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Commentary

A roadmap to establishing global oncology as a priority initiative within a National Cancer Institute–designated cancer center

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Abstract

As the burden of cancers impacting low- and middle-income countries is projected to increase, formation of strategic partnerships between institutions in high-income countries and low- and middle-income country institutions may serve to accelerate cancer research, clinical care, and training. As the US National Cancer Institute and its Center for Global Health continue to encourage cancer centers to join its global mission, academic cancer centers in the United States have increased their global activities. In 2015, the Helen Diller Family Comprehensive Cancer Center at the University of California, San Francisco, responded to the call for international partnership in addressing the global cancer burden through the establishment of the Global Cancer Program as a priority initiative. In developing the Global Cancer Program, we galvanized institutional support to foster sustained, bidirectional, equitable, international partnerships in global cancer control. Our focus and intent in disseminating this commentary is to share experiences and lessons learned from the perspective of a US-based, National Cancer Institute–designated cancer center and to provide a roadmap for other high-income institutions seeking to strategically broaden their missions and address the complex challenges of global cancer control. Herein, we review the formative evaluation, governance, strategic planning, investments in career development, funding sources, program evaluation, and lessons learned. Reflecting on the evolution of our program during the first 5 years, we observed in our partners a powerful shift toward a locally driven priority setting, reduced dependency, and an increased commitment to research as a path to improve cancer outcomes in resource-constrained settings.

In 2011, the World Health Organization heightened international awareness of the growing burden of noncommunicable diseases in low- and middle-income countries (LMICs) (1,2). Currently, 70% of cancer deaths occur in LMICs (3). The global cancer burden is expected to increase by 47% from 2020 to 2040, with the largest increases expected in low and medium Human Development Index (HDI) countries (64%-95%) vs high or very high HDI countries (32%-56%) (4). Acknowledging the disparate rate of cancer-related deaths in LMICs, the United Nations General Assembly on Non-Communicable Diseases Prevention and Control released a call to action to address the opportunity for the international community to enhance development initiatives (5). This call was subsequently incorporated into goal 3 of the United Nation's 17 Sustainable Development Goals to "ensure healthy lives and promote well-being for all at all ages" (6).

Formation of strategic partnerships between institutions in high-HDI countries and LMIC institutions offers opportunities to accelerate research, clinical care, and training (7). In 2015, the Helen Diller Family Comprehensive Cancer Center (HDFCCC) at the University of California, San Francisco (UCSF), responded to the call for international partnership in addressing the global cancer burden through the establishment of the Global Cancer Program (GCP) as a priority initiative. At the time we established our program, most National Cancer Institute (NCI)–designated cancer centers were not yet engaged in responding to this international call to action, and a clear roadmap to guide program development did not exist. Although global oncology activities existed at UCSF, they were fragmented across multiple departments and/or clinical specialties and lacked centralized institutional support. Additionally, formalized partnerships between UCSF and LMIC institutions with a cancer focus were lacking. By establishing the GCP, we aimed to galvanize institutional support to foster sustained, bidirectional, equitable, international partnerships in global cancer control.

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As the US NCI and its Center for Global Health continue to encourage cancer centers to join its global mission (8), more academic cancer centers will likely increase their global oncology activities (9). Our focus and intent in disseminating this commentary is to provide a roadmap for other high-income institutions seeking to strategically broaden their missions and address the complex challenges of global cancer control by sharing our experiences and lessons learned from the perspective of a US-based, NCI-designated cancer center. We acknowledge that sharing this history from the perspective of a US-based academic institution focuses a limited "foreign gaze" on a global health issue (10). Our experiences in building strategic international partnerships and the viewpoints of our LMIC partners in this experience have and will be shared separately (11). Herein, we aim to provide a focused history of the strategic planning, decisions, investments, and partnerships that contributed to the development of the GCP at the UCSF HDFCCC.

Formative evaluation

At inception of the program, a director for the GCP was named (KVL) by the president of the HDFCCC (AA), with an allocation for adequate protected time to guide strategic development of the new initiative. A dedicated program manager was recruited to provide operational and strategic support. The program was named the Global Cancer Program to reflect our broad interest in population health as well as clinical oncology care.

