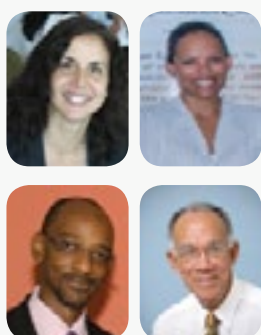


CANCER PREVENTION AND CONTROL IN THE CARIBBEAN

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Objective: To describe the status, progress and challenges to implementing cancer interventions in the Caribbean.

Methods: Data on cancer mortality, policies and services were extracted from Pan American Health Organization (PAHO) databases, government and non-governmental websites and the peer-reviewed literature.

Results: Cancer is the second leading cause of death; plans are in place in most countries, screening services exist in several countries, but significant gaps remain in treatment and palliative care.

Conclusion: Multisector collaboration, technical assistance and funding is needed to improve care.

The Caribbean is a sub-region of the Americas, composed of 30 countries/territories which are principally a chain of islands surrounded by the Caribbean Sea. The Caribbean Community (CARICOM) is a grouping of 15 Member States and five Associate Members, and it was the political leadership of this group that led efforts to strengthen the prevention and control of noncommunicable diseases (NCDs), with the 2007 Port of Spain Declaration (1, 2). This called for multisector policies and health system strengthening, among others, to reduce the NCD burden, and in turn spurred the global NCD movement which resulted in the United Nations political declaration on NCDs in 2011 (3). Since then, governments and non-state actors have rallied around the call and intensified interventions to address NCDs, with the goal of a 25% reduction in related premature mortality by 2025 (4).

These commitments have led to a focus on cancer, one of the four main NCDs. Governments throughout the Americas endorsed a PAHO/WHO Regional Plan of Action for the Prevention and Control of Noncommunicable Diseases 2013–2019, which provides the overall framework to address cancer and other NCDs (5). The recommendations include establishing national cancer plans and registries; implementing primary prevention policies (implementation of the WHO Framework Convention on Tobacco Control; regulations to reduce alcohol consumption; policies that support healthy eating, promotion of breast feeding and promotion of physical activity, and HPV and HBV vaccination); creating organized breast and cervical screening programmes; and improving cancer treatment and

palliative care services.

While these recommendations have been promoted in various fora, including the recent 2017 World Health Assembly (6, 7), implementation has perhaps not been as comprehensive as needed to ensure sufficient progress towards the overarching NCD goal of reducing premature mortality. In this article, we describe the status, progress and challenges to implementing cancer control interventions in the Caribbean sub-region from the perspectives of an international governmental organization and civil society organization.

Methods

Cancer mortality data were retrieved from the Pan American Health Organization (PAHO) Mortality Database (8). Relevant reports on cancer programmes and initiatives were retrieved from official websites of the PAHO, Caribbean Public Health Agency, CARICOM, Healthy Caribbean Coalition, Port of Spain Declaration Evaluation (Caribbean Unity in Health) and relevant websites from Ministries of Health and cancer societies of the Caribbean. Published articles in peer-reviewed journals were retrieved from a literature search, conducted April–May 2017, using the following search terms “cancer” AND “Caribbean” AND “prevention” AND “screening” AND “treatment”. PubMed, Science Direct, and Google Scholar were used, and articles published after 1 January 2008 were considered.

We also extracted relevant data on cancer policies, plans, screening, treatment, palliative care, and cancer registration,

Table 1: Cancer deaths and related characteristics of selected Caribbean countries (8)

