their global research partnerships according to the following categories:

**Individual partner:** Individual researcher from a single institution

**Collaborative partner:** Multiple researchers from a single institution

**Collaborative institution:** Multiple researchers from multiple institution e.g., a consortium

Responses are shown below, and cancer center directors could indicate multiple types of partnerships. Most partnerships are one-on-one collaborations between individual researchers at different institutions, or large consortia of institutions involving multiple researchers.

**TABLE 2.** Types of global research partnerships reported by cancer center directors

Collaborator type	Cancer center type	
	Individual partner	Collaborative partner
Individual partner	37	14
Collaborative partner	21	31
Collaborative institution	0	38

**DEFINITION OF “GLOBAL ONCOLOGY”**

The fielding of the 2018 Global Oncology Survey of NCI-Designated Cancer Centers generated discussions among respondents about the definition of “global oncology” and its differences across cancer centers

and other institutions. As such, cancer center directors were asked in the 2021 survey for their definition of global oncology. Eight cancer centers shared what they have published as definitions of “global oncology”.

**TABLE 3.** Definitions of global oncology shared by cancer centers

Cancer Center	Definition
Abramson Cancer Center	Global oncology collaboratively addresses disparities and differences in cancer prevention, care, research, education, and the disease’s social and human impact around the world. It includes a full spectrum of activities ranging from epidemiology to implementation science to public health policy.
Dartmouth Norris Cotton Cancer Center	Addressing unique cancer health needs and promoting cancer health equity in low- and middle-income countries.
Herbert Irving Comprehensive Cancer Center, Columbia University Irving Medical Center	To investigate and implement cancer research and care in prevention, early detection, prognosis, therapy, and survivorship.
Hillman Cancer Center	In-country facilities and partnerships, and clinical collaborations and training programs to build health care solutions customized for the unique needs of the patient and region.
Indiana University Melvin and Bren Simon Comprehensive Cancer Center	Global Oncology is an area of study, research and practice that places a priority on improving health and achieving equity in health for all people with cancer, or at risk for cancer, worldwide.
Masonic Cancer Center, University of Minnesota	Global oncology aims to reduce the burden of cancer around the world by addressing disparities in cancer prevention and treatment through collaborative multidisciplinary research and training.
UNC Lineberger Comprehensive Cancer Center	Research and training in the prevention, early detection, etiology, and therapy of cancer in low- and middle-income countries.
Yale Cancer Center	Promoting the highest quality treatment for and prevention of cancer around the world, while supporting and stimulating global research and education in cancer treatment and prevention.

## NCI-DESIGNATED CANCER CENTER RESPONSES

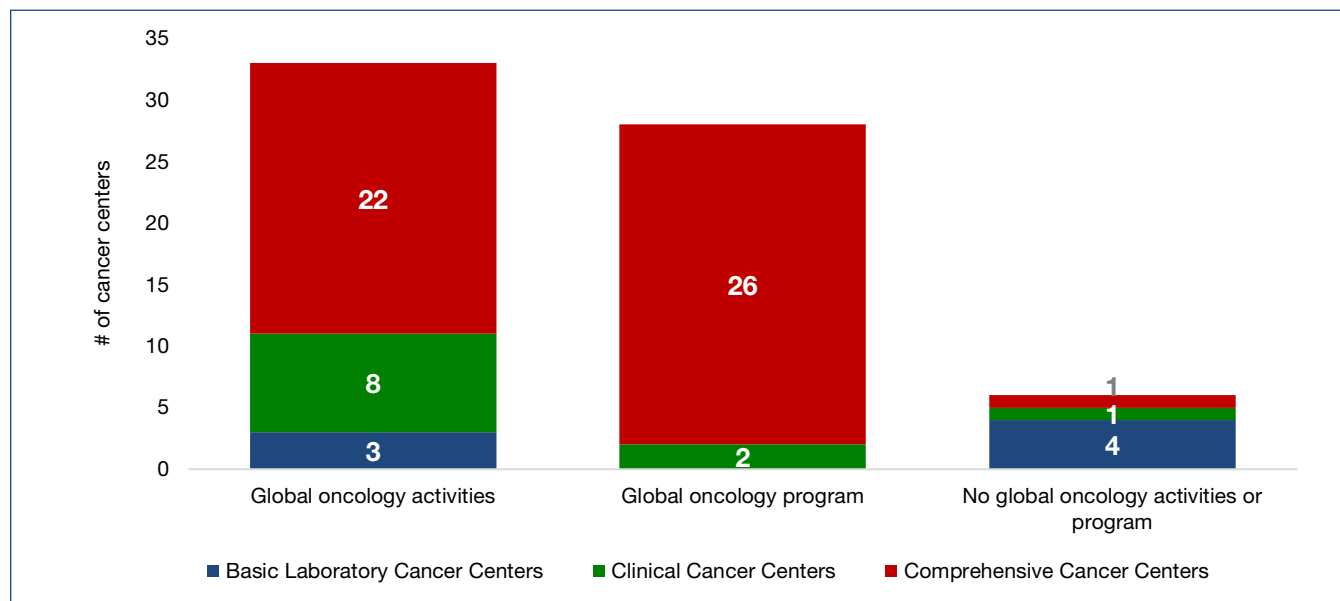
Ninety-four percent (67/71) cancer centers responded to the program survey, with 42% (28) reporting having a formal global oncology program and 49% (33) reporting having global oncology activities.

**TABLE 4.** Summary of global oncology survey responses

Global Oncology	# of Cancer Centers (% of respondents)
Global oncology program	28 (42%)
No global oncology program	39 (58%)
Global oncology activities	33 (49%)
No global oncology activities	6 (9%)

Cancer centers are classified into three types of centers: 7 are basic laboratory cancer centers, primarily focused on laboratory research ; 11 are clinical cancer centers, recognized for scientific leadership, resources, and the depth and breadth of their research in basic, clinical, and/or prevention, cancer control, and population science; and 53 are comprehensive cancer centers, who in addition to their leadership and resources, are also recognized for demonstrating an added depth and breadth of research, as well as substantial transdisciplinary research that bridges these scientific area [1]. Cancer centers with a global oncology program were more likely to be comprehensive cancer centers than any other type of cancer center (93% or 26/28). Cancer centers with neither a global oncology program nor activities were more likely to be basic cancer centers (67% or 4/6).

**FIGURE 7.** Level of Involvement in Global Oncology at NCI-Designated Cancer Centers by Type of Cancer Center



## GLOBAL ONCOLOGY PROGRAMS

Forty-two percent (28) of cancer centers that responded to the survey reported having a formal global oncology program at their institution. The section below describes characteristics of these programs.

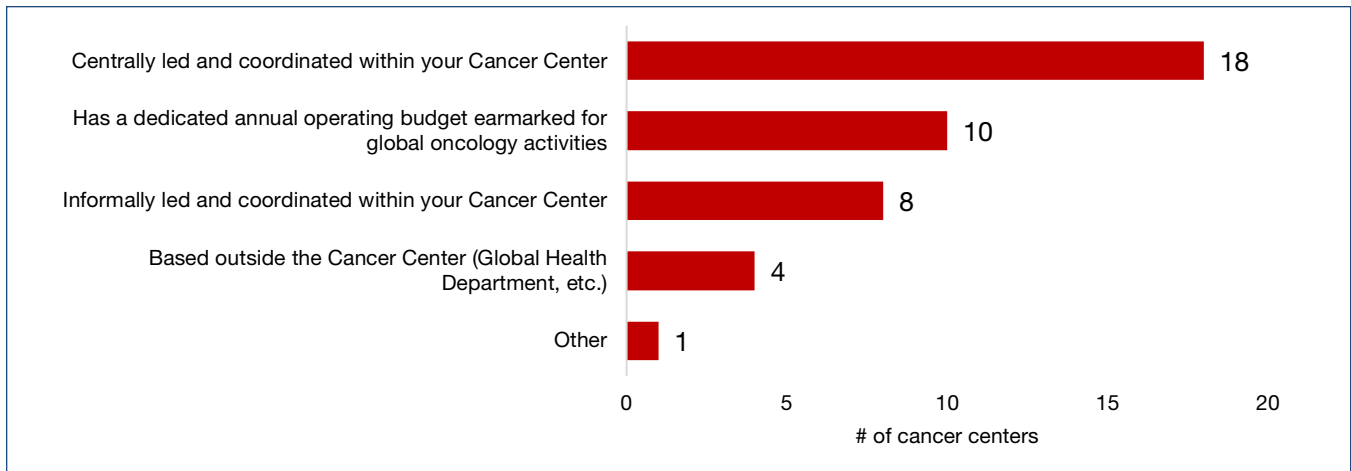
## GLOBAL ONCOLOGY PROGRAM STRUCTURE

All 28 cancer centers with a global oncology program reported having at least one global oncology program leader, and 39% (11 cancer centers) reported having more than one program leader. Respondents were

asked to describe the structure of their global oncology program at their institution. Respondents could select more than one response. Sixty-four percent (18 cancer centers) reported their global oncology programs as being centrally led and coordinated within their cancer center. Only 36% of cancer centers (10 cancer centers)

reported having a dedicated annual operating budget for their global oncology program and activities. One cancer center described the structure of their program as being jointly led with the academic institution associated with their cancer center.

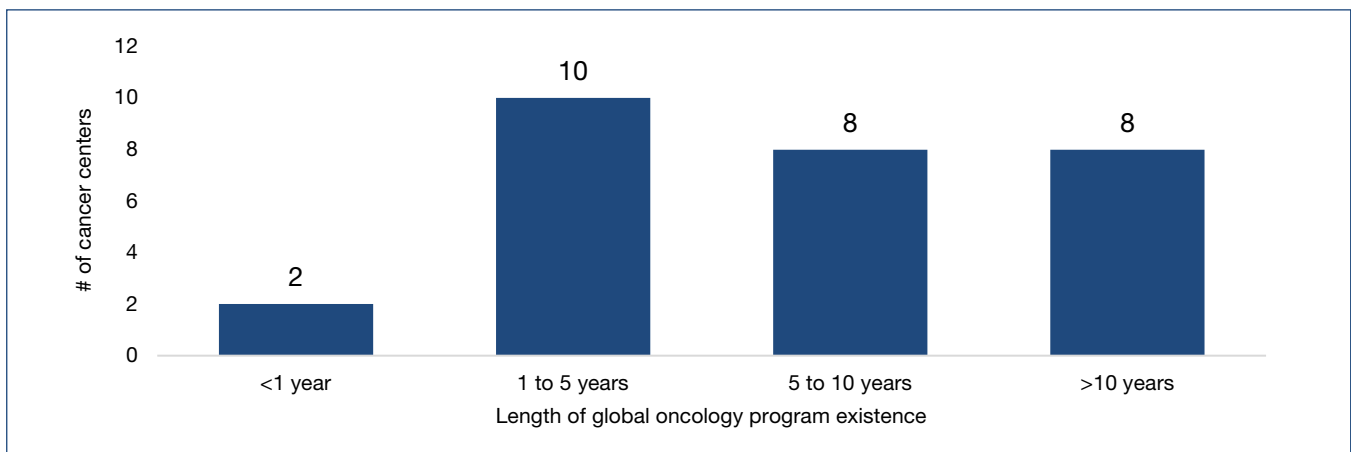
**FIGURE 8.** Structure of global oncology programs at NCI-Designated Cancer Centers



There has been significant growth in the number of global oncology programs at cancer centers in the last decade. At the time of the survey, 18 global oncology

programs were formalized in the past ten years. Two global oncology programs existed for less than one year and eight existed for more than ten years.

**FIGURE 9.** Age of global oncology programs at NCI-Designated Cancer Centers



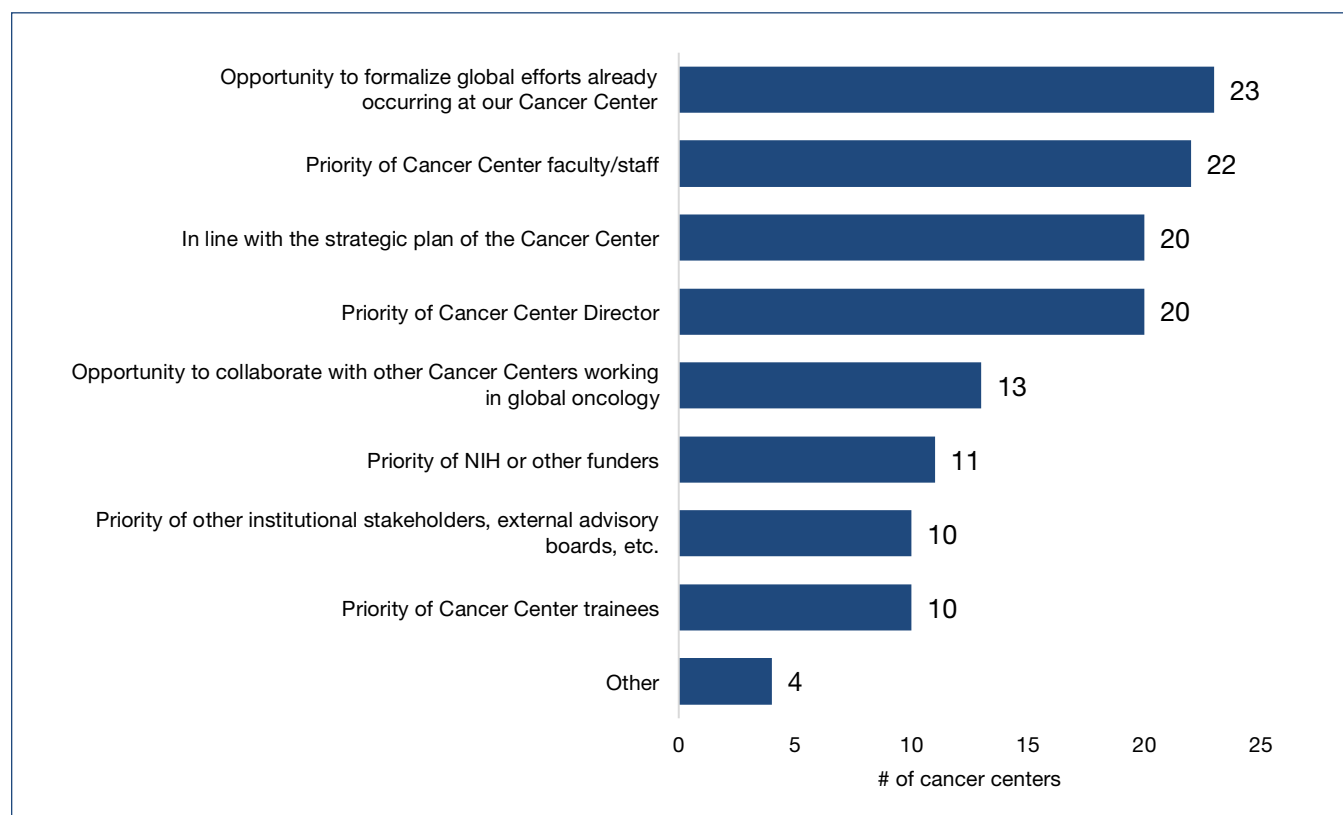


## GLOBAL ONCOLOGY PROGRAM PRIORITIES AND CHALLENGES

The 28 cancer centers with a global oncology program were asked why they created a program. The top cited reasons for launching their global oncology program were to formalize efforts already occurring at the cancer center (23 cancer centers) and global oncology being a priority of cancer center faculty/staff (22 cancer centers). Notably, over 70% (20) of cancer centers with a program described global oncology as being in line with their center's strategic plan.

Other motivating reasons mentioned were to expand their center's global presence and leverage their center's resources (1 cancer center each). One cancer center cited the increasing recognition of global oncology as an area all centers should participate in as a motivating reason.