As a first step, we conducted a formative evaluation that looked both inward at UCSF and outward at peer institutions in the United States. Our goal was to identify all UCSF faculty and their international partners, from myriad disciplines, with funded and unfunded international collaborations focused on cancer. This search was completed through administration of an electronic survey to the faculty memberships of HDFCCC and the UCSF Institute of Global Health Sciences (IGHS), which sought to identify and catalog projects and active partnerships and their associated funding sources. In addition, our institutional grant databases were reviewed.

After UCSF faculty and trainees with active international collaborations focused on cancer were identified, the director of the GCP conducted one-on-one interviews with key UCSF faculty. Faculty and trainees also convened for group meetings and facilitated conversations. The director conducted these open-ended interviews and facilitated group meetings with a goal to gather data on individual and collective experiences, to identify common challenges, and to prioritize needs for centralized institutional support. We mapped activities geographically, along the cancer control continuum, and by funding sources.

We found that faculty and trainees were working in diverse geographies in more than 16 unique sites around the world (see Supplementary Figure 1, available online), with activities that spanned the cancer control continuum from epidemiologic research to palliative care. Faculty identified capacity-building activities and research as priorities. In surveying challenges, many faculty and trainees reported that their global activities received little or no institutional support or academic recognition, and many were required to spend unfunded or vacation time to advance their work. This mapping also demonstrated that few faculty in different disciplines were in active collaboration with one another and that individual projects largely operated in silos. Additionally, we identified a large number of trainees and junior faculty who were motivated to engage in global work; however, the lack of mentorship and infrastructure support for junior faculty and trainees was identified as a major barrier for career development.

In addition to gathering data from within UCSF, we benchmarked the few existing global oncology programs at NCI-designated cancer centers and examined institutional support, governance, and organizational structures. We identified that the few existing programs were embedded within cancer centers rather than within institutional global health programs or institutes; however, models varied widely.

At the culmination of our formative evaluation, we identified the following priorities for the GCP: 1) to leverage resources within UCSF (eg, the Center for AIDS Research and the Institute for Global Health Sciences), and several existing collaborations with LMIC partners to facilitate the development of a GCP as a new initiative; 2) to establish career development support and mentoring for early career investigators in the emerging academic field of global oncology in the United States and in our partner LMICs; and 3) to establish an international presence as a high-HDI partner rooted in principles of equitable partnership in the emerging academic field of global oncology. For each of these priorities, we identified challenges and opportunities, which are summarized in Table 1.

Governance and oversight

As a strategic initiative for HDFCCC at UCSF, the GCP is embedded within HDFCCC and reports semi-annually to

Table 1. Strengths, challenges and opportunities identified in a formative evaluation of faculty involved with global oncology prior to program inception

Strengths	Challenges	Opportunities
A long-standing institutional reputation for success and leadership in global health	Faculty working in silos	Provide resources, supports, and a network for collaboration
Institutional expertise in cancer care and cancer research	Conflict over prioritization on clinical capacity building vs research	Establish a shared vision and mission for the Global Cancer Program
A robust, multidisciplinary cadre of faculty with ongoing projects and collaborations	Tension around different models of global collaboration (eg, medical voluntourism, mission based)	Define our values as a program
Stakeholders represented diverse geographic areas of focus and clinical disciplines	Alignment of a diverse group around a common agenda	A multidisciplinary group aligned with a need for collaborative work in global cancer control
Influx of trainees with interests in global oncology	Lack of funding and lack of an existing model for global oncology as a viable career pathway	Define achievable academic benchmarks and disrupt precedent that this work should be done outside of regular academic responsibilities

HDFCCC on achievements, challenges, and key academic indicators (eg, grants and publications). Between program inception in 2015 and its formal launch in 2017, we established an external advisory board comprising thought leaders and multidisciplinary experts with a demonstrated track record in global cancer from US institutions with already formed or forming GCPs. The external advisory board serves to provide strategic advice on program direction, to evaluate progress, and to encourage the highest quality results and sustained impact of the program. The external advisory board meets annually to review a progress report, to benchmark the GCP's activities against other programs at US-based cancer centers, and to provide consultation regarding challenges. Each external advisory board member serves a 5-year term.

