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Multi-stakeholder Partnerships: Breaking Down Barriers to Effective Cancer-Control Planning and Implementation in Low- and Middle-Income Countries

Paul C. Pearlman, Cynthia Vinson, Tulika Singh, Lisa M. Stevens, and Brenda Kostelecky

OVERWHELMING evidence points to the rising burden of noncommunicable diseases (NCDs) in low- and middle-income countries (LMICs).[1, 2, 3] NCDs in LMICs now account for approximately 80 percent of deaths and two-thirds of disabilities from NCDs worldwide, making their burden roughly commensurate with the proportion of the world's population living in those countries.[4] In particular, NCDs in LMICs begin to take their toll on individuals in their thirties, thus having a significant impact on such populations during their most productive working years.[5] Moreover, NCD rates in younger populations in LMICs are on the rise, and their outcomes are worse compared with their counterparts in high-

Paul C. Pearlman is a science policy advisor at the U.S. National Cancer Institute Center for Global Health.

Cynthia Vinson is a senior advisor for implementation science at the U.S. National Cancer Institute Division of Cancer Control and Population Sciences.

Tulika Singh is a cancer research training fellow at the U.S. National Cancer Institute Center for Global Health.

Lisa M. Stevens is the deputy director of planning & operations at the U.S. National Cancer Institute Center for Global Health.

Brenda Kostelecky is the lead for planning, policy, and outreach at the U.S. National Cancer Institute Center for Global Health.

income countries. Conditions that, in developed countries, are largely preventable (e.g., cervical cancer, chronic obstructive pulmonary disease) or manageable (e.g., types of leukemia and lymphoma, diabetes) are often death sentences in the developing world.

There is broad international support for addressing NCDs, as demonstrated by the 2011 United Nations resolution on prevention and control of NCDs,[6] the World Health Organization (WHO) Global Action Plan (GAP) for Prevention and Control of NCDs 2013–2020,[7, 8] the WHO NCD Global Monitoring Framework,[9] and the Sustainable Development Goals' inclusion of NCD targets.[10] While the strong international support for NCD control is encouraging, the current lack of international financing for such efforts necessitates development of multi-stakeholder engagement models to address the global NCD burden.

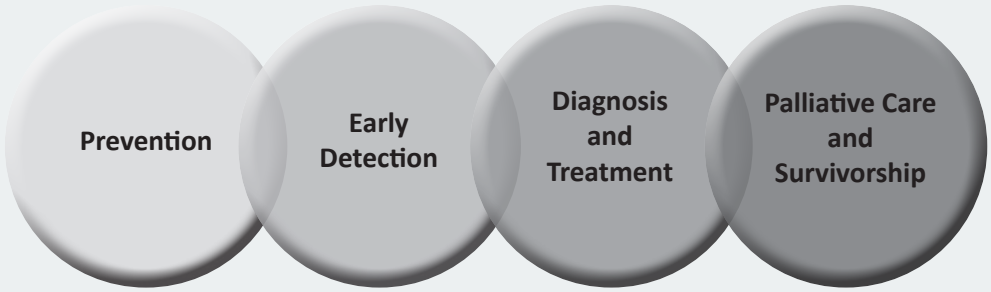
Background

An estimated eight million people died of cancer in 2013, making it the second leading cause of death worldwide after cardiovascular disease.[11] The number of deaths due to cancer in developing countries is estimated to be highest for lung, liver, stomach, colorectal, esophageal, breast, and cervical cancer, as well as leukemia.[12] Effective interventions are available for most of these high-burden cancers at various stages of the cancer-control continuum, including the prevention, early-detection, and treatment stages (Figure 1). Prioritizing and implementing interventions to maximize their impact, however, is complex and requires effective partnerships both across the health sector (e.g., hospitals, clinics, and ministries/departments of health) and beyond the health sector (e.g., civil society, academia, media, the private sector).

NCDs, as defined by WHO, include cardiovascular disorders, diabetes, chronic respiratory conditions, and cancer. These diseases are often grouped together based on shared risk factors including tobacco use, obesity, physical inactivity, and high alcohol intake. In addition to the shared risk factors, these diseases tend to be complex and call for multidisciplinary management. For example, cancer treatment often requires the combined efforts of medical oncologists, radiotherapists, surgeons, and experts in palliative care, not to mention nurses, pathologists, medical technologists, counselors, and general practitioners. The complexity and cost involved in effective management of NCDs necessitate diverse and effective partnerships in both developed and developing nations. Given the added burden developing countries face with unprepared health systems and economies, diverse partnerships are perhaps an even more essential component of effective NCD prevention and management.