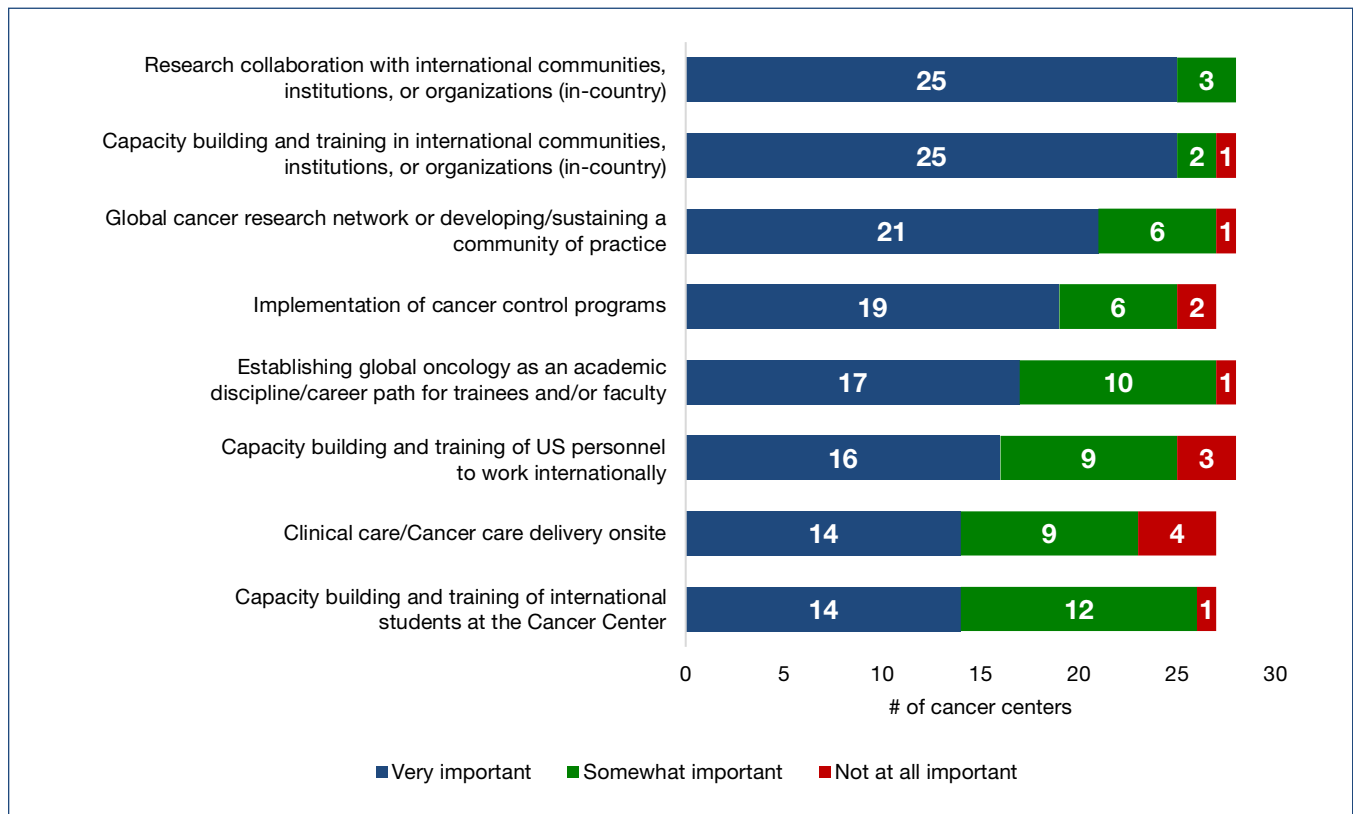
**FIGURE 10.** Reasons for creation of a global oncology program at NCI-Designated Cancer Centers



Respondents were asked to rank a pre-defined list of global oncology priorities at their cancer center on a three-point scale from not at all important to very important. The top-rated priority among cancer centers was research collaboration with international communities, institutions, or organizations; all

cancer centers with a formal program considered this somewhat or very important. Other priorities included inclusion of diverse populations (2 cancer centers), identifying locally relevant questions (1 cancer center), and engaging in bidirectional learning between LMICs and their catchment area (1 cancer center).

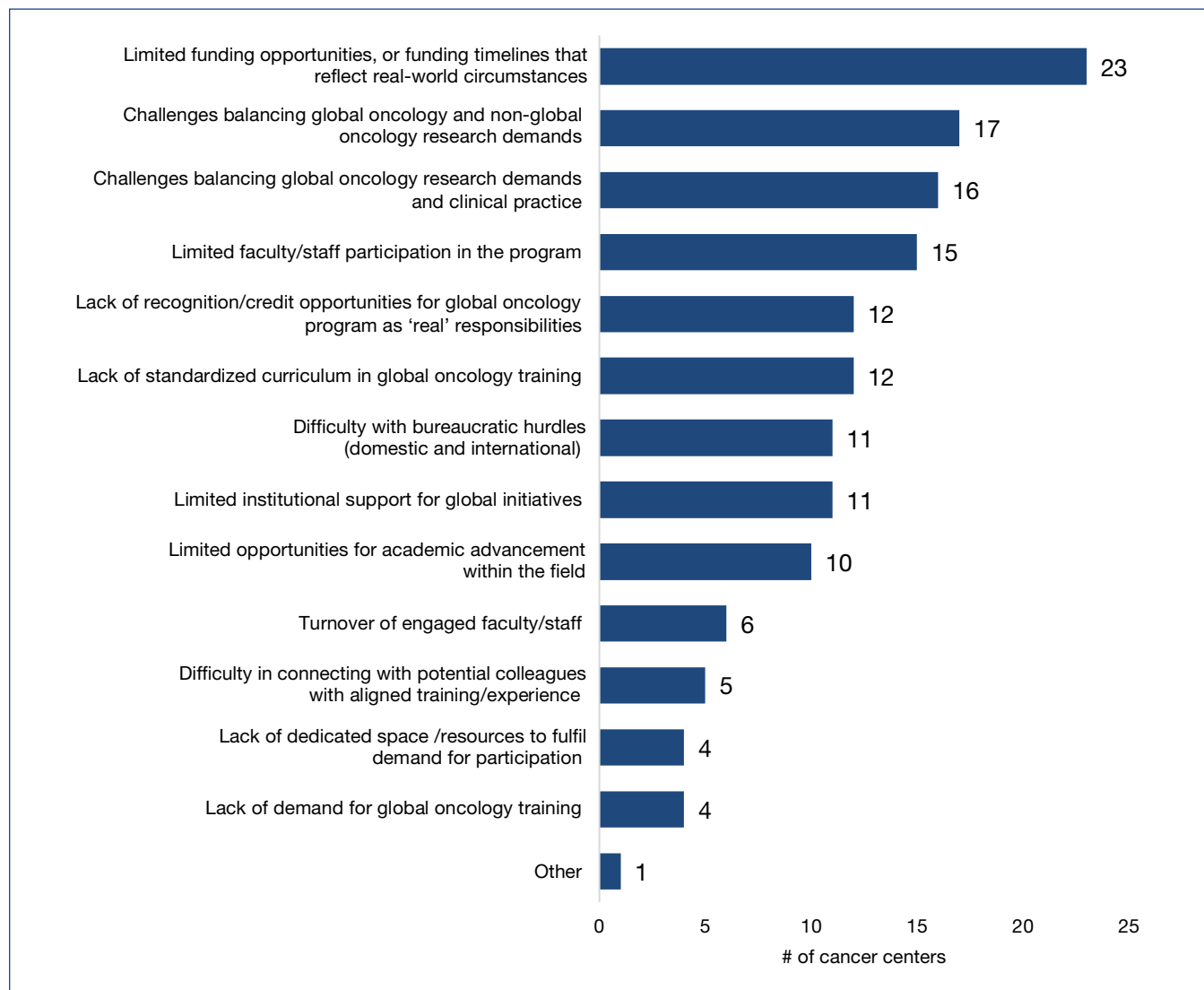
**FIGURE 11.** Global oncology program priorities shared by NCI-Designated Cancer Centers



Respondents were asked to select all challenges that applied to their global oncology programs. The top reported challenge for global oncology programs was limited funding opportunities (23 cancer centers),

followed by limited faculty/staff participation (17 cancer centers). The COVID-19 pandemic was mentioned as another challenge by one cancer center.

**FIGURE 12.** Global oncology program challenges shared by NCI-Designated Cancer Centers



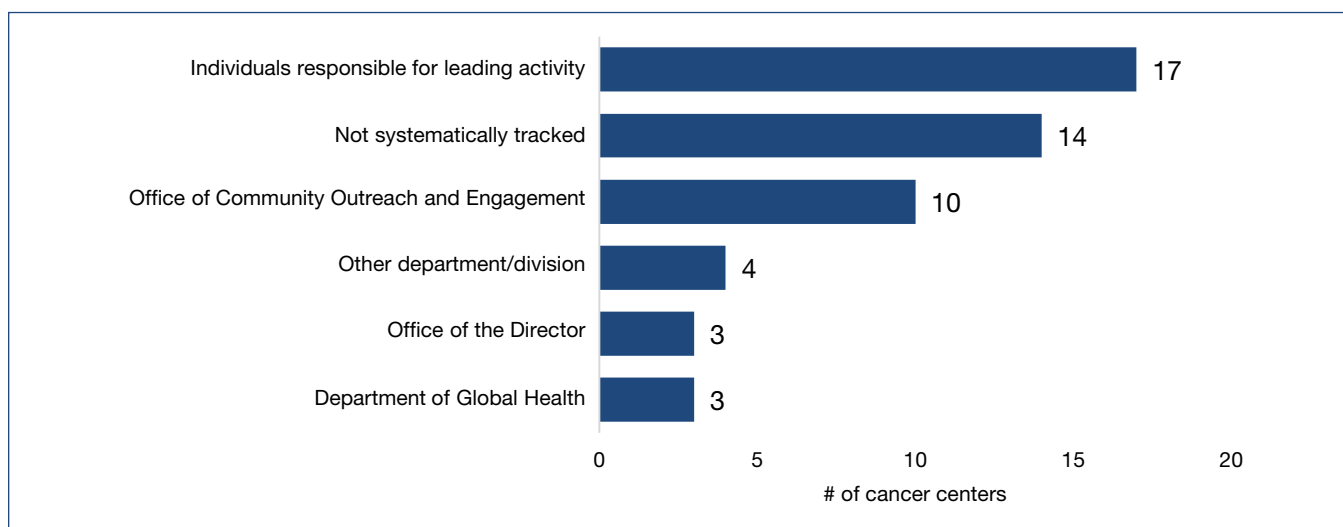
### GLOBAL ONCOLOGY ACTIVITIES

Eighty-five percent (33) of cancer centers without a formal global oncology program had global oncology activities that were conducted outside of a formal program. The section below describes characteristics of these activities.

### GLOBAL ONCOLOGY ACTIVITY TRACKING

Forty-two percent (14) of cancer centers reported that global oncology activities at their cancer center are not systematically tracked and 52% (17) reported that activities are tracked by individuals responsible for leading the activity. One cancer center mentioned that activities will be tracked by the Office of Community Outreach and Engagement moving forward. Other departments/divisions not listed as an option, but mentioned by cancer centers, included the cancer center administration (2 cancer centers), and the academic institution affiliated with their cancer center (2 cancer centers).

**FIGURE 13.** Global oncology activity tracking methods at NCI-Designated Cancer Centers without a formal program

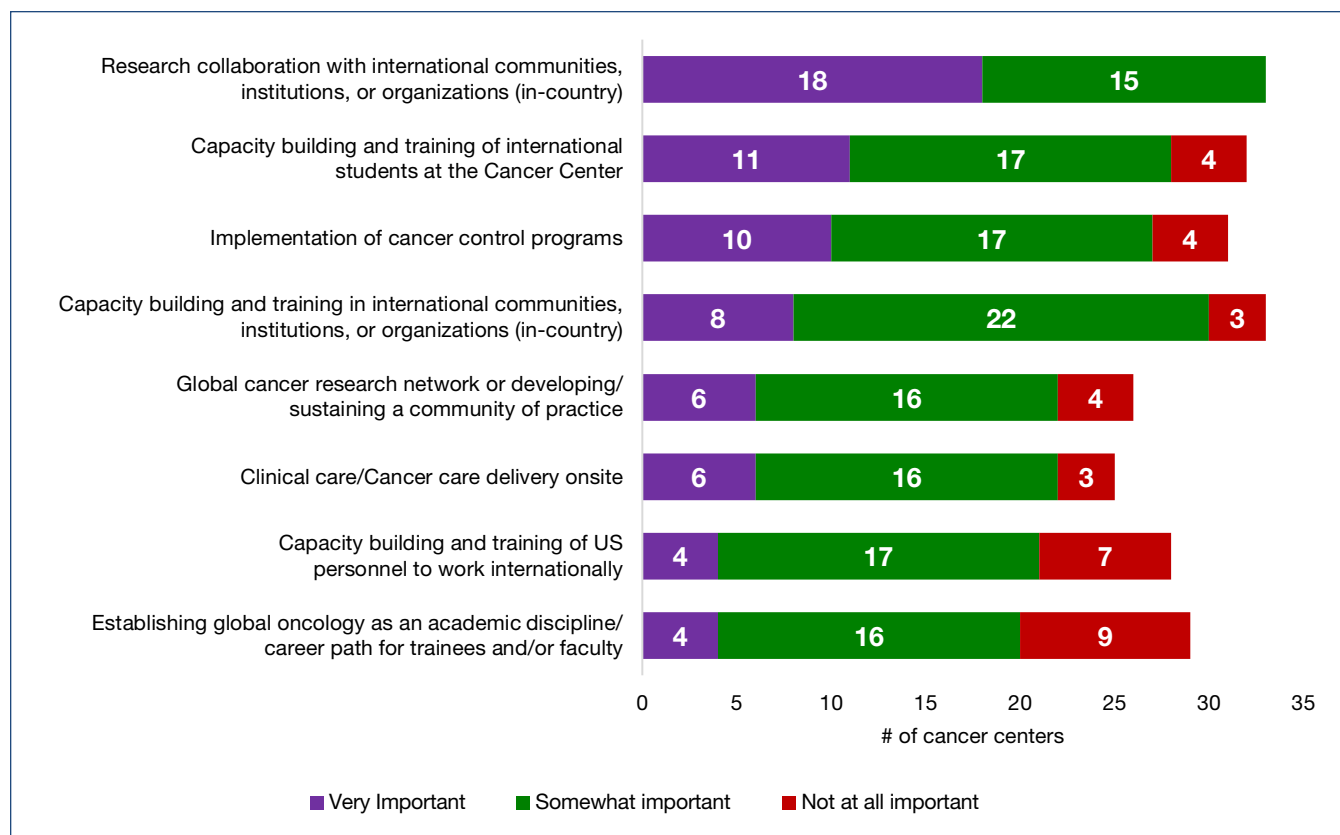


### GLOBAL ONCOLOGY ACTIVITIES PRIORITIES AND CHALLENGES

Respondents from cancer centers without a formal program were also asked to rank global oncology priorities at their cancer center on a three-point scale, from not at all important to very important. The top-rated priority among cancer centers was

research collaboration with international communities, institutions, or organizations; all cancer centers without a formal program considered this somewhat or very important. Inclusion of special populations was another priority mentioned by one cancer center.

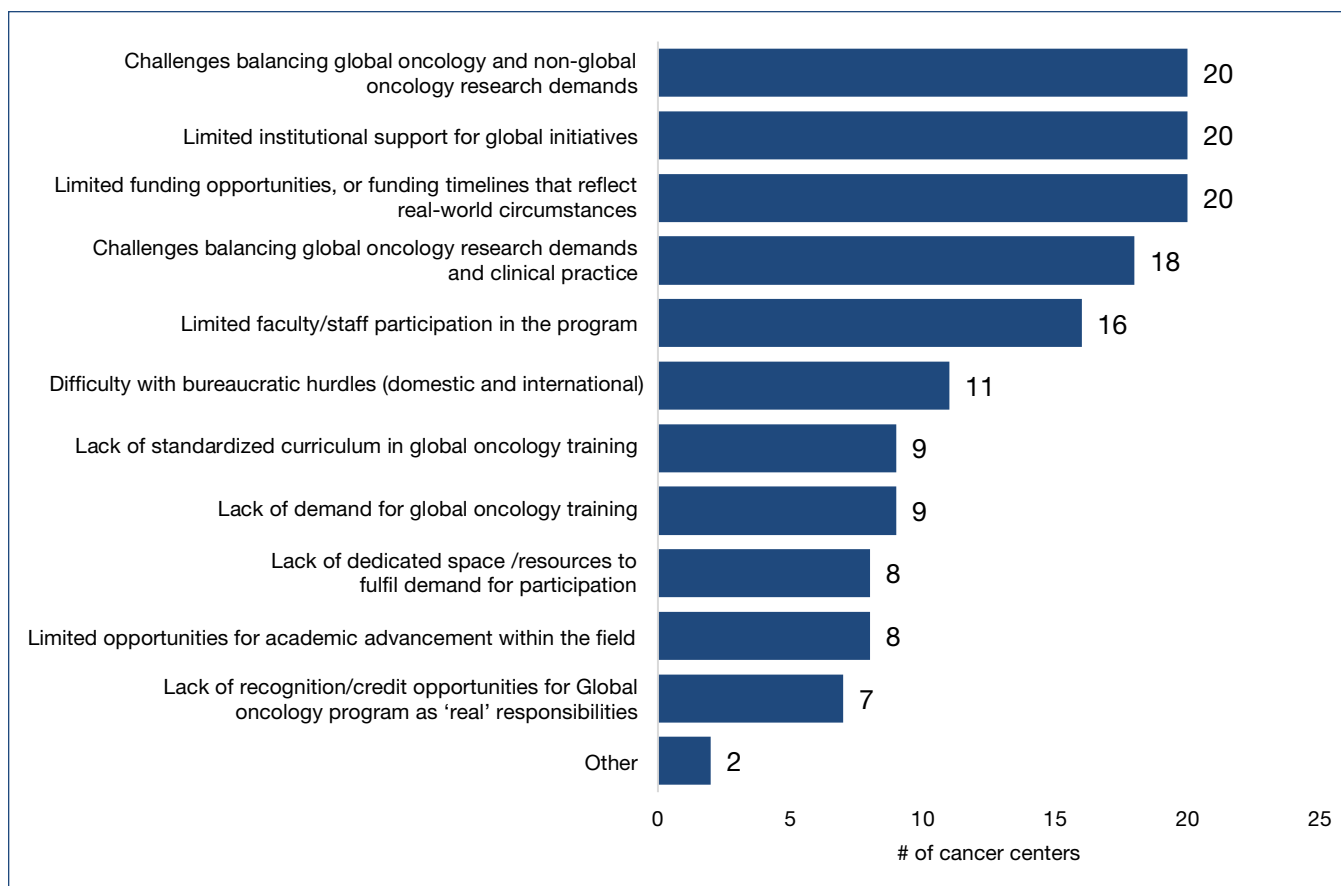
**FIGURE 14.** Global oncology priorities at NCI-Designated Cancer Centers without a formal program



Respondents were asked to select all challenges that applied to their global oncology activities. The top reported challenges for global oncology activities at cancer centers was balancing global oncology and non-global oncology research demands, limited institutional

support, and limited funding opportunities (20 cancer centers each). Other reported challenges included the COVID-19 pandemic and the lack of a mechanism for tracking activities.