In addition, we established a steering committee of internal advisors and program ambassadors. The GCP Steering Committee initially comprised 3 senior faculty, including the associate director of Population Sciences for HDFCCC (RAH) as well as representatives from the School of Nursing (SB) and School of Medicine (PV). The steering committee was subsequently expanded to include junior faculty and trainee positions who represent interests of early career investigators; each of these positions serves a 2-year term. Steering committee members routinely participate in programmatic decisions, including allocations of pilot funding and selection of trainees for the Global Cancer Fellowship (see below). Our leadership team was expanded to include an associate director of Operations (LB) and an associate director of Education (MH). To facilitate open dialogue between the governing bodies, we invite HDFCCC leadership and steering committee members to participate in the annual external advisory board meeting. These advisory bodies add substantial value by providing guidance around key decisions during formative stages and have facilitated and strengthened strategic internal and external partnerships.

Early strategic planning: defining our mission and values

During the formative phases, we developed an initial 5-year strategic plan to guide prioritization of our initiatives. Based on these conversations, we defined our mission, "to accompany our partners to reduce the global cancer burden through education, innovative research, and collaboration," with the understanding that this would be dynamic in an emerging field. Reflecting on our institutional strengths, we identified 3 objectives to advance toward this mission: 1) to perform innovative research and quality improvement that address the disparate burden of cancer in LMICs; 2) to empower leaders in global cancer care and research through education, training, and mentorship for trainees and early career faculty in LMICs and at UCSF; and 3) to foster collaborations to sustainably impact the global cancer burden.

In this process, we discussed the relative importance of cancer research vs clinical care in LMIC settings where grave disparities in care prevail (12). We arrived at consensus that GCP work should be patient-centered and oriented toward improving cancer outcomes in LMICs but that provision of direct patient care in LMICs would be beyond our scope. We also upheld the view that research and clinical capacity building need not be mutually exclusive but rather that clinical care in LMICs should be informed by research generated from within the local context. This approach requires a long-range view and a sustained commitment to research programs to yield evidence that ultimately translates into impact through clinical care delivery. As an example, our early research on the etiology of esophageal cancer care subsequently led to a portfolio of clinical research that is focused on early detection, outcomes, and palliation (13-15).

Second, we selected values and principles that were most important to our members and that were also shared by our international partners. We identified our own programmatic values, which include partnership and accompaniment and responsiveness to partner priorities, innovation, empowerment, cultural humility, impact, equity, and sustainability (see Figure 1). To foster a foundation of shared trust in these partnerships, we identified the following as guiding principles: alignment of core values, adherence to ethical standards, reciprocity of opportunities, and transparent communication. Moreover, we identified the need for partnerships to be mutually beneficial and sustainable for participants in the United States and at partner sites. To foster transparent dialogue and to communicate motivations and goals for each partner represented within the program, we identified and prioritized outputs that would need to be achieved. With our international partner sites, we identified that context-appropriate research and capacity-building needs would