There are many examples of cancer-prevention-and-control partnerships that have enabled countries to overcome barriers and strengthen program implementation. In China, for example, the Ministry of Health (MOH) and

Figure 1: Cancer Care Continuum



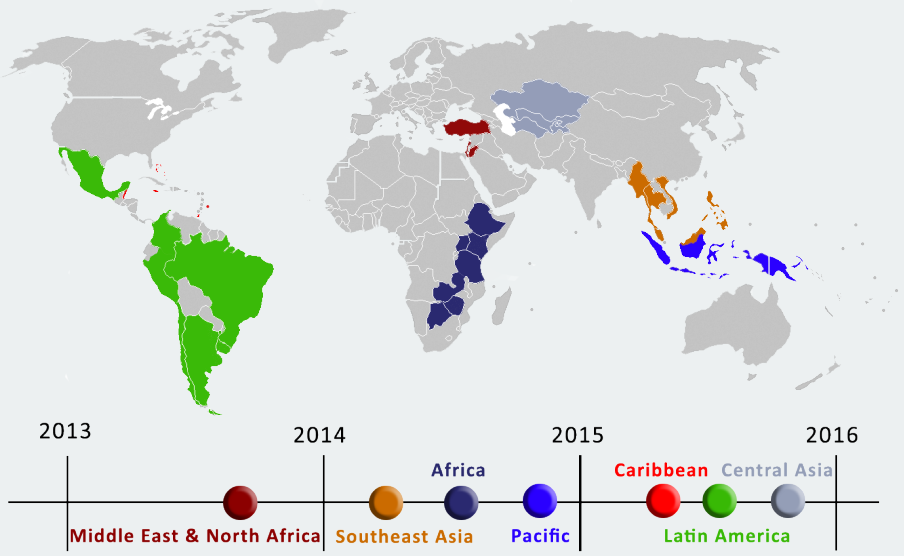
Tobacco Control	Pap Smear	Medical Services	Morphine
Diet	Mammography	Chemotherapy	Radiotherapy
Physical Activity	Colonoscopy	Radiation Therapy	Support for Survivors
Vaccines	HPV Testing	Surgery	Community Programs
Virus Exposure	Cervical Visual Inspection		Wellness Services
Alcohol Use			

Illustration of the cancer-control continuum and some of the interventions available at each stage. Ideally, countries gradually build investments and develop infrastructure along the whole spectrum of cancer control.

Ministry of Education partnered to eradicate smoking in schools in 2009 through their Smoke-free Communities Initiative. China has also partnered with the U.S. government in a sweeping public-private partnership with the goal of creating smoke-free workplaces. In Turkey, a partnership between the country's MOH and the European Union Mediterranean Development and Aid Programme established Cancer Early Diagnosis Screening and Training Centres (KETEMs) to support population-based screening for select cancers, which now number more than 120 across the country. In Africa, Pink Ribbon Red Ribbon (PRRR) works to increase cervical cancer screening and human papillomavirus (HPV) vaccination rates in Botswana, Ethiopia, Namibia, Tanzania, and Zambia. PRRR's core partners—UN AIDS, the George W. Bush Institute, Susan G. Komen, and the U.S. President's Emergency Plan for AIDS Relief (PEPFAR)—join with ministries of health, as well as civil society and private partners, to reduce cervical cancer mortality in countries hard-hit by the HIV/AIDS epidemic. The success of these initiatives demonstrates the potential power of multi-stakeholder collaborations for cancer control.