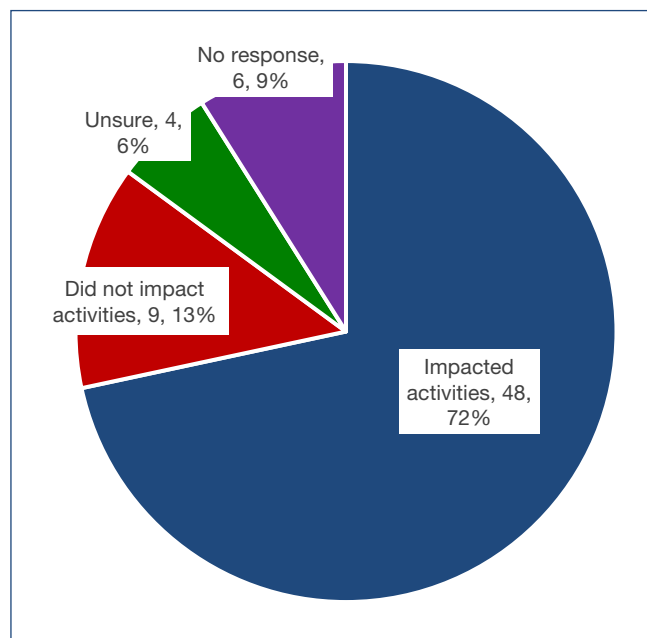
**FIGURE 15.** Global oncology challenges at NCI-Designated Cancer Centers without a formal program



### IMPACT OF COVID-19 ON GLOBAL ONCOLOGY PROGRAMS, ACTIVITIES, AND PROJECTS

Seventy-nine percent (48/67) of cancer centers reported that their global oncology activities were impacted by COVID-19. Nine cancer centers reported no impact to their activities and four cancer centers were unsure. Six cancer centers did not respond to this question.

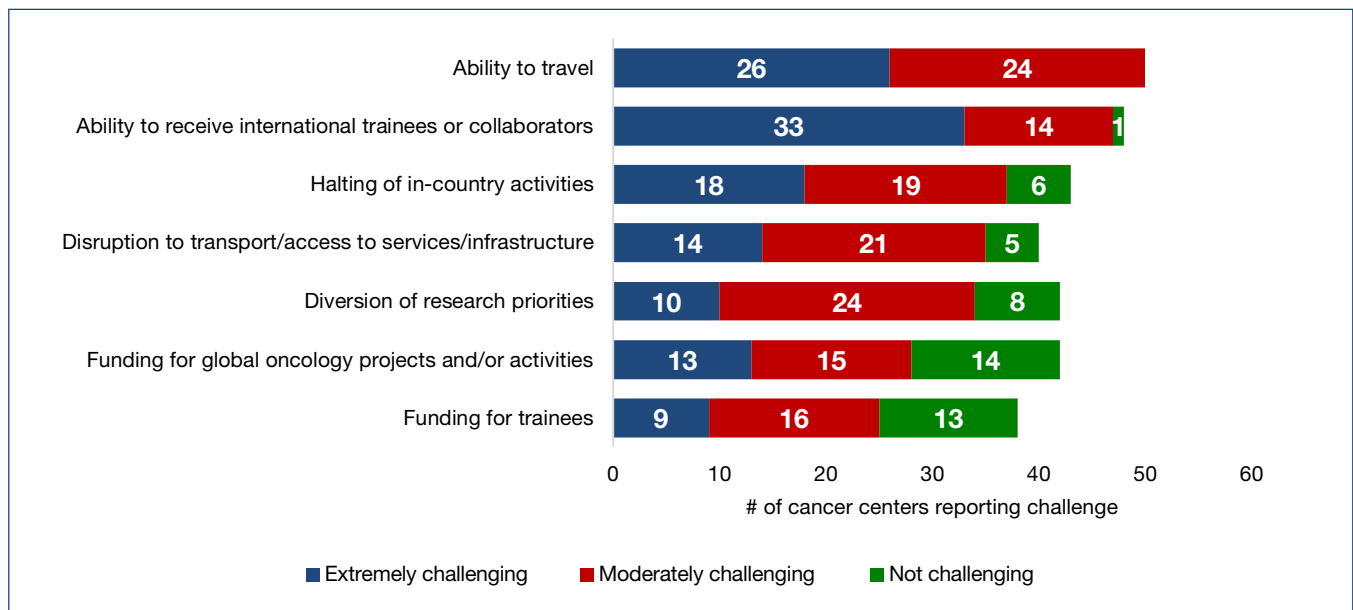
**FIGURE 16.** Impact of COVID-19 on NCI-Designated Cancer Centers' global oncology activities



Cancer centers shared several ways in which the COVID-19 pandemic impacted their activities. The most common challenges were the ability to travel (rated “extremely challenging” or “moderately challenging” by 49 cancer centers) and the ability

to receive international trainees or collaborators (47 cancer centers). Some positive outcomes of the COVID-19 impacts reported by individual cancer centers include writing collaborative papers.

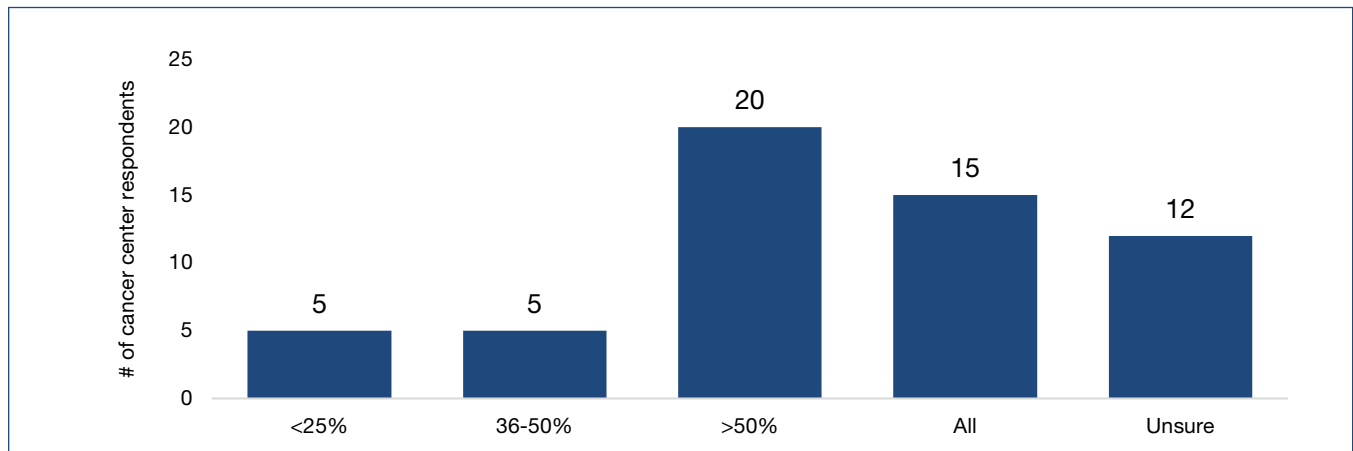
**FIGURE 17.** Challenges of COVID-19 for global oncology activities at NCI-Designated Cancer Centers



Cancer centers were asked to estimate the amount of their global oncology activities that were impacted by COVID-19. More than half of cancer centers (35)

had greater than 50% of their activities impacted by COVID-19.

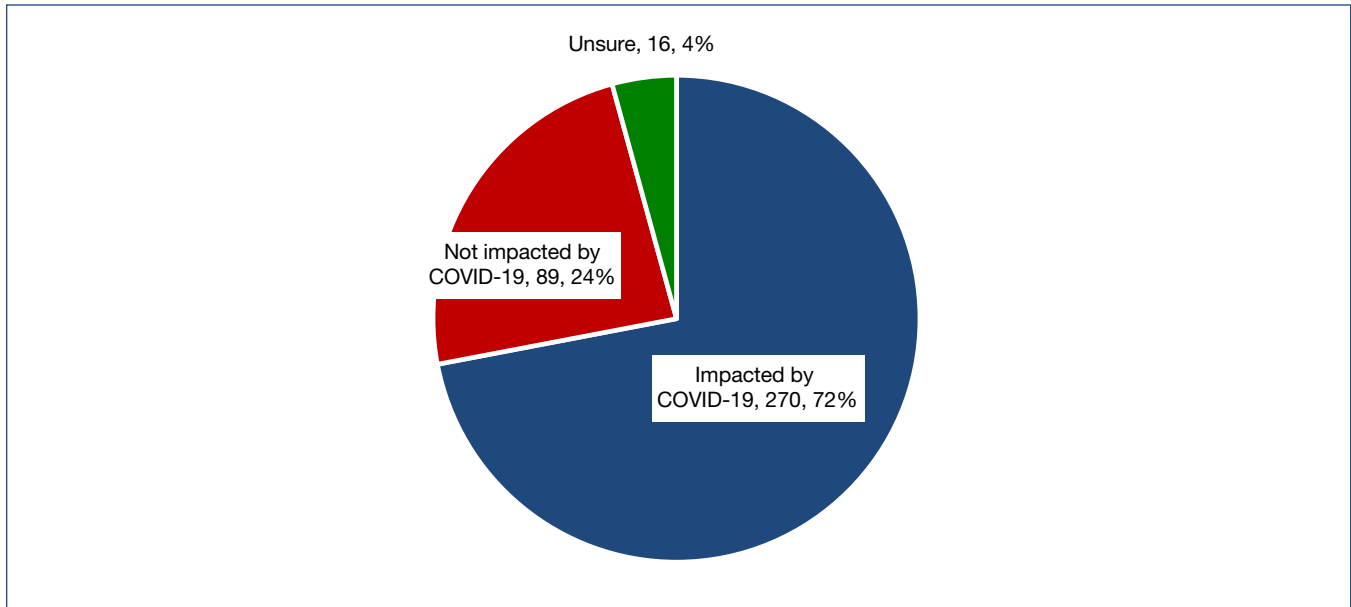
**FIGURE 18.** Estimated proportions of global oncology activities impacted by COVID-19



Principal investigators also reported the impact of COVID-19 on their individual global oncology projects. PIs of 72% of projects (270) reported that their activities were

impacted. PIs of 24% of projects (89) reported no impact to their activities and PIs of 4% of projects (16) were unsure. PIs of 71 projects did not respond to this question.

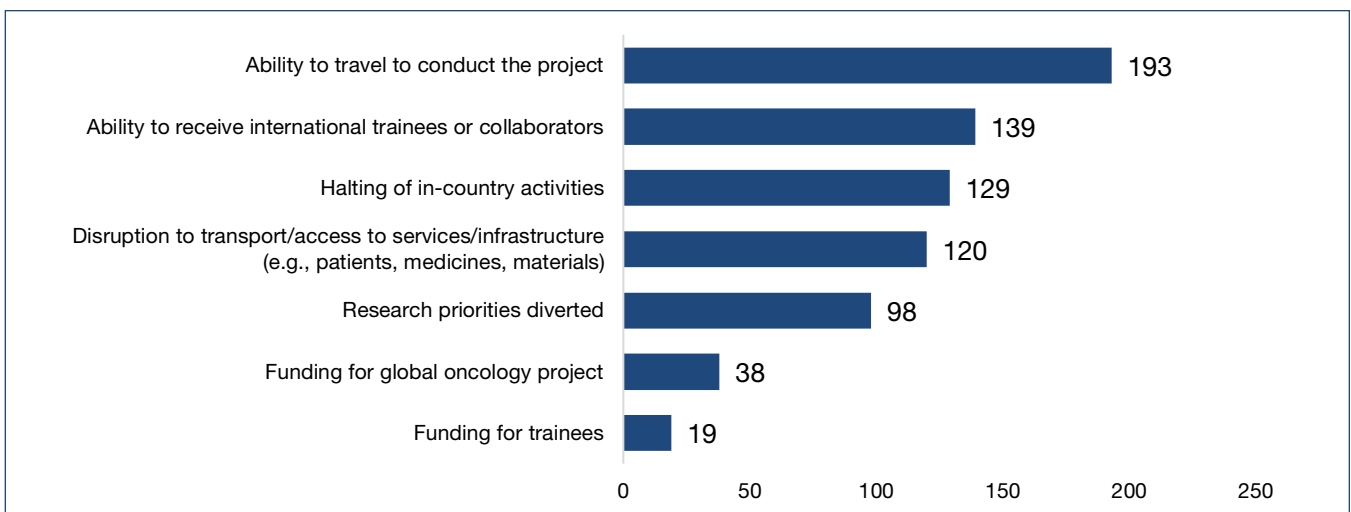
**FIGURE 19.** Impact of COVID-19 reported by PIs on non-NIH funded global oncology projects led by NCI-Designated Cancer Centers



Cancer centers shared specific challenges of COVID-19 on their non-NIH funded global oncology projects. The top challenges reported were ability to travel to conduct the project (193 projects), ability to receive international trainees or collaborators (139 projects)

and halting of in-country activities (129 projects), and projects could be impacted by multiple challenges. Challenges included in the “other” category included slowed lab work, prioritization of resources to COVID, and inability to hire new staff.

**FIGURE 20.** Challenges due to COVID-19 for non-NIH funded global oncology projects at NCI-Designated Cancer Centers (n=447)



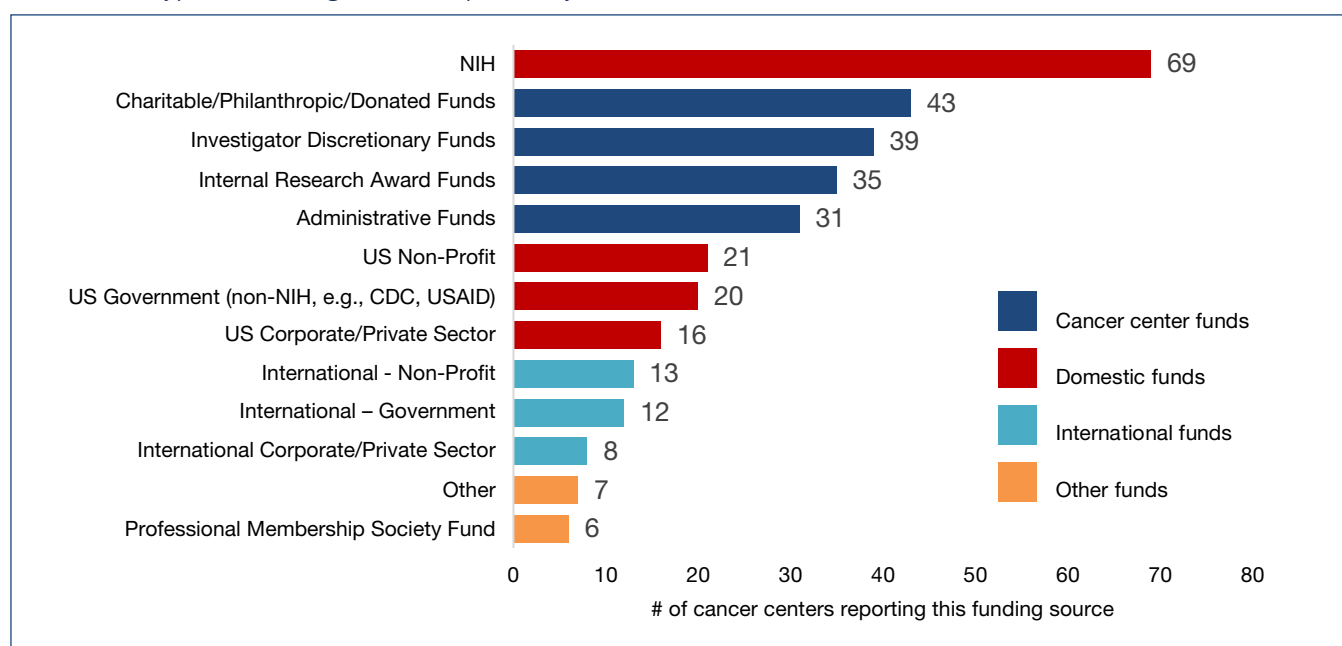


## GLOBAL ONCOLOGY FUNDING

Cancer centers were asked to report funding sources for their non-NIH-funded global oncology projects, which they selected from a list of 11 categories. Cancer centers could select more than one type of project funding. NIH funds global oncology research at 69 cancer centers, more than any other funding source. Outside of NIH, the top funding sources for global oncology activities reported by cancer centers are

charitable or cancer center funds, such as investigator discretionary funds. The categories of funding sources are reflected by the different colors in the figure below. Funding amount information was not requested in the survey. For more information about overall global oncology budgets, refer to the **Cancer Center Director's Survey section**.