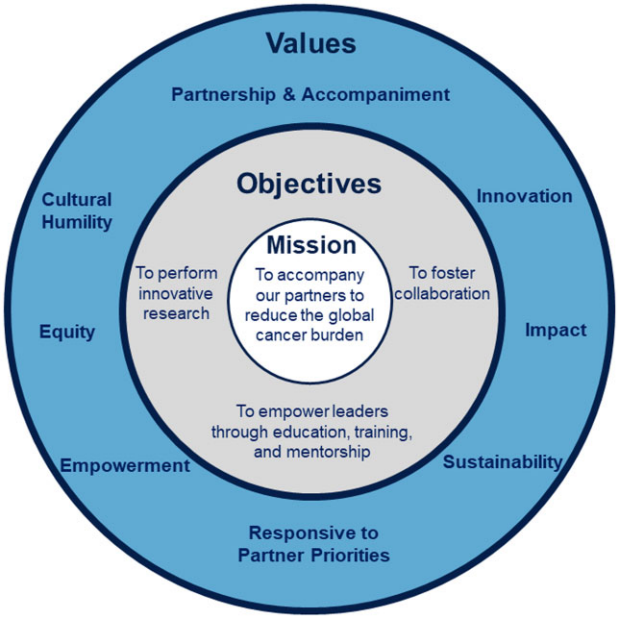

Figure 1. Global Cancer Program mission, objectives, and values. **Mission:** To accompany our partners to reduce the global cancer burden. **Objectives:** *Objective 1:* To collaboratively perform innovative research and quality improvement that addresses disparities in the burden of cancer in LMICs. *Objective 2:* To empower leaders in global cancer care and research through education, training, and mentorship for trainees and early career faculty in LMICs and at UCSF. *Objective 3:* To foster bi-directional collaborations to sustainably impact the global cancer burden. **Values:** *Partnership & Accompaniment:* Work together as equals, with a commitment to bi-directional collaboration, through providing support and empowerment for the self-realization of goals and desired outcomes. *Responsiveness to Partner Priorities:* Make decisions with LMIC leaders that prioritize their goals, needs, and interests. *Innovation:* Develop new or improved systems, services, technologies, or other products that improve people's health in the form of improved efficiency, effectiveness, quality, safety, and/or affordability. *Empowerment:* Enable investigators from both UCSF and our international partner sites to develop and thrive as authentic, values-driven leaders in global cancer control. *Cultural Humility:* Embody a mindset of self-reflection, continual learning, awareness of bias, and esteem for others. *Impact:* Inform and change cancer care practices, policy, and outcomes. *Equity:* Equip individuals with comprehensive tools and resources to achieve equal success. *Sustainability:* Foster progress that can independently continue.

drive the agenda, and our GCP would work toward enabling those goals. Every research and capacity-building initiative would strive to incorporate aspects of training and education. We also openly acknowledged the need to achieve traditional academic benchmarks, including grants and manuscripts, to sustain and advance academic careers of our members and international partners.

Third, we identified 3 regionally diverse international hubs for collaboration over the initial 5 years (see Supplementary Figure 1, available online). Given the siloed and heterogeneous activities of the interested UCSF faculty, we discussed whether to focus deeply on a few international sites for sustained collaboration or to attempt to broadly support all UCSF faculty working globally. Acknowledging the inherent complexities and challenges of cancer care, we thought it was critical to develop a program that would support multidisciplinary collaboration. We understood that we would not disrupt faculty with existing and longstanding partnerships; however, we also appreciated the unique opportunity to establish multidisciplinary collaborations within key institutional partnerships.

Selection criteria for our initial hubs included 1) demonstration of shared values between UCSF and our partner sites, 2) mutual interest in building an equitable partnership, 3) investment in research as a path to informing durable changes in clinical care, 4) committed leadership with adequate bandwidth on both sides of the collaboration, and 5) demonstrated presence of strong and transparent governance at the international institution. We formally established 3 geographically diverse regional hubs in Tanzania, Mexico, and Vietnam to focus our efforts during our first 5 years; however, it is worth noting that these designations were not immediate and each followed a period of longstanding partnership. While UCSF faculty and trainees continue to work in a much wider variety of geographic areas around the globe, these hubs catalyzed multidisciplinary collaborations that would not have otherwise been feasible and provided opportunities to leverage shared resources.

Investments in career development and mentorship

One of the defining factors in the early days of the GCP was the collective enthusiasm and requests for mentorship from trainees and early career investigators desiring to pursue careers in the emerging academic field of global oncology. Initially, we responded to this demand at UCSF through the establishment of a faculty-led seminar series, which offered monthly discussions with peer reviews of works in progress. We also organized a quarterly lecture series with invited external speakers followed by interactive town hall sessions.

In the next phase, we developed a Global Cancer Fellowship program, which provides individualized resources, a monthly professional development curriculum, and pilot funds for both UCSF and international trainees who are actively developing a career path with a global cancer focus. This is not a formal or accredited training program; rather, we support Global Cancer Fellows in developing a customized career development plan and provide access to coursework in implementation sciences or other methodologic areas required for emerging areas of expertise.

Finally, we have attempted to shift the perception that a career in global oncology should be based in volunteerism and advocated for recognition of a focus in global oncology as a credible academic pathway anchored in team-based science. During the formative years, we provided pre-award support to generate a robust portfolio of externally funded grants. At the time of this publication, 4 junior faculty have been hired as assistant professors. We successfully advocated against the practice of requiring faculty to use personal and vacation time for global health work and negotiated for newly hired faculty to have protected time for international travel and research written into contracts with their academic home departments. Support for global academic activities remains variable across departments and divisions within UCSF, however, and we continue to navigate skepticism regarding whether this career path will be viable in the long-term. While 2 faculty hires required contributions from HDFCCC, 2 others were supported independently by their home departments, reflecting particularly strong prioritization of global health by leadership within the departments of Pathology and Otolaryngology/Head and Neck Surgery.