Diverse multisectoral partnerships are even more important in developing and implementing comprehensive disease-control plans and strategies than for implementing individual interventions. The WHO GAP on NCDs lists developing and implementing national NCD plans as a key WHO policy option to strengthen national capacity for NCD prevention and control. National cancer control programs constitute an important part of a country's NCD strategy and can help countries meet NCD targets outlined in the WHO GAP. A comprehensive

Figure 2: ICCLF Countries and Regions



World map and time line accounting for regions and countries supported through the ICCLF

national cancer-control program is strategic, based on data, and should, for maximum impact, be developed by diverse partners, including government and nongovernmental organizations, to guide efforts within a country to decrease cancer's burden.[13] The formation of a strong multisectoral partnership for national cancer-control planning and implementation with high-level support is one of the critical success factors identified by WHO[14] and the Union for International Cancer Control (UICC).[15]

The National Cancer Institute's Role

Given the National Cancer Institute's (NCI's) primary mission to advance cancer research and the in-house expertise of NCI investigators and technical staff, the institute is well positioned to support countries in developing strategic plans to improve cancer prevention and control using available and up-to-date empirical scientific evidence. Moreover, the National Cancer Act of 1971 specifically directs the NCI to "conduct cancer control activities," giving it a direct mandate to engage in such efforts. This support for cancer control can be accomplished by: (1) increasing leaders' awareness of available scientific evidence on cancer prevention and control and of internationally accepted best practices in cancer-control planning; (2) providing technical assistance on using existing evidence to inform

Table 1: Country Teams

List of country teams engaged in each of the seven regional ICCLFs. Partners include cosponsors as well as collaborators for each leadership forum. The growing numbers of partners with each successive forum indicate the value of partnership in our global efforts.

Country Teams (host country in bold)	**Cosponsors/Partners** (cosponsors in bold)
Middle East and North Africa	
Turkey Israel Jordan Lebanon	• **National Cancer Institute, U.S.** • **Middle East Cancer Consortium, multilateral (based in Israel)** • Ministry of Health, Turkey • International Atomic Energy Agency–Programme of Action for Cancer Therapy, multilateral (based in Austria)
Southeast Asia	
Malaysia, Myanmar, Philippines, Thailand Vietnam	• **National Cancer Institute, U.S.** • Union for International Cancer Control, multilateral (based in Switzerland) • American Society of Clinical Oncology, U.S.
Africa	
Zambia, Botswana, Ethiopia, Kenya, Tanzania, Uganda, Zimbabwe	• **National Cancer Institute, U.S.** • **Pink Ribbon Red Ribbon, multilateral (based in U.S.)** • **Union for International Cancer Control, multilateral (based in Switzerland)**
Pacific	
Fiji Indonesia Papua New Guinea Timor-Leste Tonga	• **National Cancer Institute, U.S.** • **Peter MacCallum Cancer Centre, Australia** • **Union for International Cancer Control, multilateral (based in Switzerland)** • **Cancer Council Victoria, Australia** • McCabe Centre for Law & Cancer, Australia • University of Hawaii, U.S.
Caribbean	
Barbados Bahamas Belize Jamaica Trinidad & Tobago	• **National Cancer Institute, U.S.** • **Healthy Caribbean Coalition, multilateral (based in Barbados)** • **American Cancer Society, U.S.** • Caribbean Public Health Agency, multilateral (based in Trinidad and Tobago) • Cancer Care Caribbean, Canada • Centers for Disease Control and Prevention, U.S. • North American Association of Central Cancer Registries, U.S. • Pan American Health Organization, multilateral (based in the U.S.) • University of Hawaii, U.S. • Red de Institutos Nacionales de Cáncer, multilateral (based in Brazil) • Sociedad Latinoamericana y del Caribe de Oncología Médica, multilateral (based in Argentina)
Latin America	
Mexico Argentina Brazil Chile Colombia Peru Uruguay	• **National Cancer Institute, U.S.** • **Instituto Nacional de Cancerologia, Mexico** • Centers for Disease Control and Prevention, U.S. • MD Anderson Comprehensive Cancer Center, U.S. • International Agency for Research on Cancer, multilateral (based in France) • Pan American Health Organization, multilateral (based in U.S.) • Red de Institutos Nacionales de Cáncer, multilateral (based in Brazil) • Sociedad Latinoamericana y del Caribe de Oncología Médica, multilateral (based in Argentina) • Union for International Cancer Control, multilateral (based in Switzerland)
Central Asia	
Uzbekistan Kazakhstan Kyrgyz Republic Tajikistan Turkmenistan	• **National Cancer Institute, U.S.** • **National Cancer Research Center, Uzbekistan** • **Association of Directors Cancer Centers and Radiation Institutes of Commonwealth of Independent States Countries and Eurasia, multilateral (based in Russia)** • **Union for International Cancer Control, multilateral (based in Switzerland)** • World Health Organization Regional Office for Europe, multilateral (based in Denmark) • International Agency for Research on Cancer, multilateral (based in France) • American Cancer Society, U.S. • American Society of Clinical Oncology, U.S. • Turkish Cooperation and Coordination Agency, Turkey