**FIGURE 21.** Types of funding sources reported by cancer centers



## GLOBAL ONCOLOGY RESEARCH

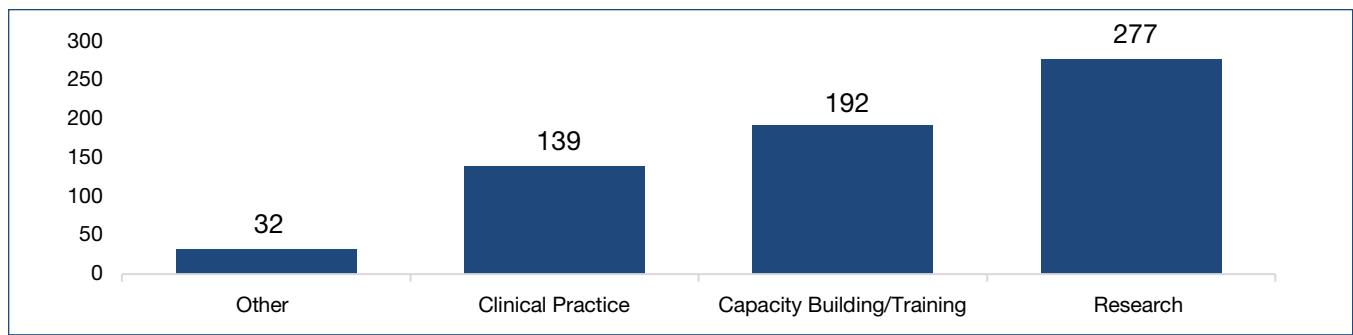
Fifty-three cancer centers reported 517 non-NIH funded global oncology projects, defined as “Projects led by or convened by a PI at your cancer center in partnership with an international collaborator in a setting outside the United States, including unfunded projects.” Principal investigators provided updated details for analysis of 447 of those projects. The following sections share their stratified responses, and a full list of global oncology project titles and descriptions is available in Annex 3. Where possible,

non-NIH funded project information was compared with NIH grant information.

### PROJECT TYPE

Respondents were asked to select one or more project types for each global oncology project. Project types included research (277 projects), capacity building/training (192 projects), clinical practice (139 projects), and other (32 projects), which included advocacy, community engagement, policy, and public awareness.

**FIGURE 22.** Project types of non-NIH funded global oncology projects

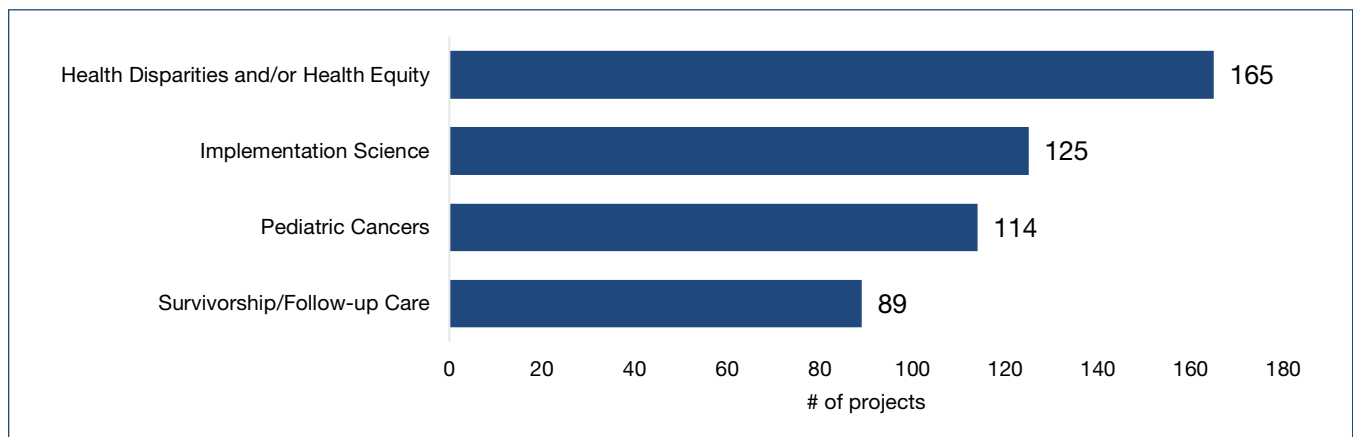


**FOCUS AREA**

Respondents were asked to categorize their project according to several focus areas aligning with some of CGH’s current research priorities and interests: health disparities and/or health equity (165 projects); implementation science (125 projects); pediatric

cancers (114 projects); and survivorship/follow-up care (89). Projects could be coded to multiple focus areas. This is a small picture of all cancer center focus areas, but these data show the engagement of cancer centers in key areas.

**FIGURE 23.** Categorization of non-NIH funded global oncology projects by CGH research priority



**CANCER SITES**

Respondents were asked to identify one or more cancer sites of focus for their projects. The table below shows the total number of non-NIH funded projects and NIH grants coded to each cancer site. The top cancer site for non-NIH funded projects was not site-specific, followed by breast, then cervix; these were also the

top cancer sites reported in the 2018 survey. The top cancer site for NIH grants was also not site-specific, followed by breast, then lung. Combined, non-NIH funded and NIH projects and grants covered a total of 47 different cancer sites.

**TABLE 3.** NIH and non-NIH funded projects and NIH grants by cancer site

Cancer site	# of non-NIH funded global oncology projects	# of NIH grants with international collaborators	Total projects/grants
Not Site-Specific	150	190	340
Breast	79	144	223
Lung	19	116	135
Leukemia	24	84	108
Colon and Rectal	25	82	107
Non-Hodgkin's Lymphoma	19	87	106
Cervix	43	62	105
Liver	14	74	88
Pancreas	19	60	79
Ovary	23	48	71
Prostate	16	54	70
Melanoma	9	56	65
Brain Tumor	14	50	64
Hodgkin's Disease	12	43	55
Esophageal	14	36	50
Kaposi's Sarcoma	0	48	48
Anus	7	32	39
Sarcoma	11	28	39
Myeloma	6	27	33
Pharynx	4	27	31
Kidney	5	23	28
Bladder	2	23	25
Laryngeal	5	20	25
Stomach	7	17	24
Endometrial	8	15	23
Oral Cavity and Lip	6	16	22
Head and Neck	15	6	21
Neuroblastoma	6	11	17
Nervous System	0	16	16
Skin	4	8	12
Vagina	8	4	12

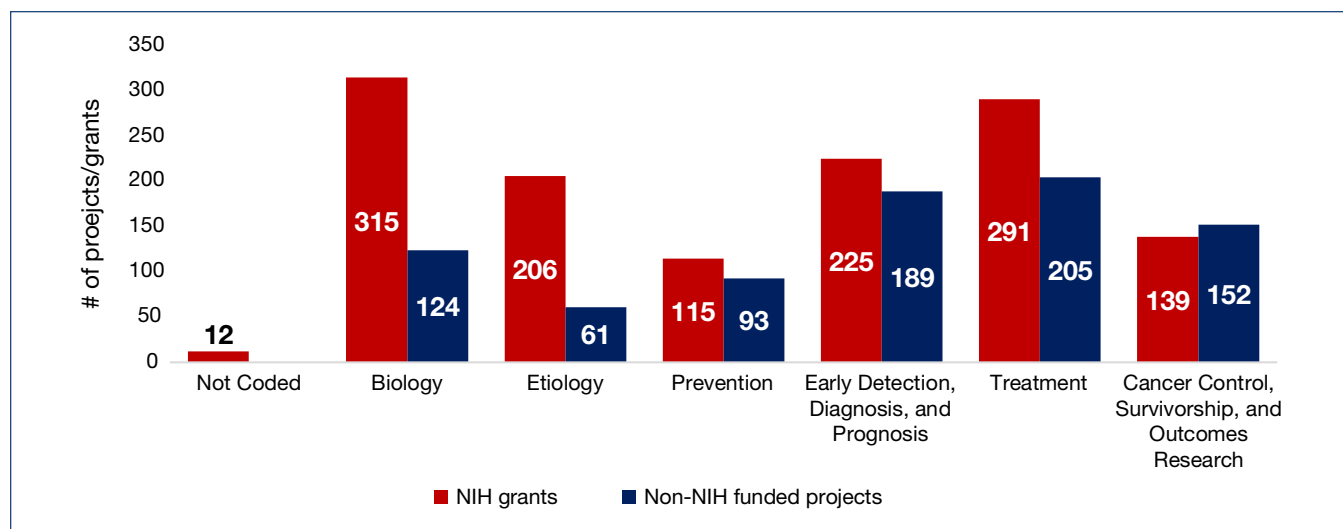
Cancer site	# of non-NIH funded global oncology projects	# of NIH grants with international collaborators	Total projects/grants
Thyroid	5	5	10
Pediatric	9	0	9
Nasal Cavity	0	8	8
Ear	3	5	8
Retinoblastoma	7	1	8
Salivary Gland	3	5	8
Eye	4	3	7
Not Coded	0	7	7
Wilms Tumor	6	0	6
Bone/Osteosarcoma	3	2	5
Vulva	0	5	5
Gallbladder	3	1	4
Small Intestine	0	4	4
Adrenocortical	3	0	3
Gastrointestinal	0	3	3
Penis	1	3	3
Testicular	0	3	3
Primary CNS Lymphoma	0	2	2
Parathyroid	0	1	1

### CSO CODES

The **Common Scientific Outline (CSO)** is a system to classify areas of scientific interest in cancer research across the cancer continuum. Non-NIH funded global oncology projects were coded by respondents to CSO codes, and projects could receive more than one code. Compared to NIH extramural grants, non-NIH funded projects led by cancer centers were less likely to focus on biology, etiology, and treatment, equally

likely to focus on prevention and early detection, diagnosis, and prognosis, and more likely to focus on cancer control, survivorship, and outcomes research. This aligns with similar trends identified in the 2018 survey. These results are shown below, where red bars represent NIH grants and blue bars represent non-NIH funded projects.

**FIGURE 24.** Non-NIH funded projects and NIH grants, by CSO code

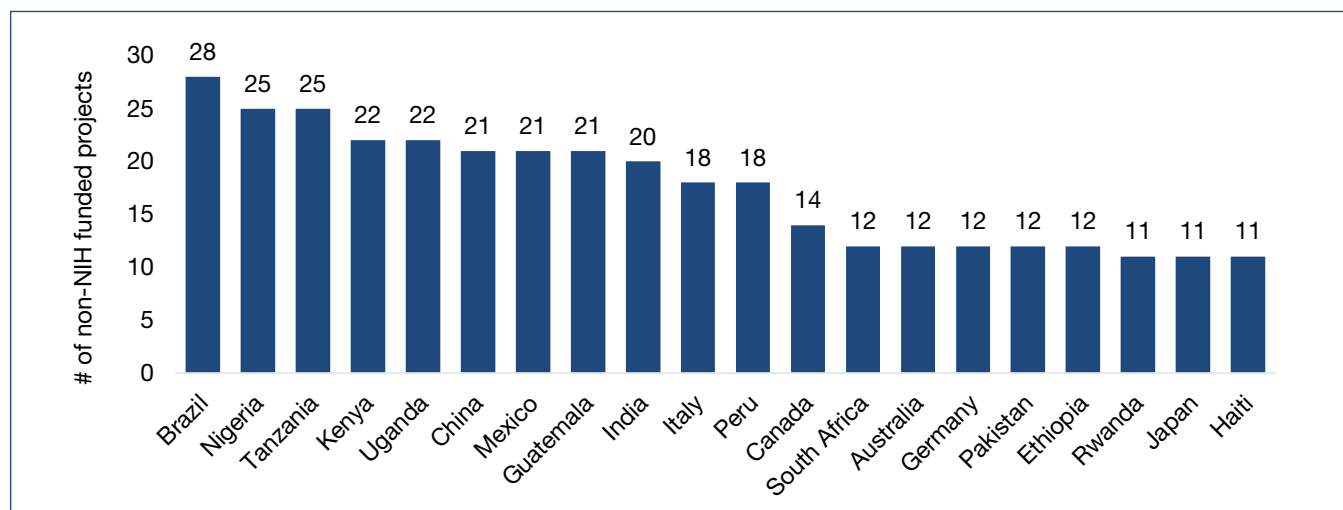


### PROJECT LOCATIONS

Respondents were asked to share the countries in which their global oncology projects took place. The locations covered 143 different countries, and respondents could list multiple locations per project. 121 projects listed the United States as the project

location and 52 projects listed “global”. The top project locations outside of the United States were Brazil (28 projects), Nigeria (25 projects), and Tanzania (25 projects). The figure shows country sites with more than 10 projects.

**FIGURE 25.** Non-NIH funded projects by country site



## GLOBAL ONCOLOGY COLLABORATIONS

Cancer centers were asked to report general collaborative efforts with other NCI-Designated Cancer Centers as well as specific international collaborators on individual non-NIH funded global oncology projects, which are presented alongside collaborator information on NIH funded global oncology projects.

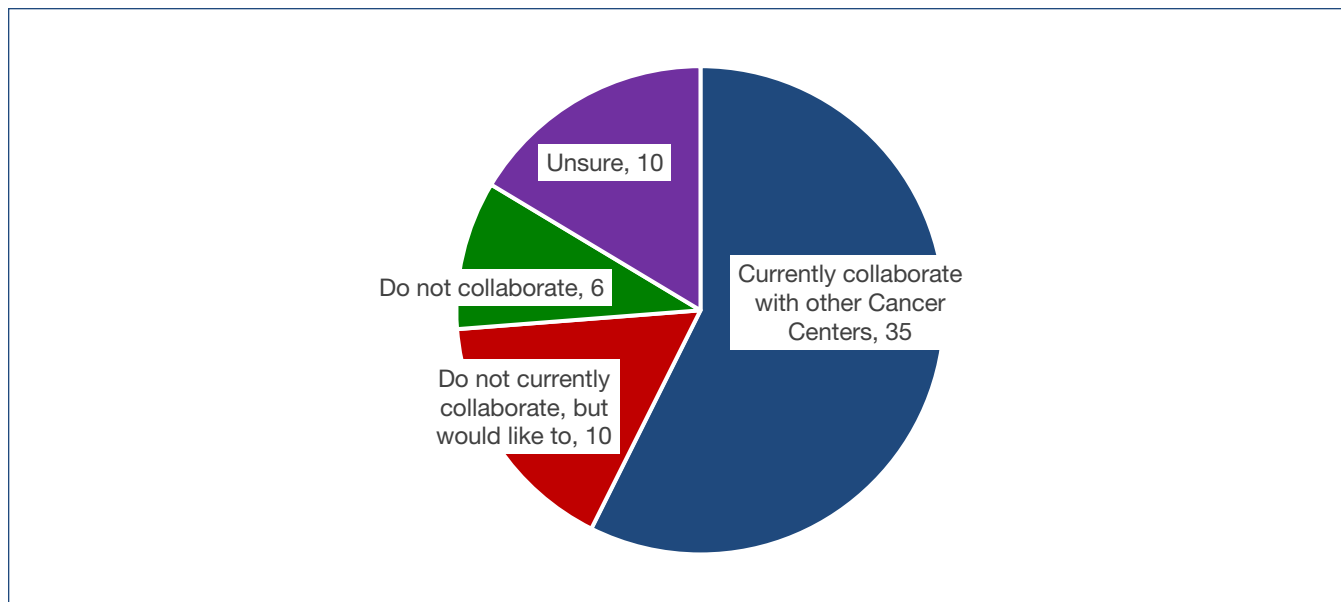
### INTRA-INSTITUTION COLLABORATION

90% (55) cancer centers with a global oncology program or activities reported that faculty/staff collaborate with other schools or academic departments at their institution on global oncology activities.