With increasing attention to the cancer burden in LMICs, demands for mentorship by UCSF trainees as well as early career investigators at our LMIC partner sites have intensified. We espouse an equal commitment to mentorship and professional development activities for both UCSF and LMIC early career investigators, and we aim to ensure that both are pursuing projects that are context appropriate and driven by the international priorities of our international partners. Given that cancer research is nascent in many LMICs and few in-country mentors exist, we still rely heavily on UCSF faculty for mentorship; our ability to meet this growing demand may constrain the pace of further progress. Provision of protected time for GCP leaders to provide mentorship has been a critical asset to the success of our program thus far. However, this resource is contingent on continued support and is certainly at risk during uncertain financial times. Looking ahead, we aim to grow our base of mentors to meet increasing demands for mentorship in a growing program. To accomplish this, we are actively investing in mentorship and professional development training for our early career investigators, with the expectation that all will be called on to transition into mentoring and leadership roles at an early stage in their careers.

Funding sources and sustainability planning

The HDFCCC president established the GCP through an investment of philanthropic discretionary funds. This institutional investment was critical to program start-up, as the funds enabled adequate human capital for the establishment of a program, including a dedicated program manager and protected time for the director. HDFCCC has also allocated pilot funding to enhance institutional activities in global cancer, with multiple small grants of $40 000 administered twice a year through UCSF's intramural peer-reviewed funding mechanism (rap.ucsf.edu). In many cases, these pilot awards have generated preliminary data and led to additional external funding for early career investigators through the American Society of Clinical Oncology Global Oncology Young Investigator Award and the US NCI Mentored Clinical Scientist Research Career Development Award (K08). HDFCCC has also contributed strategically to start-up packages for recruitment of additional faculty members (RD, GB), with a goal to protect academic time that aligns with the goals of the GCP and to expand our core group of faculty. New faculty hires will be expected to transition to independence in a standard time frame for new faculty and will be at risk for losing protected research time if this benchmark is not achieved.

Additionally, HDFCCC leadership facilitated access to centralized resources, such as communications, finance, and development staff to support the GCP activities. We garnered support and leveraged resources for the GCP from within IGHS. For example, HDFCCC partnered with the IGHS by providing matched pilot funding to initiate the UCSF–Mexico Cancer Collaboration, including a stakeholder engagement (11). As a result, the GCP leveraged funds to launch 2 initiatives focused on pediatric cancer molecular diagnostics and colorectal cancer screening in Mexico (16-20). We sought guidance from IGHS in an effort to standardize internal processes for ethical and regulatory approvals and oversight of international subcontracts. In alignment with the program's values of empowerment and sustainability, we also intentionally share in-kind technical and budgeting support as well as mentorship and statistical support for grant applications led by GCP faculty and our LMIC partner institutions.

Institutional support was essential for program start-up; however, we recognized that responsible and sustainable program growth must be paced with funding growth and diversification of funding sources. As the program grew, we pursued a blended funding model that included resources from federal and nonfederal grants, private foundation awards, industry partnerships, and philanthropic donations. We secured milestone awards to foster research training (21) and clinical trials research (22,23). We aim to become a self-sustaining program in the long-term; however, this will require substantial increases in available funding from the NCI, foundations, and other external funding sources. For the immediate future, the GCP remains dependent on stable financial support from HDFCCC, with the expectation that program growth will be paced by procurement of external funding.

Despite the large death toll from cancer globally, the vast bulk of donor funding for LMICs is still directed toward infectious diseases (24). The National Institutes of Health (NIH) remains the leading funder of global oncology activities, and non-NIH funding sources are predominantly from charitable funds, investigators' discretionary funds, or internal funding mechanisms at NCI-designated cancer centers (9). The global cancer burden dramatically outsizes the available funding, and, to date, no major non-NIH funding source has emerged to champion global cancer control. Learning from other global health crises, coordination from major public and private funding agencies will be necessary to dramatically change the landscape. Until then, access to limited grant funding will likely remain highly competitive, even within a relatively small global oncology community. Securing donor funds has been critical to advance novel and high-risk projects that are responsive to the priorities of our LMIC partners, and a modest amount of unrestricted funds received by our program has allowed us to be nimble as unforeseen needs emerge and opportunities arise.