Country	Total population (2016)	Gross National Income (US\$ per capita, ppp, 2014)	National health expenditure (as %GDP public, 2014)	Total deaths		Total cancer deaths		Male cancer deaths		Female cancer deaths	
				Number of deaths, all causes, both sexes, latest year available	Age-adjusted rates, both sexes, per 1,000 population, latest year available	Number of cancer deaths (% of total deaths), all sites, both sexes, latest year available	Age-adjusted rates per 100,000 population, latest year available	Total number of cancer deaths, all sites, both sexes, latest year available	Age-adjusted rates per 100,000 population, latest year available	Total number of cancer deaths, all sites, both sexes, latest year available	Age-adjusted rates per 100,000 population, latest year available
Antigua & Barbuda	94,000	21,370	3.8	579	634.2	133 (23%)	145.6	76	175.7	57	118.6
Bahamas	393,000	22,290	3.6	2,065	546.5	411 (20%)	108.8	194	104.9	217	112.4
Barbados	291,000	15,190	4.7	2,488	861.7	558 (22%)	193.2	278	199	280	187.7
Belize	367,000	7,590	3.9	1,587	451.2	186 (12%)	52.9	82	46.7	104	59
Dominica	74,000	10,480	3.8	609	829.1	107 (18%)	145.7	61	164.5	46	126.4
Grenada	111,000	11,720	2.8	868	784.1	171 (20%)	154.5	90	160.6	81	148.2
Guyana	771,000	6,940	3.1	5,544	731	470 (8%)	61.9	199	52.4	271	71.6
Jamaica	2,803,000	8,640	2.8	16,789	609.9	3,400 (20%)	123.5	1,863	136.1	1,537	111.1
Saint Kitts & Nevis	52,000	22,600	2.1	341	672.2	63 (18%)	124.2	33	130.2	30	118.2
Saint Lucia	164,000	10,540	3.6	1,293	791.5	246 (19%)	150.6	146	183.3	100	119.4
St Vincent & the Grenadines	102,000	10,730	4.4	875	852.6	185 (21%)	180.3	112	214.7	73	144.6
Suriname	548,000	17,040	2.9	3,130	581.5	432 (14%)	80.26	240	88.9	192	71.5
Trinidad & Tobago	1,365,000	31,970	2.9	10,203	768.2	1,650 (16%)	124.2	880	133.9	770	114.7

from the PAHO/WHO NCD Country Capacity Survey (9). This is a standardized global survey which was completed June–October, 2015 by the designated Ministry of Health official(s) responsible for the national NCD programme.

Results

Sufficient data were found to include 13 countries/territories from CARICOM in this analysis (Antigua and Barbuda, the Bahamas, Barbados, Belize, Dominica, Grenada, Guyana, Jamaica, St Kitts and Nevis, St Lucia, St Vincent and the Grenadines, Suriname, and Trinidad and Tobago).

Overview of cancer in the Caribbean

The population sizes are highly variable in the countries included in this analysis, ranging from as few as 52,000 people in St Kitts & Nevis, to 2.8 million people in Jamaica. The countries are generally classified as middle income and upper-

middle income, with gross national income ranging from US\$ 6,940/capita to US \$31,970/capita and with national health expenditures from 2.1%–4.7% of GDP (Table 1). Cancer is the second leading cause of death after cardiovascular diseases in all countries included in this analysis, except for Guyana, and generally accounts for approximately 20% of total deaths, with the exception of Guyana and Belize where cancer represents only 8% and 12% of total deaths (Table 1).

The highest cancer mortality rates are observed in St Vincent & the Grenadines and Grenada, while Belize and Guyana have the lowest rates. In most countries, cancer mortality is much higher in males than females, except in the Bahamas, Belize and Guyana where female cancer mortality is higher (Table 1).

Among men, prostate cancer was the leading cause of cancer deaths in all countries. Lung cancer was the second or third leading cause of cancer deaths among men, with the exception of St Kitts and Nevis where it was the fourth ranked cancer

Table 2: Ranking of the top five causes of cancer death, by sex, in selected countries in the Caribbean region (10)

	Male						Female					
	Prostate	Lung	Colorectal	Stomach	Pancreas	Liver	Breast	Cervix	Colorectal	Uterine corpus	Ovary	Lung
Antigua & Barbuda	1	2	3	-	-	4	1	4	2	5	3	-
Bahamas	1	2	3	4	-	-	1	3	2	-	4	5
Barbados	1	3	2	4	5	-	1	3	2	4	5	-
Belize	1	2	5	4	-	3	2	1	-	3	-	5
Dominica	1	2	5	3	4	-	1	2	3	-	-	5
Grenada	1	2	3	5	-	-	1	2	5	3	4	-
Guyana	1	3	2	4	5	3	1	2	5	3	4	-
Jamaica	1	2	3	4	-	-	1	2	3	4	-	5
St Kitts & Nevis	1	4	3	-	-	2	1	2	5	-	4	-
St Lucia	1	2	4	3	5	-	1	2	3	-	4	-
St Vincent & the Grenadines	1	3	2	4	5	-	1	2	4	3	5	-
Suriname	1	2	3	5	-	4	2	1	3	-	5	4
Trinidad & Tobago	1	2	3	5	4	-	1	2	3	4	5	-