## COLLABORATIONS AMONG CANCER CENTERS

57% of cancer centers active in global oncology (35/61) reported collaborating with other NCI-Designated Cancer Centers on global oncology activities. Sixteen percent (10) do not currently collaborate but would like to, and another ten cancer centers were unsure if they collaborated with other NCI-Designated Cancer Centers. Cancer centers collaborated in many ways, with the most common being sharing of expertise (28 cancer centers), exchanging knowledge about challenges or solutions (25), expanding existing projects through partnerships (22), and building new projects (21).

**FIGURE 26.** Collaboration status between cancer centers on global oncology activity



When asked how they hoped to collaborate with other NCI-Designated Cancer Centers in the future, 48 of the 61 respondents (79%) would like to share training opportunities, with the remaining highest priorities matching with the existing types of collaboration listed above. Notably, 41 cancer centers (67%) would like to coordinate onsite activities with other cancer centers, and 37 (61%) would like to share data.

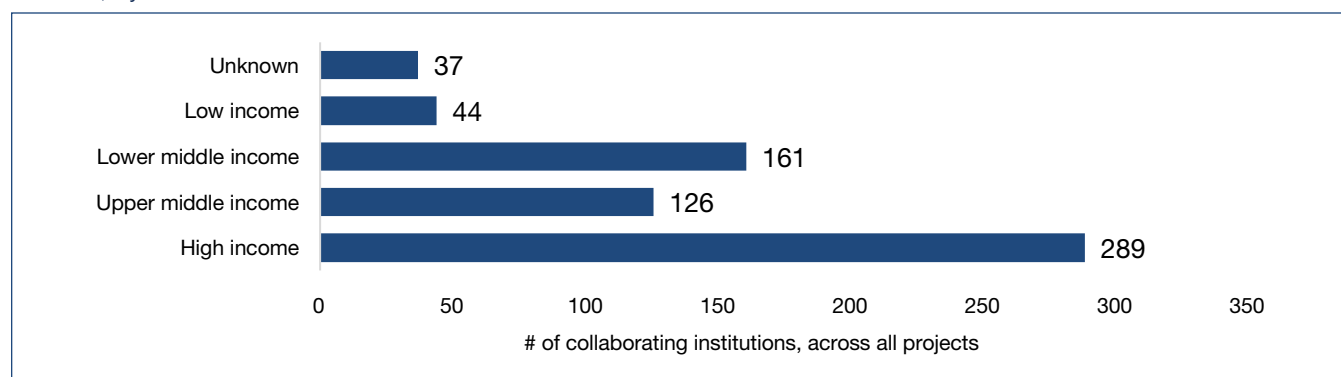
oncology projects. Non-NIH funded projects included 395 collaborating institutions across 85 countries. There were 108 projects with collaborators from US institutions; these collaborators were excluded from the figures below. In addition, the international collaborating institutions shared represent just 65% of reported projects, as 156 projects did not list any international collaborators.

### COLLABORATING INSTITUTIONS AND COUNTRIES ON INDIVIDUAL PROJECTS

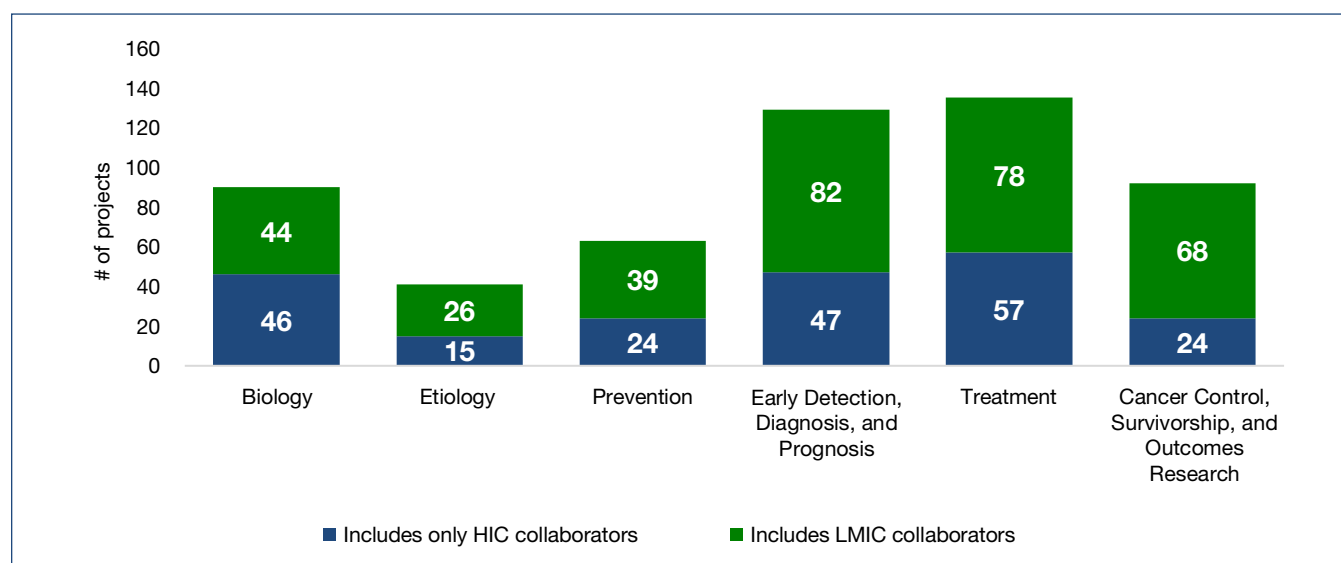
Respondents shared information about collaborating researchers and their institutions on their global

Cancer centers collaborated with institutions in countries across all four World Bank income classes and across all world regions.

**FIGURE 27.** All collaborating institutions on non-NIH funded global oncology projects at NCI-Designated Cancer Centers, by World bank income class



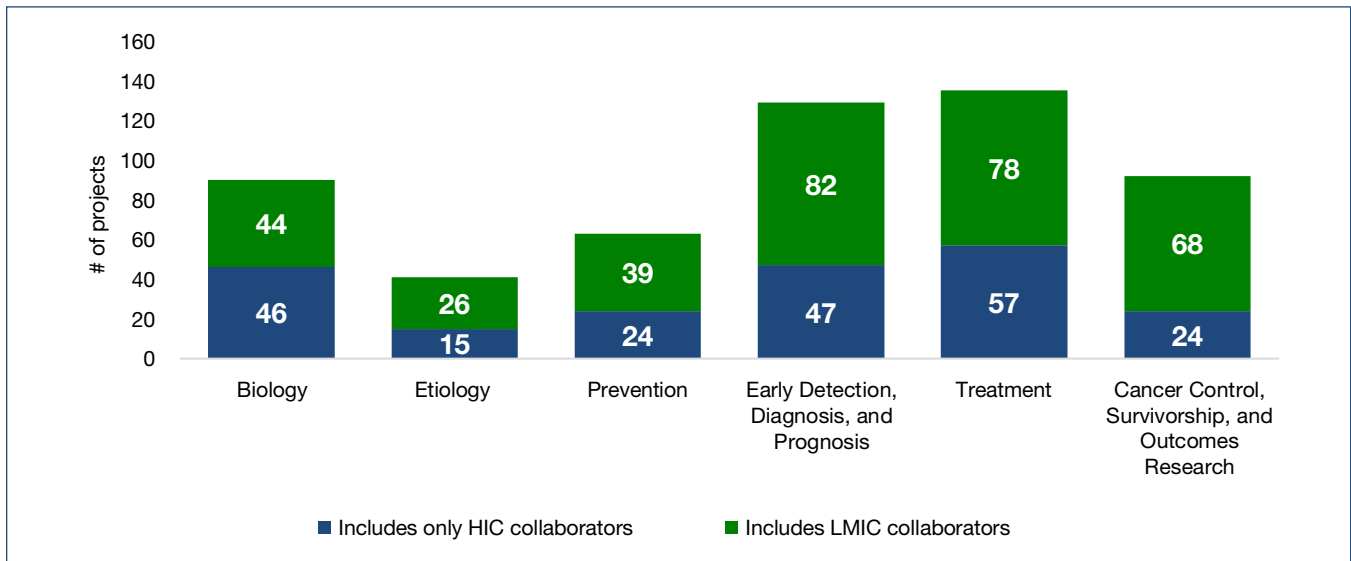
**FIGURE 28.** All collaborating institutions on non-NIH funded global oncology projects at NCI-Designated Cancer Centers, by world region



The proportions of research, capacity building, and clinical practice projects were similar across world regions. Similarly, the distribution of CSO codes of non-NIH funded global oncology projects were similar

between projects with and without collaborators in LMICs, with the exception of projects focused on treatment, which were more likely to include only collaborators in HICs.

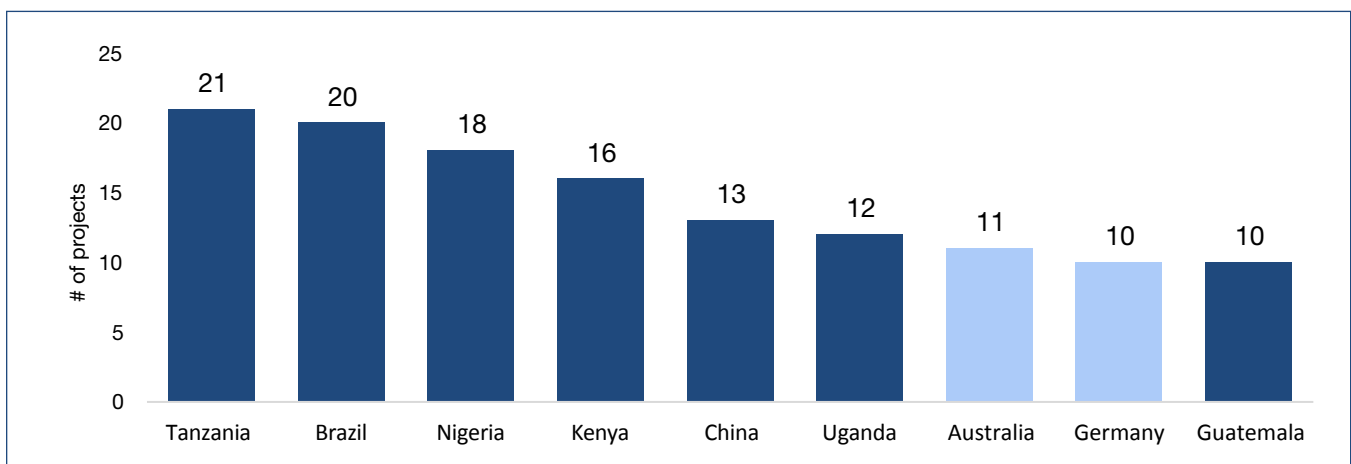
**FIGURE 29.** Non-NIH funded global oncology projects by CSO code, stratified by income class of collaborators



The nine countries with collaborating institutions on the most non-NIH funded projects are shown below, with LMICs shown in dark blue and HICs shown in red. Individual international collaborating institutions on five or more non-NIH funded projects are also shown

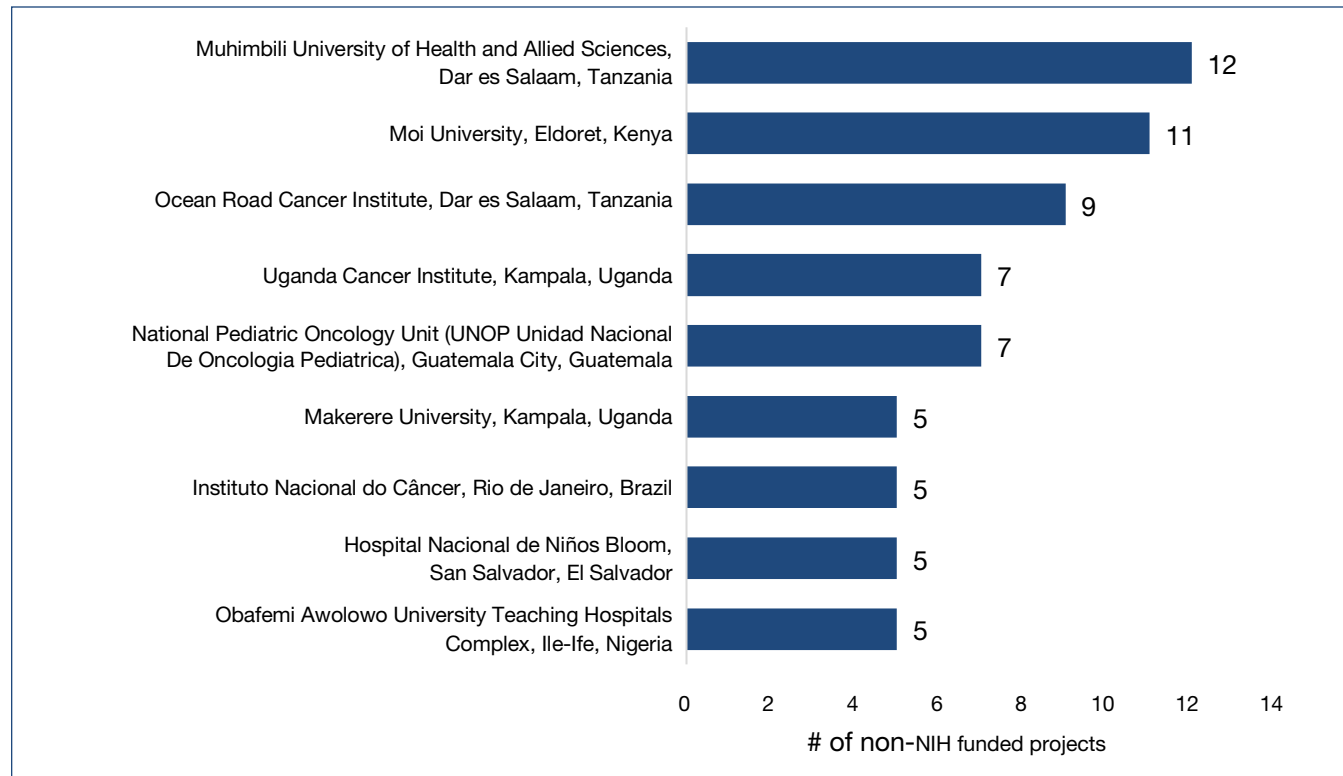
below. Of the 395 total institutions, 281 collaborated on a single project. Data about all collaborating countries and individual institutions are available in Annex 2.

**FIGURE 30.** Countries of collaborating institutions on the most non-NIH funded global oncology projects led by NCI-Designated Cancer Centers





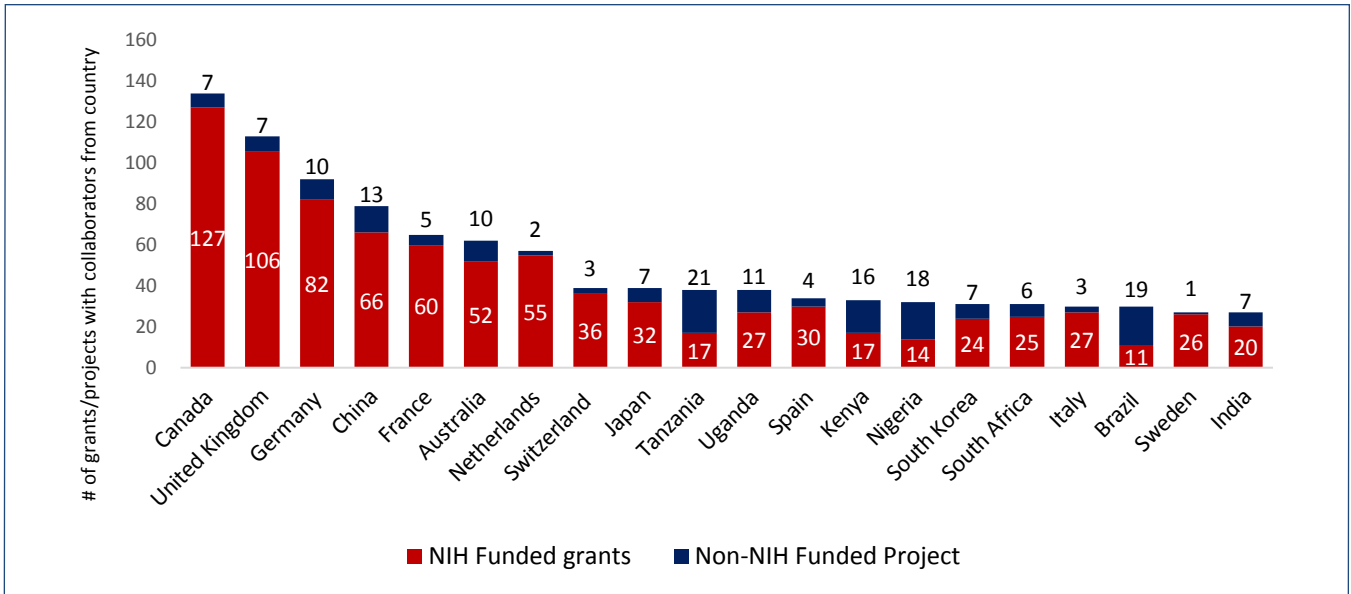
**FIGURE 31.** International collaborating institutions on the most non-NIH funded global oncology projects led by NCI-Designated Cancer Centers



When the collaborating institution information for NIH funded projects is added, there is higher representation among institutions in HICs. 55% of non-NIH-funded projects led by cancer centers that reported international collaborators had collaborators in LMICs, while 28% of the NIH grants with international

collaborators led by cancer centers included collaborators in LMICs. These proportions have remained steady since the 2018 survey, which showed 58% of non-NIH funded projects with collaborators in LMICs and 33% of NIH international grants with collaborators in LMICs

**FIGURE 32.** NIH-funded grants and non-NIH funded global oncology projects at NCI-Designated Cancer Centers by collaborator country (countries on the most total projects)



### GLOBAL ONCOLOGY TRAINING

The 61 cancer centers with a formal global oncology program or activities were asked about global oncology training opportunities offered by their cancer centers. The section below describes these training opportunities.