Program evaluation

To evaluate the GCP's effectiveness in achieving its intended outcomes, we developed a monitoring and evaluation plan to accompany the 2022-2027 Strategic Plan. The evaluation was designed to measure key metrics as informed by the GCP programmatic logic model (see Supplementary Figure 2, available online). The evaluation uses a mixed-methods approach to prospectively capture data on the programmatic activities and initial outcomes. Data sources include existing institutional databases, programmatic trackers, participant surveys, and key informant interviews with stakeholders and international partners. The GCP leadership team reviews evaluation metrics quarterly as part of standard meetings and discusses challenges and options for improvement. Evaluation results will be presented throughout the 5-year strategic plan period to steering committee members, external advisory board members, HDFCCC leadership, trainee groups, and other key stakeholders to ensure accountability and to encourage continuous reflection and improvement of the program. As we continue to grow, the program evaluation results will be critical in evaluating the GCP's implementation and effectiveness in achieving intended objectives, and results will inform development of the next strategic plan.

Lessons learned

As we reflect on our first 5 years of the program, we aim to share our lessons learned. We acknowledge that there is no one-size-fits-all roadmap for development of an academic global oncology program. We recognize that program building is inherently challenging, particularly in an emerging field without much precedent. Upon critical self-assessment, we identified several lessons learned along the way.

First, while we were soliciting input continuously from international partners and their institutional leaders, we identified that these diverse perspectives need to be formally incorporated into our governing bodies. Although our key stakeholders were not apparent at the time of inception, we subsequently diversified our steering committee to include representation from individuals at varying career levels (eg, students, early career faculty, staff) and added international representatives to our external advisory board. Diversification of representation in our external advisory board and steering committee according to generation, gender, and geography (the 3 Gs) reflects our values of equitable partnership, and the varied perspectives of stakeholders have enriched our ability to make inclusive decisions. Once key stakeholders are identified, we recommend incorporation of these voices into governing bodies of global oncology programs and their institution's cancer center to facilitate alignment of strategic priorities and program recognition. For example, inputs from our now-established international partners were critical to shaping the objectives of the second 5-year strategic plan.

Second, an increased focus on health-care delivery research and implementation science has emerged as a priority for each of our 3 hub sites. The NCI Center for Global Health is organized around health-care delivery research, and implementation science was named as a key research theme in the NCI Center for Global Health 2020-2025 Strategic Plan (8). Therefore, in our next 5-year strategic plan (2023-2028), we added strategic research initiatives to expand our expertise in implementation science and quality improvement to bridge the research-to-practice gap.

Finally, we acknowledge that our earliest efforts to build and expand our program were largely driven by pursuit of external funding sources. In our earliest days, we undertook a reactive, opportunistic approach, which was not sustainable. As grant opportunities inherently reflect a sponsor's priorities, funding opportunities do not always align with the priorities of our international partners; thus, we now examine funding opportunities to ensure that grant submissions are truly goal directed and aligned with the priorities of our international partners. Although the need to pursue external grants will certainly persist in a field that remains challenged by limited funding, we aim to

be purposeful regarding the funding opportunities we pursue, with the priorities of our international partners serving as our guiding compass.

As attention to the emerging field of academic global cancer continues to grow and evolve, US-based NCI-designated cancer centers may elect to increase their breadth of reach through the establishment of international partnerships. Approaching these partnerships through a lens of equity aligns with the NCI's goals to increase the diversity of the cancer research workforce and at a global level. Herein, we provide a stepwise roadmap (see Box 1) and timeline (see Figure 2) for the development of the GCP as a priority initiative within HDFCCC. Reflecting on the evolution of our program during the first 5 years, we observed in our partners a powerful shift toward a locally driven priority setting, reduced dependency, and an increased commitment to research as a path to improve cancer outcomes in resource-constrained settings.

Box 1. A stepwise roadmap for building a program at an academic global oncology program in a National Cancer Institute–designated cancer center

- Conduct a formative evaluation of institutional strengths, challenges, and opportunities.
- Establish a formal governance structure with diverse, multidisciplinary representation.
- Define vision, mission, and objectives.
- Define programmatic values.
- Define model(s) for collaboration.
- Identify existing and new international partnerships and evaluate alignment with programmatic values and opportunities for expanded collaboration.
- Identify multidisciplinary stakeholders at the US-based cancer center and at international sites.
- Develop an actionable, achievable initial multiyear strategic plan.
- Develop a sustainable and diversified funding model.
- Develop benchmarks for program evaluation.