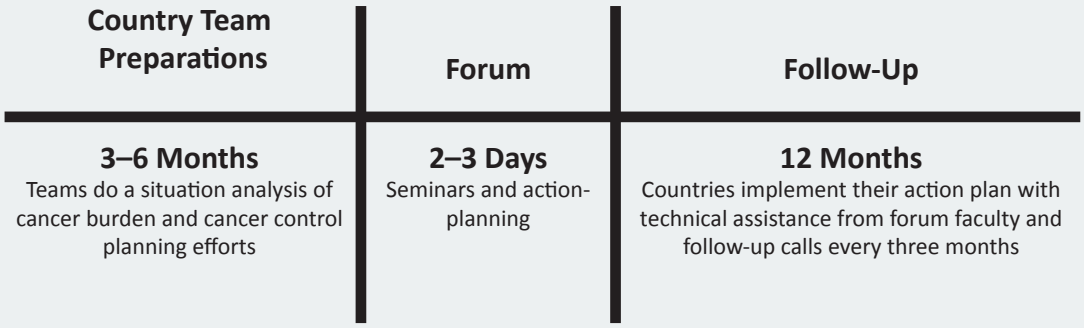
policy and strengthening research capacity to better understand the cancer burden and effectiveness of interventions; and (3) stimulating collaborative and diverse partnerships that include policy makers, oncologists and other healthcare workers, advocacy and nonprofit groups, academia, and other actors to strengthen cancer-control plans and their chances for successful implementation.

The NCI has substantial experience in supporting the development and implementation of cancer-control plans both domestically and internationally. As a member of the U.S. Comprehensive Cancer Control National Partnership (CCCNP), the NCI partners with sixteen other national organizations to support cancer-control planning and implementation. This partnership mirrors the types of cooperation necessary for national, state, and local-level cancer-control planning and includes government, nongovernmental organizations, and professional societies. Between 2000 and 2007, the CCCNP conducted numerous "leadership institutes" for leaders from states, tribes, territories, and Pacific Island jurisdictions to share, learn, and set new strategic goals for their coalitions.[16] The NCI's focus during these institutes was to develop tools and facilitate the use of evidence in cancer-control planning and implementation.

In 2006, the NCI partnered with the American Cancer Society, U.S. Centers for Disease Control and Prevention, Pan American Health Organization, and UICC to adapt the U.S. state leadership institute model for Latin American countries. A leadership institute meeting called the "International Cancer Planning Forum" was held in Mexico to increase the capacity of participating countries (Brazil, Mexico, Peru, and Uruguay) to initiate or enhance their cancer-control planning activities. In 2007, a second international leadership institute meeting was held in Brazil for eight countries (the four noted earlier plus Argentina, Chile, Colombia, and Nicaragua), during which the new countries participated in an accelerated version of the original meeting and the initial participants were given advanced training on new topics. Based on positive feedback, a third meeting was held in Geneva prior to the 2008 UICC World Cancer Congress for seven additional countries from around the world (Algeria, Albania, Nicaragua, Sri Lanka, Tanzania, Vietnam, and Yemen).

The international leadership institute meetings included country representatives from government, NGOs, and cancer institutes and centers. Participants sat with their own country teams and worked on issues relevant to their respective countries. The meeting structure consisted of presentations on core principles of cancer-control planning (including mobilizing support for resources and building partnerships) interspersed with discussions, facilitated country-team activities, and dedicated time for teams to develop six-to-twelve-month action plans. The leadership institutes concluded with a session to share the action plans and discuss one critical need each country would address. Time was provided for networking with participants from other countries. Participants indicated that they benefited

Figure 3: ICCLF Activities



Flow of ICCLF activities conducted over eighteen months with each country in the regional forums

from the dedicated time for action planning and especially from the time spent collaborating within their national team and with members from other nations.