#### GLOBAL ONCOLOGY TRAINING PROGRAMS

Fifty-four percent (33/61) of cancer centers involved in global oncology offer didactic training opportunities in global oncology for trainees at their institutions, of which, 45% (15/33) have a specialized training program dedicated to global oncology. Training opportunities may include lectures, workshops, or courses in clinical topics, such as the treatment of certain cancers in a resource-limited setting, or public health topics.

**FIGURE 33.** Global oncology training offerings at NCI-Designated Cancer Centers



Among the 15 cancer centers with a specialized global oncology training program, 40% (6) reported that they do not track the number of trainees that complete the program, and eight reported that zero to 11 trainees completed the program in the past 12 months. Only five cancer centers partner with an academic institution to offer a degree or certificate in global oncology to trainees.

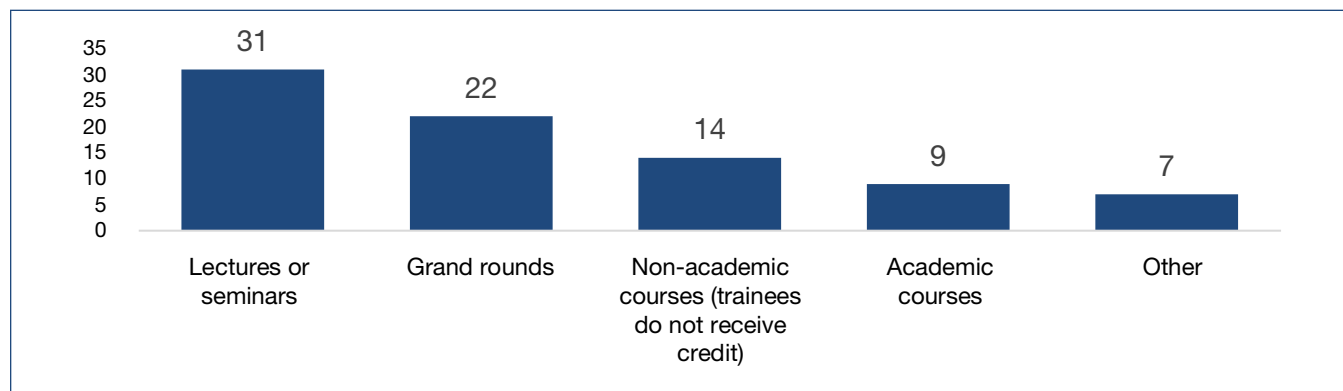
**TABLE 4.** Cancer centers partnering with an academic institution to offer a degree or certificate in global oncology

Cancer Center	Degree	Certificate
MD Anderson Cancer Center		x
Robert H. Lurie Comprehensive Cancer Center	x	
St. Jude Children’s Research Hospital	x	
USC Norris Comprehensive Cancer Center	x	
Vanderbilt-Ingram Cancer Center	x	

The 33 cancer centers that offer didactic training opportunities in global oncology offer a variety of types of training, with most offering lectures or seminars in global oncology (31 cancer centers). Other types of

training offered include conferences or workshops (3 cancer centers), in-country trainings (1 cancer center), dissertations (1 cancer center), and internships (1 cancer center).

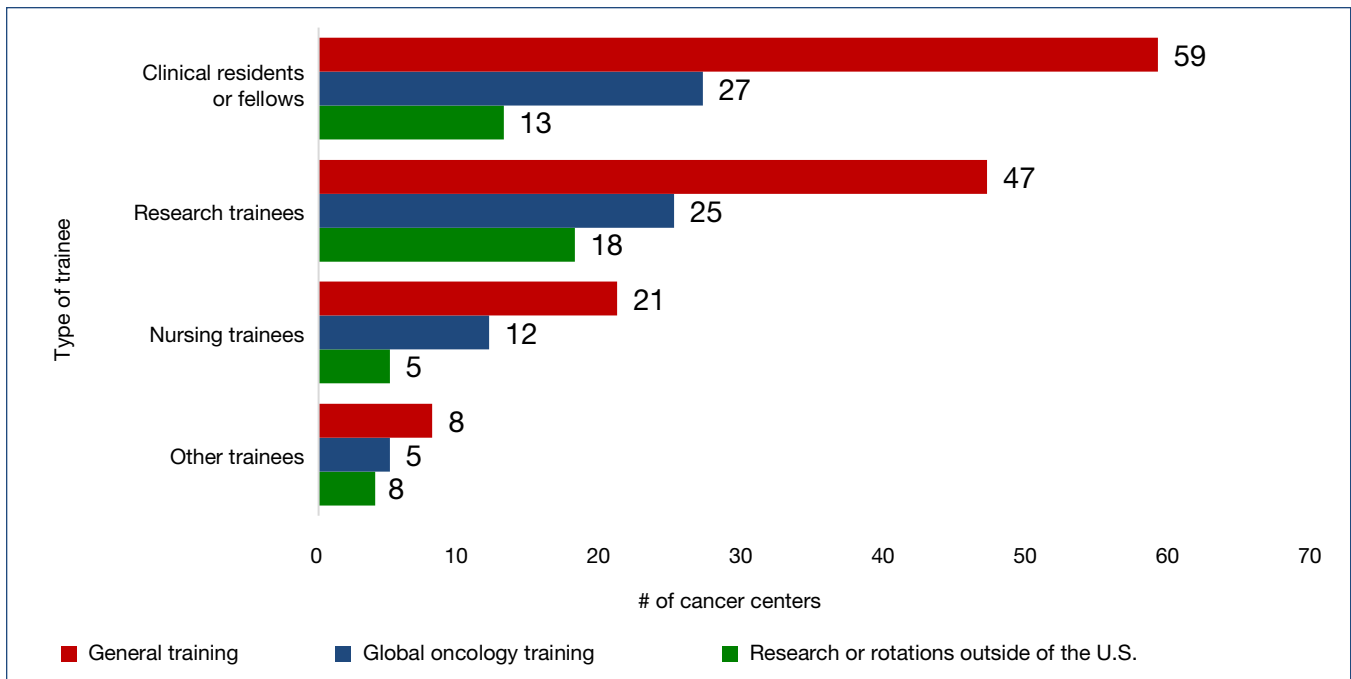
**FIGURE 34.** Types of global oncology training opportunities offered at cancer centers



Cancer centers reported the participation of trainees in global oncology training. Trainees were categorized into four types: clinical residents or fellows, research trainees, nursing trainees, and ‘other’ trainees. ‘Other’ trainees included high school, undergraduate, or graduate students/continuing education. Respondents

were asked which types of trainees participated in each type of training at their cancer center: general training, global oncology training, and/or research or rotations outside of the U.S. The top type of trainee across all training categories was clinical residents or fellows (59 cancer centers).

**FIGURE 35.** Participation of trainees in global oncology training at NCI-Designated Cancer Centers (n=61)

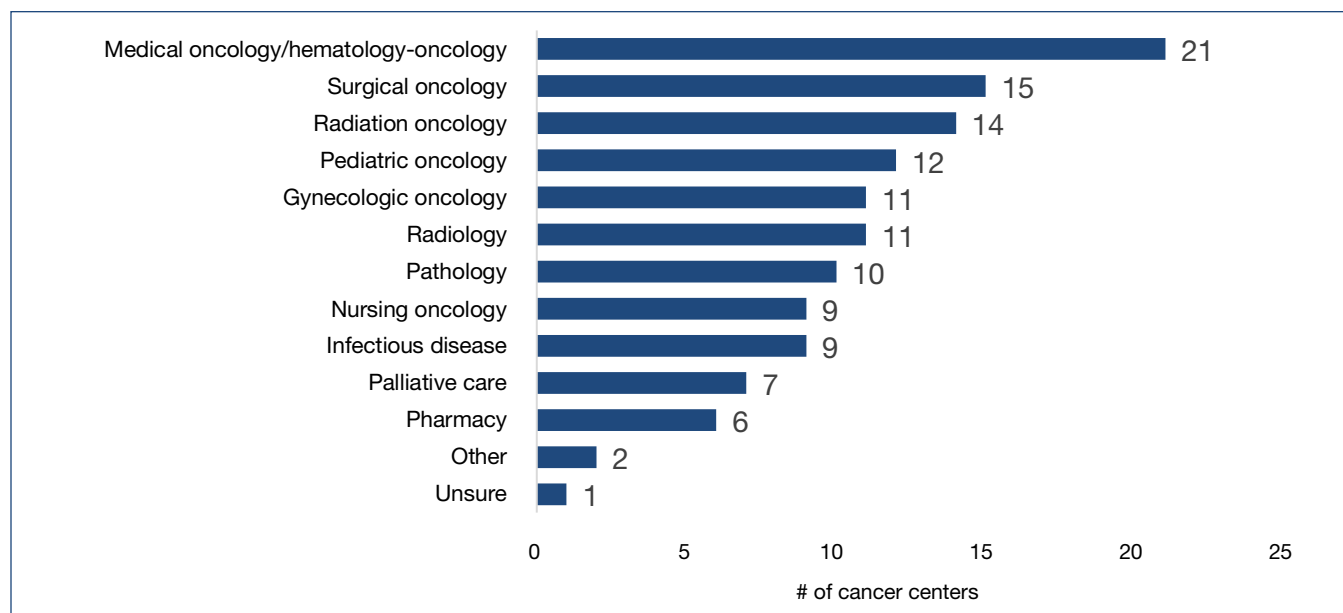


### CLINICAL TRAINEES

Fifty-nine cancer centers offer general training to clinical residents or fellows at their institution. The number of clinical trainees per cancer center that received general training in the last 12 months ranged from 0 to 1700, with most having less than 100 trainees of this type (34 cancer centers). Among cancer centers with clinical trainees, 46% (27/59) reported that clinical trainees participate in global oncology training, and 22% (13/59) reported that clinical trainees complete rotations outside of the

U.S. Only 30% (8/27) of cancer centers with clinical trainees that participate in global oncology training track the number of trainees that received global oncology training in the past 12 months. The number of trainees ranged from one to 14.

Most (10) of the 13 cancer centers with clinical trainees that complete rotations outside of the U.S. reported that, on average, clinical trainees spend less than three months outside of the U.S. on a rotation, and international rotations were in more than 36 countries.

**FIGURE 36.** Cancer centers with clinical trainees participating in global oncology training, per medical specialty

Cancer centers also reported which medical specialty programs participated in global oncology training. More cancer centers reported that medical oncology/hematology-oncology trainees (21 cancer centers) participated in global oncology training than any other specialty. Other clinical trainees that participate in global oncology training included geriatric medicine (1 cancer center), otolaryngology (1 cancer center), and family medicine and community health (1 cancer center).

## RESEARCH TRAINEES

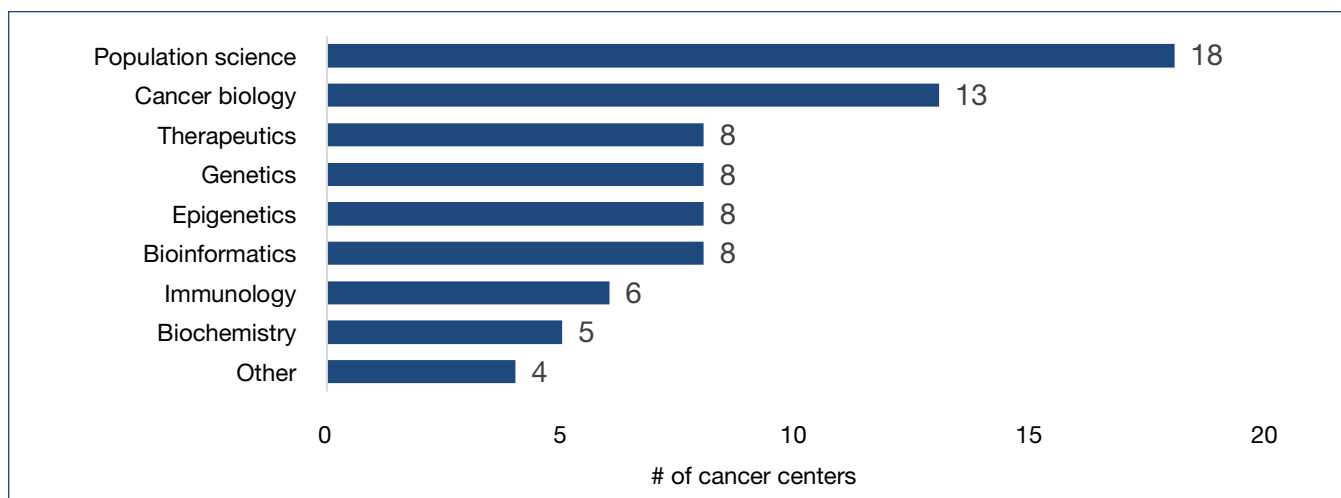
Forty-seven cancer centers offer general training to research trainees at their institution. The number of research trainees that received general training in the last 12 months ranged from 0 to 911, with most cancer centers (37) reporting fewer than 100 research trainees. Among the 47 cancer centers that reported having research trainees, 53% (25) reported that research trainees participate in global oncology

training, and 38% (18) reported that research trainees complete research outside of the U.S. Research trainees completed rotations in over 50 countries.

Only 26% (7/27) cancer centers with research trainees that participate in global oncology training track the number of trainees that participated in global oncology training in the past 12 months; this number ranged from zero to five research trainees.

Cancer centers also reported which research programs participated in global oncology training. More cancer centers reported that population science trainees (18 cancer centers) participated in global oncology training than any other type of program. Types of research trainees listed as “other” that participated in global oncology training included infectious disease, hematology-oncology, global health, cancer health disparities, occupational health and safety, public health, genomics, and advocacy.

**FIGURE 37.** Cancer centers with research trainees participating in global oncology training, by research program



### ONCOLOGY NURSING TRAINEES

Twenty-one cancer centers offer general training to oncology nursing trainees at their institution. The number of nursing trainees that received general training in the last 12 months at each cancer center ranged from 0 to 1600. Among the 21 cancer centers that reported having nursing trainees, 57% (12 cancer centers) reported that nursing trainees participate in global oncology training, and 24% (5 cancer centers) reported that nursing trainees complete rotations outside of the U.S. in over 18 countries.

Only 25% (3/12) cancer centers with nursing trainees that participate in global oncology training track the number of trainees that participated in global oncology training in the past 12 months; this ranged from zero to 105 nursing trainees.

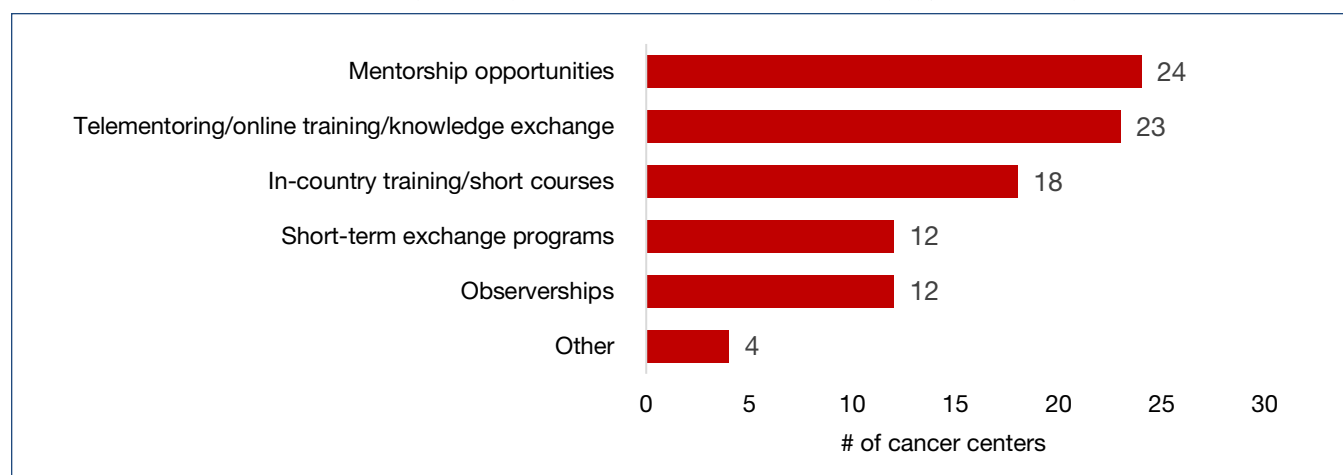
### OTHER TRAINEES

Eight cancer centers offer general training to 'other' types of trainees at their institution, which included pharmaceutical trainees, undergraduate students, and

high school students. The number of 'other' trainees that received general training in the last 12 months ranged from 0 to 1682. Among the eight cancer centers that reported having 'other' trainees, 63% (5 cancer centers) reported that 'other' trainees participate in global oncology training, and 50% (4 cancer centers) reported that 'other' trainees complete rotations outside of the U.S. in over 12 countries.