Table 3: Cancer risk factor prevalence in selected countries in the Caribbean (8,11-14)

Country	Current tobacco smoking prevalence in adults (%)		Alcohol consumption (litre/person/year)		Overweight and obesity in adults (%)		HPV prevalence in women with normal cytology (%)
	male	female	male	female	male	female	
Antigua & Barbuda	n/a	n/a	7.7	3.1	55.4	68.3	n/a
Bahamas	26.9	6.4	10.1	3.9	66.3	71.5	n/a
Barbados	14.2	1.6	9.8	4.0	57.2	67.4	n/a
Belize	17.7	1.4	14.5	2.5	48.5	59.1	10.1
Dominica	16.6	3.3	10.2	4.1	53.5	63.2	n/a
Grenada	30.3	6.5	17.9	7.3	50.6	64.5	n/a
Guyana	29.5	3.2	11.7	4.7	43.9	62.1	11.0
Jamaica	22.1	7.2	7.1	2.8	52.1	65.9	54.0
St Kitts & Nevis	16.2	1.1	11.8	4.7	53.0	64.7	25.2
St Lucia	n/a	n/a	15.1	5.9	51.1	63.4	n/a
St Vincent & the Grenadines	21.9	2.5	9.2	3.9	51.3	61.3	29.6
Suriname	34.0	6.6	9.4	3.9	53.7	63.3	n/a
Trinidad & Tobago	33.5	9.4	9.7	3.9	55.4	67.2	40.6

Among women, breast cancer is the leading cause of cancer deaths in all countries, with the exception of Belize and Suriname where cervical cancer ranked as the leading cause. In the majority of countries, cervical cancer was ranked as the second or third leading cause of cancer deaths, with the exception of three countries (Antigua and Barbuda, the Bahamas and Barbados), where colorectal cancer was ranked second. Uterine corpus and ovarian cancers are among the fourth and fifth leading causes of cancer death, whereas lung cancer ranked within the top five in only five countries.

Cancer risk factors

Prevalence of the main cancer risk factors is summarized in Table 3. Tobacco smoking,

death in men. Colorectal cancer also ranked as the second or third leading cause of cancer-related deaths in almost all countries, with the exception of Belize, Dominica and St Lucia, where it ranked fourth or fifth. Stomach cancer ranked as the fourth leading cause of cancer deaths in six countries, whereas pancreatic and liver cancer ranked fourth in two countries (Table 2). Oral cancer may be an emerging problem as well in this region, as it ranked among the top five causes of cancer deaths in two of the countries (Antigua & Barbuda, Barbados) and was within the top 10 cancers in the remaining countries.

perhaps the single most important risk factor, ranges from a high of 21.1% and 20.0% in Trinidad & Tobago and Suriname, respectively, to a low of 7.5% in Barbados among adults (15 years of age and older). Males have a much higher smoking prevalence than females in all countries, and this difference is as low as 3.5 times higher in men than women in Trinidad & Tobago, to more than a tenfold difference in Belize and St Kitts and Nevis (Table 3). Alcohol consumption is variable among countries, with a low of 4.9 litres/person/year in Jamaica, to a high of 12.5 litres/person/year in Grenada. Men consume much

Table 4: Cancer plans and primary prevention policies in selected Caribbean countries (9)