In 2013, the NCI's Center for Global Health revisited the international leadership institute model and launched the International Cancer Control Leadership Forum (ICCLF) program. The first forum was held in September 2013 for the Middle East/Turkey region in collaboration with the Middle East Cancer Consortium and the Turkish MOH. Since the current program's inception, a total of seven regional forums have been held and thirty-eight full country teams have been supported (Figure 2 and Table 1). The NCI has progressively brought in additional international partners who are also seeking to address the rising NCD burden by supporting evidence-based cancer-control planning and implementation (Table 1). A key platform for international partnership on cancer-control planning efforts and for the forums has been the International Cancer Control Partnership (ICCP), a group of international organizations that have come together to support cancer-control planning efforts.[17]

Along with bringing together international stakeholders to organize the regional forums, the ICCLFs engage multiple in-country stakeholders and empower them to leverage their respective resources and expertise for greater impact than individual organizations could have alone. Country teams typically include high-level leaders from the following sectors: government agencies responsible for cancer- and NCD-control efforts; lead oncology professionals from important cancer centers and other public or private organizations with a role in cancer prevention and control; civil society, including the country's cancer society or most influential civil society organization working on cancer control; and other sectors, including academia, business, and regional or community health professionals. All participants are expected to have the ability, commitment, knowledge, authority, connections, and resources to engage fully in comprehensive cancer-control planning efforts within the country.

Several changes were made to the original international leadership institute model to strengthen preparation and follow-up for country teams. One major change was the addition of preparatory and follow-up activities to the ICCLF program aimed at helping establish and strengthen partnerships and increase the potential for future sustainable action (Figure 3). During ICCLF preparation, countries form their respective country teams, conduct situation analyses (or update existing ones, if recent), and engage in preliminary discussions designed to build connections within a country and between the country and forum organizers. During the three-day forum itself, the multisectoral country teams work with those from their own nation, with colleagues across their region, and with the ICCLF organizing faculty. Finally, post-forum follow-up consists of technical-assistance calls between the country teams and organizing faculty, as well as in-person check-ins at major international cancer events. Each phase of the program not only strengthens intranational partnerships but also establishes partnerships and connections between a country and regional leaders, the NCI, and other forum faculty.

The expected outcomes for each ICCLF country team include: (1) a twelve-month action plan with specific tasks to initiate or enhance each country's national cancer-control planning and implementation efforts; (2) increased awareness of the importance of strategic national cancer-control planning and implementation; (3) enhanced understanding of how to develop and implement a national cancer-control plan, including how to mobilize support for strategic cancer-control planning, build partnerships to develop and implement the plan, identify priorities within the plan for implementation, and evaluate the plan and implementation efforts; and (4) improved knowledge of how cancer-control planning can be used to address needs in specific areas such as tobacco control, cervical cancer control, palliative care, cancer registry development, and NCD planning.

In the U.S. experience with cancer-control planning, strong partnerships were required to overcome shared challenges and address the complexities of cancer control across the continuum of prevention and management. The scarcity of resources and often competing infectious disease priorities in LMICs further complicate efforts in cancer-control planning and implementation in those countries and intensify the need for effective partnerships that bring together complementary resources to address the cancer burden. Partnerships provide opportunities to enlist diverse professionals and organizations in the planning process and to secure varied and dedicated sources of funding to meet national priorities. The substantive involvement of multiple stakeholders in both the organization and implementation of each forum helps address political, diplomatic, and logistical barriers to international and intranational cooperation on cancer prevention and control. The ICCLF program provides a means to build such partnerships. Examples highlighting the benefits and challenges of these partnerships are outlined as follows.

Case Studies in Multi-stakeholder Engagement

Getting the Right People to the Table: Papua New Guinea

The NCI's ICCLF experience with Papua New Guinea exemplifies the power of working with international partners in bringing the right players to the table. Prior to the Pacific ICCLF, hosted in Melbourne, Australia, in December 2014, NCI liaised with both the U.S. Department of Defense Health Affairs Attaché in Port Moresby and with the WHO country office. These partners helped establish a strategic footprint and invite key members of the Papua New Guinea Department of Health (DOH) and civil society to the Pacific forum. The members of the Papua New Guinea country team at the ICCLF included a very senior DOH official, the policy analyst responsible for drafting its upcoming cancer-control legislation, the CEO of the Papua New Guinea Cancer Foundation, the director of cancer activities within the DOH, and a DOH staff member focused on betel quid and associated oral cancers—an important issue in Papua New Guinea.