### INTERNATIONAL TRAINEES AT CANCER CENTERS

In addition to offering global oncology training to trainees at their institutions, 82% (50/61) of cancer centers involved in global oncology also provide formal training to international trainees. Among the 21 cancer centers that track this information, the number of international trainees that received training at their institution in the last 12 months ranged from zero to 344. Only 20% (12/61) of cancer centers tracked the number of international trainees from LMICs, of which, the number ranged from zero to 56 in the last 12 months.

**FIGURE 38.** Cancer centers offering training to un-enrolled LMIC trainees, by type of training

In the last 12 months, 52% (32/61) of cancer centers also reported providing training or capacity building to trainees from LMICs who were not receiving formal training at their institution. The most common types of training activities were mentorship opportunities and tele mentoring. Other types of trainings included enrollment at their center's affiliated academic

institution (2 cancer centers); participation on their multidisciplinary tumor board (1 cancer center); and infrastructure implementation (1 cancer center). Funding for these types of training or capacity building activities came from cancer centers (11 cancer centers), self-funded by the trainee or their institution (11 cancer centers), or both (7 cancer centers).

## SUMMARY OBSERVATIONS

**NCI-Designated Cancer Centers are highly involved in non-NIH funded global oncology activities.** 91% (61/67) responding cancer centers reported global oncology involvement, including 517 non-NIH funded global oncology projects active in 2021. When combined with the 688 NIH-funded grants active in fiscal year 2021 with international collaborators, it is clear that NCI-Designated Cancer Centers are leading a substantial amount of global oncology research, training, and clinical practice. The total number of reported non-NIH and NIH-funded global oncology projects increased from 1173 in 2018 to 1205 in 2021.

**Cancer centers are formalizing global oncology work.** Once considered a niche interest often promoted by a few faculty members, global oncology is increasingly recognized as a priority of cancer centers. Nearly half of cancer centers involved in global oncology (28/61) have a formal global oncology program, defined as "a dedicated department, office, or program that leads the management of global oncology activities across your cancer center." Eighteen of those programs have been created in the past decade, and ten directors of cancer centers without a current program expressed interest in creating one in the next 3-5 years.

**NCI-Designated Cancer Centers work globally, with an emphasis on LMIC collaboration.** Across their NIH and non-NIH funded global oncology projects, cancer centers collaborated with researchers at over 1200 institutions across 111 countries, including 72 LMICs. Cancer centers are more likely to work with collaborators in LMICs on non-NIH funded projects than on NIH-funded grants.

**Interest in global oncology is increasing, and cancer centers offer global oncology training to meet this need.** 54% of cancer centers involved in global oncology (33/61) offer training in global oncology, and 15 offer a specialized training program. Interest in global oncology among trainees and early career faculty is especially high, suggesting that this growth will continue. It is likely that the existing global oncology-specific training offered by cancer centers will not meet the increasing demand.

**Despite COVID-19, cancer centers continue to engage in global oncology.** 79% of cancer centers reported that COVID-19 impacted their global oncology activities, and 72% of all projects were impacted. While the total number of reported active projects decreased from 613 in 2018 to 517 in 2021, likely in part due to COVID-19, cancer centers maintained their overall engagement in global oncology and increased their training offerings, including to international trainees, during this time.

**Tracking global oncology activities is difficult.** This is especially true for cancer centers without a formal global oncology program, of whom nearly half (14/33) do not systematically track global oncology activities at all. The Global Oncology Survey serves as a valuable tool for cancer centers to take regular inventory of their non-NIH funded global oncology activity, but tracking activities remains a chronic challenge.

## UTILIZATION OF SURVEY RESULTS

These survey results can be utilized in a variety of ways, for example:

- NCI-Designated Cancer Centers can assess their own global oncology programs as compared to their peers', identify and strengthen collaborations with domestic and international partners, and identify and share best practices in academic global oncology;
- Other domestic and international research institutions can identify collaborators and shared research interests;
- Program implementers and policymakers can recognize cancer center-led research occurring in their country or region and build and strengthen collaborations for action;
- Trainees can identify relevant programs and opportunities offered by NCI-Designated Cancer Centers;
- Funders, including the National Cancer Institute, can leverage these results as a landscape assessment to refine priorities and inform program design;
- National and regional authorities can use this survey as an example and conduct similar surveys or assessments in their own contexts, to increase the comprehensiveness of these results globally.



## FURTHER RESOURCES

Additional information and visualizations are available at the **NCI Center for Global Health website** and more details results are available upon request. Cancer centers and others interested are invited to **contact the NCI Center for Global Health** for more information.

Additional resources include:

- 2018-2019 Global Oncology Survey of NCI-Designated Cancer Centers Report
- Landscape of Global Oncology Research and Training at National Cancer Institute–Designated Cancer Centers: Results of the 2018 to 2019 Global Oncology Survey (Journal of Global Oncology)
- NCI-Designated Cancer Centers Program Overview
- NCI CGH Strategic Plan 2021-2025

## CONCLUSION

The global oncology survey of NCI-Designated Cancer Centers is the only systematic effort to collect information about all global oncology activities led by cancer centers and this data is not available elsewhere. Despite the limitations in methodology and the impact of the COVID-19 pandemic on global oncology activities and data collection, the results of the 2021

global oncology survey demonstrate a substantial and increasing level of global oncology activities led by NCI-Designated Cancer Centers. These activities are often well-aligned with the priorities outlined in the NCI Center for Global Health’s strategic plan. CGH expects to repeat the survey and identify further trends in academic global oncology around 2026.

## REFERENCES

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- [3] National Institutes of Health (NIH). Query View Report (QVR) 2022 [Available from: [https://apps.era.nih.gov/qvr/web/home\\_main\\_hmnav.cfm](https://apps.era.nih.gov/qvr/web/home_main_hmnav.cfm)].
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- [5] National Institutes of Health (NIH). NIH RePORTER. 2022.

# ANNEXES

## ANNEX 1. GLOSSARY OF TERMS

**TABLE 5.** Miscellaneous terms used throughout the survey and report

Term	Definition
Didactic training	Training which is instructor-led and content-oriented.
Global oncology activities	Research, training, and implementation activities conducted at least in part outside the United States by faculty/staff/trainees at a cancer center as part of their portfolio of responsibilities.
Global oncology program	A dedicated department, office, or program that leads the management of global oncology activities across a cancer center.
Global oncology project	Projects led by or convened by a PI at a cancer center in partnership with an international collaborator in a setting outside the United States. This can include projects focused on research, training, education, capacity building, etc. This also included currently unfunded projects and projects conducted in collaboration with or led by departments within the medical school or university affiliated with a cancer center, as long as cancer center faculty/staff are involved.
International Trainees	Trainees outside of the U.S. that have traveled to a cancer center to receive specialized training through a residency or fellowship and/or a nursing or research program.
Trainees	Those receiving specialized training through a residency or fellowship and/or a nursing or research program provided by a cancer center. Undergraduate or graduate students enrolled in a program at an affiliated university may be counted as trainees depending on the cancer center’s structure.

**TABLE 6.** Definitions of project focus areas, as defined by NCI Center for Global Health

Project Focus Area	Definition
Implementation science	The study of methods to promote the adoption and integration of evidence-based practices, interventions, and policies into routine health care and public health settings to improve the impact on population health.
Health disparities/Health equity	Understanding the causes of and developing interventions to remedy differences in cancer measures by certain populations
Pediatric cancers	Cancer affecting children from birth to age 14.
Survivorship/Follow-up care	An individual is considered a cancer survivor from the time of diagnosis, through the balance of his or her life.

**TABLE 7.** Definitions and examples of funding sources reported by NCI-Designated Cancer Centers for global oncology activities

Funding source	Definition	Examples
Administrative funds	From administrative fees	Registration fees, course tuition
Charitable/philanthropic/donated funds	Individual donations to cancer center or affiliated institution	Individual philanthropic donor
Internal research award funds	Funding provided internally from the organization to faculty	MD Anderson Sister Institution Network
International government	funding from a non-US government	Canadian Institutes of Health Research, World Health Organization (WHO)
International non-profit	funding from a non-profit organization outside of the US	Basic Health International, Israel Cancer Research Foundation
International private sector	From a corporation, private sector, or private sector foundation outside of the US	AMAL Therapeutics, Vingroup International
Investigator discretionary funds	funding from investigator's internal budget (considered a subset of Institutional funds)	UCSF Resource Allocation Fund
Other	funding from a category not listed	
Professional membership society funds	funding from a non-government, non-corporation, for-profit entity	International Gynecologic Cancer Society
US government (non-NIH)	US governmental funding	PEPFAR, USAID, US CDC
US non-profit	funding from an organization registered as a 501c3 in the US	American Cancer Society, Bloomberg Foundation
US private sector	funding from a US corporation, private sector, or private sector foundation	AstraZeneca, Eli Lilly and Company

**ANNEX 2. SUPPLEMENTARY TABLES****TABLE 9.** List of NCI-Designated Cancer Centers by status of global oncology involvement

<b>Cancer center</b>	<b>Global oncology program?</b>	<b>Global oncology activities?</b>
Abramson Cancer Center	Yes	
Alvin J. Siteman Cancer Center - Washington University School of Medicine and Barnes-Jewish Hospital	No	Yes
Arizona Cancer Center	No	Yes
Barbara Ann Karmanos Cancer Center	No	Yes
Case Comprehensive Cancer Center	No	Yes
City of Hope Comprehensive Cancer Center	Yes	
Cold Spring Harbor Laboratory Cancer Center	No	Yes
Dan L. Duncan Comprehensive Cancer Center	Yes	
Dana-Farber/Harvard Cancer Center	No	Yes
Dartmouth-Hitchcock Norris Cotton Cancer Center	Yes	
David H. Koch Institute for Integrative Cancer Research at MIT	No	No
Duke Cancer Institute	Yes	
Fox Chase Cancer Center	Yes	
Fred & Pamela Buffett Cancer Center	No	Yes
Fred Hutchinson/University of Washington Cancer Consortium	Yes	
Georgetown Lombardi Comprehensive Cancer Center	Yes	
H. Lee Moffitt Cancer Center and Research Institute	Yes	
Harold C. Simmons Cancer Center	No	No
Herbert Irving Comprehensive Cancer Center	No	Yes
Holden Comprehensive Cancer Center/University of Iowa	No	Yes
Hollings Cancer Center	No	No
Indiana University Melvin & Bren Simon Cancer Center	Yes	
Jonsson Comprehensive Cancer Center	No	Yes
Laura and Isaac Perlmutter Cancer Center at NYU Langone	No	Yes
Markey Cancer Center	No	Yes
Masonic Cancer Center	Yes	
Massey Cancer Center	No	Yes
Mayo Clinic Cancer Center	Yes	
Mays Cancer Center	No	Yes
MD Anderson Cancer Center	Yes	
Memorial Sloan Kettering Cancer Center	Yes	
OHSU Knight Cancer Institute	No	Yes
O'Neal Comprehensive Cancer Center at UAB	Yes	
Purdue University Center for Cancer Research	No	No

Cancer center	Global oncology program?	Global oncology activities?
Robert H. Lurie Comprehensive Cancer Center	Yes	
Roswell Park Cancer Institute	No	Yes
Rutgers Cancer Institute of New Jersey	Yes	
Salk Institute Cancer Center	No	No
Sanford Burnham Prebys Medical Discovery Institute	No	Yes
Sidney Kimmel Cancer Center at Thomas Jefferson University	No	Yes
Sidney Kimmel Comprehensive Cancer Center	No	Yes
St. Jude Children's Research Hospital	Yes	
Stanford Cancer Institute	No	Yes
Stephenson Cancer Center	Yes	
Sylvester Comprehensive Cancer Center	Yes	
The Jackson Laboratory Cancer Center	No	No
The Ohio State University Comprehensive Cancer Center-Arthur G. James Cancer Hospital and Richard J. Solove Research Institute	No	Yes
The University of Virginia Cancer Center	No	Yes
The Wistar Institute Cancer Center	No	Yes
Tisch Cancer Institute	No	Yes
UC Davis Comprehensive Cancer Center	No	Yes
UCSF Helen Diller Family Comprehensive Cancer Center	Yes	
UNC Lineberger Comprehensive Cancer Center	Yes	
University of Chicago Comprehensive Cancer Center	Yes	
University of Colorado Cancer Center	No	Yes
University of Hawaii Cancer Center	No	Yes
University of Kansas Cancer Center	No	Yes
University of Maryland Marlene and Stewart Greenebaum Comprehensive Cancer Center	Yes	
University of Michigan Comprehensive Cancer Center	No	Yes
University of New Mexico Comprehensive Cancer Center	No	Yes
University of Wisconsin Carbone Cancer Center	Yes	
UPMC Hillman Cancer Center	Yes	
USC Norris Comprehensive Cancer Center	No	Yes
Vanderbilt-Ingram Cancer Center	Yes	
Wake Forest Baptist Comprehensive Cancer Center	No	Yes
Winship Cancer Institute of Emory University	No	Yes
Yale Cancer Center	Yes	

**TABLE 10.** Project type of non-NIH global oncology projects, by NCI-Designated Cancer Center

	Research	Capacity Building/ Training	Clinical Practice	Other
Abramson Cancer Center	2	3	3	
Alvin J. Siteman Cancer Center - Washington University School of Medicine and Barnes-Jewish Hospital	4	1	1	
Arizona Cancer Center	3	1	1	
Barbara Ann Karmanos Cancer Center	1			
Case Comprehensive Cancer Center	6	5	3	1
City of Hope Comprehensive Cancer Center	15	8	8	1
Cold Spring Harbor Laboratory Cancer Center	2		1	
Dan L. Duncan Comprehensive Cancer Center	3	3	1	
Dana-Farber/Harvard Cancer Center	3	3	1	
David H. Koch Institute for Integrative Cancer Research at MIT	4			
Duke Cancer Institute			1	
Fox Chase Cancer Center	6		1	
Fred Hutchinson/University of Washington Cancer Consortium	12	8	8	1
Georgetown Lombardi Comprehensive Cancer Center	1	1		
H. Lee Moffitt Cancer Center and Research Institute	6		1	
Herbert Irving Comprehensive Cancer Center	2	1	1	
Holden Comprehensive Cancer Center/University of Iowa	4	2	1	
Indiana University Melvin & Bren Simon Cancer Center	7	10	8	1
Jonsson Comprehensive Cancer Center	3	1	2	
Markey Cancer Center		1		
Masonic Cancer Center	14	8	1	
Mayo Clinic Cancer Center	2		1	
Mays Cancer Center	1	1	1	1
Memorial Sloan Kettering Cancer Center	12	15	10	
Norris Cotton Cancer Center	1	3	1	1
OHSU Knight Cancer Institute	1			2
O'Neal Comprehensive Cancer Center at UAB	6	2	3	2
Robert H. Lurie Comprehensive Cancer Center	1	3	1	1
Roswell Park Cancer Institute	1			
Sidney Kimmel Cancer Center at Thomas Jefferson University	1	1	1	
Sidney Kimmel Comprehensive Cancer Center	1	1	1	

	Research	Capacity Building/ Training	Clinical Practice	Other
St. Jude Children's Research Hospital	45	50	30	8
Stanford Cancer Institute	4	2	1	
Stephenson Cancer Center	15	4	1	
Sylvester Comprehensive Cancer Center	5	1	1	
The Ohio State University Comprehensive Cancer Center-Arthur G. James Cancer Hospital and Richard J. Solove Research Institute (OSUCCC-The James)	3	3		1
Tisch Cancer Institute	4	4		1
UC Davis Comprehensive Cancer Center	1	2	1	
UCSF Helen Diller Family Comprehensive Cancer Center	19	13	13	4
University of Chicago Comprehensive Cancer Center	8	5	3	1
University of Colorado Cancer Center	1			
University of Kansas Cancer Center	5	2	1	1
University of Maryland Marlene and Stewart Greenebaum Comprehensive Cancer Center	2	1		
University of Michigan Comprehensive Cancer Center	2		1	
University of New Mexico Comprehensive Cancer Center	1	2	1	
University of Texas MD Anderson Cancer Center	17	11	7	1
University of Wisconsin Carbone Cancer Center	6	4	2	
UPMC Hillman Cancer Center	3	3	10	
USC Norris Comprehensive Cancer Center	2		1	1
Vanderbilt-Ingram Cancer Center	6	3	3	3
Winship Cancer Institute of Emory University				
Yale Cancer Center	3		1	
<b>Total</b>	<b>277</b>	<b>192</b>	<b>139</b>	<b>32</b>