Data availability

No new data were generated or analyzed in this manuscript.

Author contributions

Katherine Van Loon, MD, MPH (Conceptualization; Funding acquisition; Methodology; Project administration; Resources; Supervision; Writing – original draft; Writing – review & editing), Lindsay Breithaupt, MPH (Methodology; Project administration; Supervision; Writing – original draft; Writing – review & editing), Dianna Ng, MD (Methodology; Writing – review & editing) Rebecca J DeBoer, MD, MA (Methodology; Writing – review & editing), Geoffrey C Buckle, MD, MPH (Methodology; Writing – review & editing), Stella Bialous, RN, DrPH (Methodology; Supervision; Writing – review & editing), Robert A Hiatt, MD, PhD (Conceptualization; Methodology; Supervision; Writing – review & editing), Paul Volberding, MD (Conceptualization; Methodology; Supervision; Writing – review & editing), Michelle Hermiston, MD, PhD (Methodology; Project administration; Supervision; Writing – original draft; Writing – review & editing), and Alan Ashworth, PhD (Conceptualization; Funding acquisition; Resources; Supervision; Writing – review & editing).

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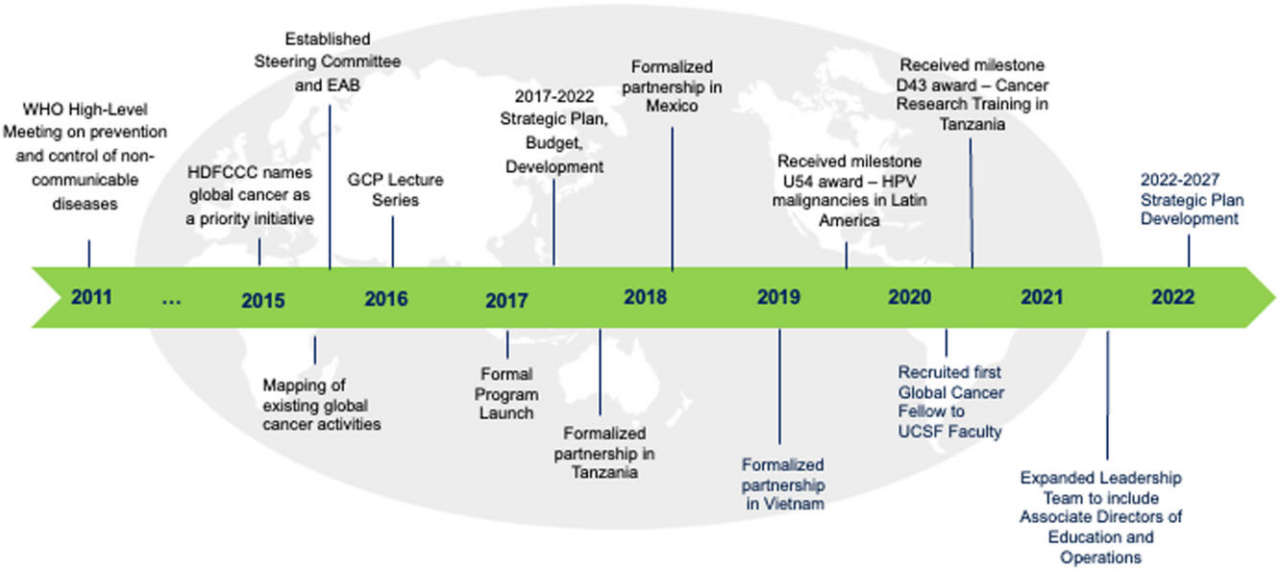

Figure 2. Timeline for the development of the University of California, San Francisco Global Cancer Program. EAB = external advisory board; GCP = Global Cancer Program; HDFCCC = Helen Diller Family Comprehensive Cancer Center; HPV = human papillomavirus; UCSF = University of California, San Francisco; WHO = World Health Organization.

Conflicts of interest

The authors have no conflicts of interest to disclose.

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