Not only did our partnerships with the Department of Defense and WHO help attract key attendees to the forum, but the participation of the Papua New Guinea Cancer Foundation, in particular, ensured a strong nongovernmental voice in the group to push forward issues and, critically, to provide staff support to the understaffed DOH for drafting the necessary legislative documents to carry out a national cancer-control plan. One of the most important lessons learned in our experience with Papua New Guinea at the ICCLF involved the value of working with a broad range of stakeholders from both inside and outside the island nation to identify motivated, skilled, and influential people in the country who are best suited for such an engagement. Because of the success of these early engagement efforts, continuing interactions with these stakeholder groups are showing real promise toward extending technical support to Papua New Guinea in the coming years.

The Importance of High-Level Buy-in: Vietnam

Assembling an appropriate multi-stakeholder team while also ensuring high-level leadership buy-in at an ICCLF can be difficult, but it is essential for successful outcomes. Because Vietnamese institutions are strongly hierarchical, gaining early senior-level buy-in is often necessary to guarantee a positive outcome. In spite of broad MOH and nongovernmental support for cancer-control activities within Vietnam, we were unable to secure high-level support for the forum itself and, as such, senior leadership from the MOH and the Vietnam National Institute for Cancer Control (NICC) did not attend the forum. Therefore, despite good multisectoral representation from the NICC, the WHO country office, and Vietnamese hospitals and universities, there was little momentum following the

forum to implement the team's action plan. Nevertheless, continued efforts to garner high-level support have recently begun to bear fruit.

A key goal of the Vietnam country team was revitalizing a national dialogue on cancer-control activities in the vein of the large multisectoral group that drafted the Vietnam National Cancer Plan following an International Atomic Energy Agency (IAEA) Programme of Action for Cancer Therapy (PACT) mission in 2006. Indeed, given the complementarity of the ICCLF program and the IAEA's "imPACT" program, partnering with the IAEA on the ICCLF could have helped ensure the participation of senior government officials. Since the forum, the Vietnam WHO country office has worked to convince senior Vietnamese officials to convene the proposed national working group on cancer control. In parallel with the sustained efforts of the NCI, WHO, and other stakeholders, a national dialogue has been reconvened by the NICC. The WHO country office has also assisted the MOH in developing an NCD strategy. Such efforts show how unique challenges faced by both external and internal stakeholders can, through collaboration, be overcome. The example of Vietnam highlights the value of patience and persistence in navigating national bureaucracies, while keeping in mind that different stakeholder groups have different levels of access and convening abilities in a given country. Moreover, the work with Vietnam reinforces the value of understanding historical context with respect to previous work in cancer-control planning efforts.

Creating synergy between International and Intranational Partners: Zimbabwe

Political relations between the United States and Zimbabwe have been strained for much of the last two decades, with the United States imposing targeted sanctions on Zimbabwe's government in 2001 that include financial, travel, and trade restrictions.[18] Despite these strained relations, the United States continues to engage with Zimbabwe in a number of targeted ways to support the Zimbabwean people, including through support for health systems. In June 2014, the NCI partnered with the UICC and PRRR to plan the Africa ICCLF. The invitation of a Zimbabwean country team to the Africa forum allowed for further support of the country's health-sector improvement despite the existing political barriers.

The international partnership that was strengthened through the Africa forum, held in Lusaka, Zambia, in June 2014, was mirrored by the Zimbabwe country team's success in strengthening their country's national partnership. The most significant resulting progress on Zimbabwe's action plan has been through the establishment of its national cancer partnership, the National Cancer Prevention and Control Forum (NCPCF). The Zimbabwe country team successfully acquired MOH support and convened NCPCF meetings in November 2014 and May 2015.