**Table 11.** CSO Codes of non-NIH funded global oncology projects, by NCI-Designated Cancer Center

	Biology	Etiology	Prevention	Early Detection, Diagnosis, and Prognosis	Treatment	Cancer Control, Survivorship, and Outcomes Research
Abramson Cancer Center			2	3	3	2
Alvin J. Siteman Cancer Center - Washington University School of Medicine and Barnes-Jewish Hospital	2				3	3
Arizona Cancer Center			1	2	1	1
Barbara Ann Karmanos Cancer Center	1		1		1	
Case Comprehensive Cancer Center	4	3	4	6	2	1
City of Hope Comprehensive Cancer Center	10	1		6	13	8
Cold Spring Harbor Laboratory Cancer Center	1			1	2	
Dan L. Duncan Comprehensive Cancer Center	2	2	1	3	1	1
Dana-Farber/Harvard Cancer Center	1	1	1	2	2	1
David H. Koch Institute for Integrative Cancer Research at MIT	4					
Duke Cancer Institute						1
Fox Chase Cancer Center	6	2	1	3	5	1
Fred Hutchinson/University of Washington Cancer Consortium			2	14	7	7
Georgetown Lombardi Comprehensive Cancer Center		1				1
H. Lee Moffitt Cancer Center and Research Institute	5	2	1	1	3	
Herbert Irving Comprehensive Cancer Center	2	1	2	2		1
Holden Comprehensive Cancer Center/ University of Iowa	1	2	1		3	1
Indiana University Melvin & Bren Simon Cancer Center	3	1	2	8	8	8
Jonsson Comprehensive Cancer Center	1			2	3	2
Markey Cancer Center					1	
Masonic Cancer Center	5	7	5	5	8	2
Mayo Clinic Cancer Center	1	1			1	2
Mays Cancer Center	1			1	2	1
Memorial Sloan Kettering Cancer Center	13	10	12	15	11	12
Norris Cotton Cancer Center	1		1	2	2	2
OHSU Knight Cancer Institute	1	1	2	1		1
O'Neal Comprehensive Cancer Center at UAB			5	7	2	1
Robert H. Lurie Comprehensive Cancer Center	2	1	2	3	2	



	Biology	Etiology	Prevention	Early Detection, Diagnosis, and Prognosis	Treatment	Cancer Control, Survivorship, and Outcomes Research
Roswell Park Cancer Institute			1		1	
Sidney Kimmel Cancer Center at Thomas Jefferson University	1	1		1	1	1
Sidney Kimmel Comprehensive Cancer Center				1	1	
St. Jude Children's Research Hospital	4	7	10	34	45	51
Stanford Cancer Institute	1			3	2	2
Stephenson Cancer Center	13	2	4	5	4	1
Sylvester Comprehensive Cancer Center	2	1	1	1	1	4
The Ohio State University Comprehensive Cancer Center-Arthur G. James Cancer Hospital and Richard J. Solove Research Institute (OSUCCC-The James)	3		2	1	2	1
Tisch Cancer Institute	2		2	2	3	2
UC Davis Comprehensive Cancer Center				2	1	
UCSF Helen Diller Family Comprehensive Cancer Center	6	7	8	15	17	8
University of Chicago Comprehensive Cancer Center	6	3	4	5	3	5
University of Colorado Cancer Center				1		1
University of Kansas Cancer Center	3	1	4	4	2	2
University of Maryland Marlene and Stewart Greenebaum Comprehensive Cancer Center				1		1
University of Michigan Comprehensive Cancer Center	2	1		2	2	1
University of New Mexico Comprehensive Cancer Center	1		2	1	2	1
University of Texas MD Anderson Cancer Center	7		4	12	13	4
University of Wisconsin Carbone Cancer Center			1	4	3	3
UPMC Hillman Cancer Center	1			4	11	1
USC Norris Comprehensive Cancer Center			1	1	1	
Vanderbilt-Ingram Cancer Center	3	2	2	1	3	2
Winship Cancer Institute of Emory University						
Yale Cancer Center	2		1	1	1	1
<b>Total</b>	<b>124</b>	<b>61</b>	<b>93</b>	<b>189</b>	<b>205</b>	<b>152</b>

**TABLE 13.** Cancer Sites (Most Common) of non-NIH funded global oncology projects led by NCI-Designated Cancer Centers

	Not Site-Specific	Breast	Cervix	Colon and Rectal	Leukemia	Ovary	Lung	Non-Hodgkin's Lymphoma	Pancreas	Prostate
Abramson Cancer Center	2	1		1						
Alvin J. Siteman Cancer Center - Washington University School of Medicine and Barnes-Jewish Hospital	2						1			
Arizona Cancer Center	1		1							
Barbara Ann Karmanos Cancer Center	1									
Case Comprehensive Cancer Center	5	2	2	3			2			
City of Hope Comprehensive Cancer Center		7	1		3	1		1	1	2
Cold Spring Harbor Laboratory Cancer Center									2	
Dan L. Duncan Comprehensive Cancer Center	2				2			2		
Dana-Farber/Harvard Cancer Center	2	1				1				1
David H. Koch Institute for Integrative Cancer Research at MIT		4				1				
Duke Cancer Institute		1	1	1						
Fox Chase Cancer Center	1	1		1		1	1		1	2
Fred Hutchinson/University of Washington Cancer Consortium	1	12	1		1			1		
Georgetown Lombardi Comprehensive Cancer Center	1	1					1			
H. Lee Moffitt Cancer Center and Research Institute	1	2				2	2		1	2
Herbert Irving Comprehensive Cancer Center		1								
Holden Comprehensive Cancer Center/University of Iowa		1		1	1		1	1		1
Indiana University Melvin & Bren Simon Cancer Center	5	2	1		2			2		
Jonsson Comprehensive Cancer Center	2	1	1			1				1
Markey Cancer Center							1			
Masonic Cancer Center	4	4	2	2	1	1	2			2
Mayo Clinic Cancer Center										2
Mays Cancer Center	1	1								
Memorial Sloan Kettering Cancer Center	5	4	1	5		1	1		3	1
Norris Cotton Cancer Center	1	2								
OHSU Knight Cancer Institute	1									
O'Neal Comprehensive Cancer Center at UAB	1		9							

	Not Site-Specific	Breast	Cervix	Colon and Rectal	Leukemia	Ovary	Lung	Non-Hodgkin's Lymphoma	Pancreas	Prostate
Robert H. Lurie Comprehensive Cancer Center	1	1	2							
Roswell Park Cancer Institute				1			1			
Sidney Kimmel Cancer Center at Thomas Jefferson University	1	1		1						
Sidney Kimmel Comprehensive Cancer Center		1								
St. Jude Children's Research Hospital	64				8			5		
Stanford Cancer Institute	1	1						1		
Stephenson Cancer Center			1			6			6	
Sylvester Comprehensive Cancer Center	3	2				1				
The Ohio State University Comprehensive Cancer Center-Arthur G. James Cancer Hospital and Richard J. Solove Research Institute (OSUCCC-The James)		1	2	1	1			3		
Tisch Cancer Institute	1	4	1							
UC Davis Comprehensive Cancer Center	2									
UCSF Helen Diller Family Comprehensive Cancer Center	7	4	4	3	1			1		
University of Chicago Comprehensive Cancer Center		8		1		2				
University of Colorado Cancer Center										
University of Kansas Cancer Center	3	1			2	1		1	1	1
University of Maryland Marlene and Stewart Greenebaum Comprehensive Cancer Center	1	1								
University of Michigan Comprehensive Cancer Center	1									
University of New Mexico Comprehensive Cancer Center		1	2							
University of Texas MD Anderson Cancer Center	5	4	7		1	3	2		1	
University of Wisconsin Carbone Cancer Center	4		2	2					2	
UPMC Hillman Cancer Center	12	1	1	1		1	1		1	
USC Norris Comprehensive Cancer Center	1				1			1		
Vanderbilt-Ingram Cancer Center	4			1			2			1
Winship Cancer Institute of Emory University										
Yale Cancer Center			1				1			
<b>Total</b>	<b>150</b>	<b>79</b>	<b>43</b>	<b>25</b>	<b>24</b>	<b>23</b>	<b>19</b>	<b>19</b>	<b>19</b>	<b>16</b>

**TABLE 14.** Regional Collaborators of Non-NIH funded global oncology projects led by NCI-Designated Cancer Centers

	East Asia & Pacific	Europe & Central Asia	Latin America & Caribbean	Middle East & North Africa	North America	South Asia	Sub-Saharan Africa	Grand Total
Abramson Cancer Center		1			3			3
Alvin J. Siteman Cancer Center - Washington University School of Medicine and Barnes-Jewish Hospital	2		1		2	1		3
Arizona Cancer Center					1		1	1
Case Comprehensive Cancer Center		3			2		2	5
City of Hope Comprehensive Cancer Center	2	5	2	3	4		3	13
Cold Spring Harbor Laboratory Cancer Center				1	2			2
Dan L. Duncan Comprehensive Cancer Center	1	1	1		1		2	3
Dana-Farber/Harvard Cancer Center							1	1
Dartmouth-Hitchcock Norris Cotton Cancer Center		1	1		2	1	2	3
Duke Cancer Institute							1	1
Fox Chase Cancer Center	1		1		3			5
Fred Hutchinson/University of Washington Cancer Consortium		1	1	2	7		5	9
Georgetown Lombardi Comprehensive Cancer Center							1	1
H. Lee Moffitt Cancer Center and Research Institute	2	3			3		1	6
Herbert Irving Comprehensive Cancer Center		1			1			2
Holden Comprehensive Cancer Center	2	2			2			4
Indiana University Melvin & Bren Simon Cancer Center					8		8	9
Jonsson Comprehensive Cancer Center	2				2		1	4
Masonic Cancer Center	7	3	3		6		2	14
Mayo Clinic Cancer Center					1		2	2
Mays Cancer Center	1				1			1
MD Anderson Cancer Center	8	3	3		8	3	8	19
Memorial Sloan Kettering Cancer Center	1		1	2		2	3	8
OHSU Knight Cancer Institute	1				2			2
O'Neal Comprehensive Cancer Center at UAB	2		1		6	1	1	7
Robert H. Lurie Comprehensive Cancer Center				1	1		2	3
Roswell Park Cancer Institute						1		1

	East Asia & Pacific	Europe & Central Asia	Latin America & Caribbean	Middle East & North Africa	North America	South Asia	Sub-Saharan Africa	Grand Total
Sidney Kimmel Cancer Center at Thomas Jefferson University					1		1	
Sidney Kimmel Comprehensive Cancer Center							1	1
St. Jude Children's Research Hospital	8	8	10	1	18	4	11	41
Stanford Cancer Institute		1			2		2	4
Stephenson Cancer Center	6	1			2	1	1	11
Sylvester Comprehensive Cancer Center	1	1	4		2		1	5
The Ohio State University Comprehensive Cancer Center-Arthur G. James Cancer Hospital and Richard J. Solove Research Institute (OSUCCC-The James)					3		1	3
Tisch Cancer Institute		1			1		3	3
UC Davis Comprehensive Cancer Center	1	1						2
UCSF Helen Diller Family Comprehensive Cancer Center	2		2		13		15	22
University of Chicago Comprehensive Cancer Center			1		3		2	4
University of Kansas Cancer Center	1		2	1	1		1	5
University of Maryland Marlene and Stewart Greenebaum Comprehensive Cancer Center					1			1
University of Michigan Comprehensive Cancer Center			1					1
University of New Mexico Comprehensive Cancer Center					2			2
University of Wisconsin Carbone Cancer Center		1	3		2	1		5
UPMC Hillman Cancer Center	2		1		1			2
USC Norris Comprehensive Cancer Center		1	1		1			2
Vanderbilt-Ingram Cancer Center	2	2			3			5
Yale Cancer Center		2	1		2			3
<b>Grand Total</b>	<b>55</b>	<b>43</b>	<b>41</b>	<b>11</b>	<b>125</b>	<b>16</b>	<b>84</b>	<b>255</b>

**TABLE 15.** Number of collaborator countries per World Bank Income Class on non-NIH global oncology projects led by NCI-Designated Cancer Centers

	High income	Low income	Lower middle income	Upper middle income	Grand Total
Abramson Cancer Center	4			1	5
Alvin J. Siteman Cancer Center - Washington University School of Medicine and Barnes-Jewish Hospital	4		2	2	8
Arizona Cancer Center	1	1			2
Case Comprehensive Cancer Center	17	2			19
City of Hope Comprehensive Cancer Center	18		4	4	26
Cold Spring Harbor Laboratory Cancer Center	7				7
Dan L. Duncan Comprehensive Cancer Center	4	5	1	3	13
Dana-Farber/Harvard Cancer Center	2		2		
Dartmouth-Hitchcock Norris Cotton Cancer Center	3	2	2	1	8
Duke Cancer Institute		1		1	
Fox Chase Cancer Center	4			2	6
Fred Hutchinson/University of Washington Cancer Consortium	11	6	3	2	22
Georgetown Lombardi Comprehensive Cancer Center	1		1		
H. Lee Moffitt Cancer Center and Research Institute	16		1	1	18
Herbert Irving Comprehensive Cancer Center	3				3
Holden Comprehensive Cancer Center	5			2	7
Indiana University Melvin & Bren Simon Cancer Center	14	1	8		23
Jonsson Comprehensive Cancer Center	4		1	1	6
Masonic Cancer Center	21	2	3	10	36
Mayo Clinic Cancer Center	2		12		14
Mays Cancer Center	6		3		9
MD Anderson Cancer Center	21	9	9	11	50
Memorial Sloan Kettering Cancer Center	1		7	5	13
OHSU Knight Cancer Institute	2			1	3
O'Neal Comprehensive Cancer Center at UAB	8		3	1	12
Robert H. Lurie Comprehensive Cancer Center	1		2	1	4
Roswell Park Cancer Institute	1		1		
Sidney Kimmel Cancer Center at Thomas Jefferson University	1		1		
Sidney Kimmel Comprehensive Cancer Center	1		1		
St. Jude Children's Research Hospital	32	8	34	37	111

	High income	Low income	Lower middle income	Upper middle income	Grand Total
Stanford Cancer Institute	3		2		5
Stephenson Cancer Center	9		3	1	13
Sylvester Comprehensive Cancer Center	7	1	3	15	26
The Ohio State University Comprehensive Cancer Center- Arthur G. James Cancer Hospital and Richard J. Solove Research Institute (OSUCCC-The James)	4	1			5
Tisch Cancer Institute	2	3	4		9
UC Davis Comprehensive Cancer Center	1		1		2
UCSF Helen Diller Family Comprehensive Cancer Center	23	3	37	3	66
University of Chicago Comprehensive Cancer Center	3		2	1	6
University of Kansas Cancer Center	5		2	7	14
University of Maryland Marlene and Stewart Greenebaum Comprehensive Cancer Center	1				1
University of Michigan Comprehensive Cancer Center	1	1			
University of New Mexico Comprehensive Cancer Center	2				2
University of Wisconsin Carbone Cancer Center	7		1	3	11
UPMC Hillman Cancer Center	10			1	11
USC Norris Comprehensive Cancer Center	10			3	13
Vanderbilt-Ingram Cancer Center	9				9
Yale Cancer Center	3			4	7
<b>Grand Total</b>	<b>308</b>	<b>44</b>	<b>157</b>	<b>124</b>	<b>633</b>

### ANNEX 3. GLOBAL ONCOLOGY PROJECT DETAILS

Titles, abstracts, and international collaborator information for all NIH funded global oncology projects led by NCI-Designated Cancer Centers in FY2021 and for all non-NIH funded global oncology projects led by NCI-Designated Cancer Centers in FY2021 are available here: <https://events.cancer.gov/cgh/go-survey/resources>.

### ANNEX 4. SURVEY QUESTIONNAIRES

Part 1: [https://researchsurveys.org/OncologySurvey/Global\\_Oncology\\_Survey\\_Main\\_P1.pdf](https://researchsurveys.org/OncologySurvey/Global_Oncology_Survey_Main_P1.pdf)

Part 2: [https://researchsurveys.org/OncologySurvey/Global\\_Oncology\\_Survey\\_Main\\_P2v3.pdf](https://researchsurveys.org/OncologySurvey/Global_Oncology_Survey_Main_P2v3.pdf)



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