Zimbabwe's successful formation of its national cancer partnership represents a key step in its ability to more effectively prevent and control cancer. The Africa forum served as an important venue for the NCI and its partners to provide technical assistance to Zimbabwe on developing its multisectoral partnership,

through course materials delivered on the subject, facilitated discussion around making partnership work in unique country contexts, and provision of written resources. In addition, the multisectoral partnership that developed the Africa forum, with the NCI as a U.S. government entity, the UICC as an international civil society organization, and PRRR as a public-private partnership, provided positive examples of uniting diverse partners to promote shared interests and leverage respective resources. Emphasizing diverse national partnerships and supporting the development of those partnerships has proven vital to advancing cancer-control planning efforts in many of the countries with which the NCI has worked in the ICCLFs and, as such, has become an ICCLF program centerpiece.

Being Seen as an Honest Broker Rather than an Issue Advocate: Timor-Leste

Scientists have a choice regarding their role in policy formation, especially in how they present their research results. This presentation places the scientist along a continuum from dispassionate broker to issue advocate.[19] To highlight the importance of neutrality, we consider the participation of Timor-Leste at the Pacific ICCLF. Since the state's creation in 1999, Timor-Leste has received substantial financial aid from many sources. Australia has been the primary international supporter of Timor-Leste, having led the military force that helped stabilize the country after it gained independence and providing most of its foreign assistance. Nonetheless, in recent years, relations between the two countries have deteriorated.

These close but frayed relations presented challenges in working with Timor-Leste in the Pacific ICCLF. Our Australian colleagues from the Peter MacCallum Cancer Centre, which cosponsored the forum, and those from the WHO country office in Timor-Leste were essential in bringing the right people from the country to the table. It quickly became clear, however, that the Timor-Leste country team was less forthcoming about its challenges when our Australian partners were present in the discussions versus when they were not. Whether this guardedness was because the Australian partners represented agencies that funded work in Timor-Leste and the Timorese feared losing that funding or because of the soured bilateral relations is unclear. Furthermore, while Australia was keen to support Timor-Leste in advancing cancer-control planning via this forum, the political will to act appeared to be lacking within the Timor-Leste MOH, which has resulted in difficulties during the follow-up phase.

Our experience with Timor-Leste in the ICCLF highlights the need for thorough political, diplomatic, and cultural assessment that includes consultation with multiple stakeholders prior to engagement. Soliciting the input of a broader base of stakeholders—including those from professional societies, universities, multilateral organizations, and other entities that engage the country—in planning this work could have offered insight into potential challenges and may have prompted us to assign faculty roles differently. Moreover, this engagement taught us a lot about best strategies for ICCLF facilitation as a whole. Our facilitators are expected to work

with country teams from a position of neutrality. That relationship is dependent on perception, and potential challenges must be predicted in order to address and avert them beforehand. By unwittingly fostering a perceived lack of neutrality in the engagement with Timor-Leste by including an Australian in Timor-Leste group discussions at the forum, our subject-matter experts lost credibility with the Timorese, ultimately negatively affecting forum outcomes.

Collaborating to Identify and Engage Strong Regional Partners: Uzbekistan

The ICCLF in central Asia, held in Tashkent, Uzbekistan, in October 2015, utilized a strong international partnership to mobilize support within the region for enhanced cancer-control planning efforts. The central Asia forum was cosponsored by the NCI; the National Cancer Research Center (NCRC) of Uzbekistan; the Association of Directors Cancer Centers and Radiation Institutes of Commonwealth of Independent States Countries and Eurasia (ADIOR), based in Moscow; and the UICC. Given the current political tension between the United States and Russia, particularly over policy in the former Soviet republics, the early involvement of Russian Federation and U.S. partners, as well as partners from countries with arguably more neutral positioning in the central Asia region—namely, the UICC president from Turkey and UICC headquarters in Switzerland—was essential to getting the central Asian countries' buy-in for this type of engagement. The addition of the Uzbekistan NCRC to this partnership critically solidified a comprehensive international partnership to help ensure sustainable outcomes and concrete action on cancer control in the region.

The strong collaborative partnership with the Uzbekistan NCRC and the Uzbekistan Health Ministry throughout the forum's development contributed significantly to its success. Uzbekistan's central geographical location within central Asia, its communication and health infrastructure, and its leadership as demonstrated by substantial financial and in-kind contributions for the forum position the country to be a regional anchor for cancer-control planning and implementation. The collaboration between the NCI, ADIOR, and UICC helped identify and engage the Uzbekistan NCRC as a partner, and Uzbekistan's regional leadership helped ensure high-level support within its own MOH and top political leadership. Furthermore, the Uzbekistan NCRC helped bring other central Asian countries (Kazakhstan, the Kyrgyz Republic, Tajikistan, and Turkmenistan) to the table and engaged their high-level leadership as well. Finally, the Uzbekistan NCRC contributed substantial support for translation of materials from English to Russian, helping overcome one of the most fundamental barriers this kind of engagement faces: language. The international and regional commitment to working together has helped overcome many of the political and technical challenges faced thus far and will continue to promote sustainable success in the future.

Science Diplomacy and NCDs

Fifty percent of the world's ministries of health lack an NCD unit.[20] Moreover, for those LMICs that do have an NCD unit, staff typically come to the field from other disease-priority areas and lack the key competencies to effectively facilitate cancer-control planning. Given this deficiency, it is essential that cancer stakeholders across and within countries come together to clearly advocate for their needs and priorities.

Science diplomacy, and particularly health science diplomacy, is somewhat unique in that most players largely agree on the desired outcomes, making it politically neutral compared with more controversial topics. Nevertheless, some issues remain contentious and some relationships are fraught with challenges. Because the NCI is part of the U.S. government, effective coordination of cancer-control planning efforts requires that forum organizers are seen as honest brokers rather than promoters of U.S. interests abroad and that they carefully maintain their neutrality. In the NCI's work in cancer-control planning, we have seen that effective partnerships across agencies and donor organizations are essential to guarantee that the NCI continues to be seen as an honest broker. As illustrated in the case of Uzbekistan, partnerships have helped us overcome barriers in the technical (e.g., language and specific expertise), political (e.g., high-level buy-in and community buy-in), and cultural arenas (e.g., understanding a region's relationships and health systems).

Addressing cancer and NCDs is fundamentally different from addressing many infectious diseases in that meaningfully decreasing the burden requires the broad strengthening of health systems to encompass all points across the continuum (prevention, early detection, treatment, palliation, and survivorship) and requires substantial engagement of non-health sectors (e.g., education, trade). Given the complexity of this set of diseases and limited international funding support for NCDs and cancer control, partnerships are particularly vital to ensuring improved outcomes. For partnerships to work, substantive country buy-in including financial commitment is needed. The international community plays a pivotal role in these efforts through supportive technical assistance on best practices for detection, diagnosis, treatment, and management. Moreover, the international community can help significantly by building partnerships to implement national cancer-control efforts.

As the case of Zimbabwe highlights, strong international partnership can demonstrate not only the possibility of forming partnerships among diverse organizations but also that such an endeavor adds value and is in many cases essential. These international partnerships strengthen our ability to provide various types of assistance that the organizations involved could not provide alone and serve as a model for intranational partnership building. In the future, the international community should seek to further build partnerships for these

types of support. The earlier-noted International Cancer Control Partnership, through which diverse partners collectively support cancer-control planning and implementation efforts worldwide, serves as one model for such collaborations.[21]

As demonstrated in the Vietnam and Papua New Guinea examples, getting the right people involved is essential. In both cases, it was clear that government and nongovernmental individuals alike would need to be involved to move forward. Often enlisting the "right person" is not about who has a particular title but instead who understands how the country's system works and can effectively navigate and exert influence across the public and private sectors, or within the country's population.

Flexibility in one's approach can also help overcome barriers, as demonstrated by our experience with Timor-Leste, where the Australian partner and funder eventually withdrew from the breakout sessions, subsequently freeing the Timorese team to look more critically at its challenges and suggest improvements toward creating a meaningful action plan. Even so, addressing one barrier is often not enough and lack of in-country political will in this case critically inhibited progress after the forum.

Conclusion

No single entity can address the global burden of cancer. Moreover, it is unlikely that in the future a single organization will emerge with either the authority or the capability to coordinate global action. Effective partnership, meanwhile, can help overcome many barriers, but it requires careful coordination, an understanding of the history between countries, an understanding of the motives and incentives involved, trust, and flexibility. The ICCLF program at its core is a platform for cooperation and an opening salvo in a dialogue on evidence-based policy making to address the growing global cancer burden. The strength of this program, as much as the technical content imparted to participants and the relationships established between the NCI and ministries/departments of health around the world, can be found in the intranational and international partnerships formed across the continuum of cancer stakeholders in LMICs. SD

Endnotes

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