Country	National cancer policy/plan/strategy	Tobacco Control Policy (PAHO tobacco control report 2016)	Obesity prevention plan	Alcohol reduction plan	Hepatitis B vaccination (year initiated, estimated coverage latest year data available)	HPV vaccination (year initiated, target group)
Antigua and Barbuda	Yes	<ul style="list-style-type: none"> FCTC ratified in 2006 20% of retail price is tax on cigarettes smoke-free environments only in government buildings no health warnings no bans on advertising 	No	No	Yes (1999, 98%)	Yes (2016, boys and girls 9 years of age)
Bahamas	No	<ul style="list-style-type: none"> FCTC ratified in 2009 43% of retail price is tax on cigarettes no smoke-free environments health warnings no bans on advertising 	No	No	Yes (2001, 96%)	Yes (2015, boys and girls 10-12 years of age)
Barbados	Yes	<ul style="list-style-type: none"> FCTC ratified in 2005 42% of retail prices is taxes on cigarettes smoke-free environments no health warnings no bans on advertising 	Yes (2009)	No	Yes (2000, 87%)	Yes (2014, girls 11-12 years of age)
Belize	Yes	<ul style="list-style-type: none"> FCTC ratified in 2005 37% of retail price is tax on cigarettes no smoke-free environments health warnings no bans on advertising 	in development	in development	Yes (2000, 98%)	Yes (2016, girls 10 years of age)
Dominica	Yes	<ul style="list-style-type: none"> FCTC ratified in 2006 23% of retail price is tax on cigarettes no smoke-free environments no health warnings no bans on advertising 	No	No	Yes (2006, 74%)	No
Grenada	Yes	<ul style="list-style-type: none"> FCTC ratified in 2007 48% of retail price is tax on cigarettes no smoke-free environments no health warnings no bans on advertising 	No	No	Yes (2000, 97%)	No
Guyana	in development	<ul style="list-style-type: none"> FCTC ratified in 2005 25% of retail price is tax on cigarettes few smoke-free environments health warnings no bans on advertising 	In development	In development	Yes (2001, 97%)	Yes (2012, girls 10-13 years of age)
Jamaica	Yes	<ul style="list-style-type: none"> FCTC ratified in 2005 43% of retail price is tax on cigarettes smoke-free environments health warnings incomplete bans on advertising 	In development	In development	Yes (2003, 96%)	No
St Kitts & Nevis	Yes	<ul style="list-style-type: none"> FCTC ratified in 2011 20% of retail price is tax on cigarettes no smoke-free environments no health warnings no bans on advertising 	No	No	Yes (1997, 98%)	No
St Lucia	Yes	<ul style="list-style-type: none"> FCTC ratified in 2005 63% of retail price is tax on cigarettes no smoke-free environments no health warnings no bans on advertising 	In development	In development	Yes (2002, 100%)	No
St Vincent & the Grenadines	No	<ul style="list-style-type: none"> FCTC ratified in 2010 17% of retail price is tax on cigarettes no smoke-free environments no health warnings no bans on advertising 	No	No	Yes (xx)	No
Suriname	yes	<ul style="list-style-type: none"> FCTC ratified in 2008 56% of retail price is tax on cigarettes smoke-free environments health warnings bans on advertising 	No	No	Yes (2003, 84%)	Yes (2013, girls 9-13 years of age)
Trinidad and Tobago	No	<ul style="list-style-type: none"> FCTC ratified in 2004 30% of retail price is tax on cigarettes smoke-free environments health warnings bans on advertising 	Yes (2012)	No	Yes (2003, 92%)	Yes (2013, girls 11-12 years of age)

more alcohol, at least twice as much or more, than women in all countries.

Overweight/obesity (BMI > 25 kg/m²) is of significant concern, with an average prevalence of 59.4% among adults in this sub-region. Women are much more likely to be overweight or obese than men, ranging from a high of 71.5% of women in the Bahamas and low of 61.3% of women in St Vincent and the Grenadines; as compared to a high of 66.3% of men in the Bahamas and low of 43.9% of men in Guyana.

Infection-related cancers are common in the Caribbean and relevant risk factors include HPV infection (cervical cancer), Hepatitis B or C infection (liver cancer) and H. pylori infection (stomach cancer). HPV prevalence studies have been conducted in the past several years in a few countries in the Caribbean and the prevalence rates are observed to range widely across countries, from 54% in Jamaica to 11% in Guyana (Table 3). No data were found on prevalence of either Hepatitis infection, or H. pylori infection rates in this region.

Cancer plans and policies

Countries have begun to establish national cancer control plans, as a means of defining the strategies, interventions and resources that will be devoted to prevent and control risk factors nationally. All countries in our analysis reported having a national cancer control policy/plan/strategy, with the exception of the Bahamas, St Vincent and the Grenadines and Guyana (although the latter is in development). The World Health Organization Framework Convention on Tobacco Control (FCTC) has been ratified in all countries, beginning with Trinidad & Tobago in 2004 and other countries following suit mainly between 2005–2007, and with St Kitts & Nevis ultimately signing on to this treaty in 2011. The implementation of its measures, notably the six most effective MPOWER measures (monitoring, 100% smoke-free environments, treatment of tobacco dependence, health warnings, ban on advertising, promotion and sponsorship and tobacco taxes/pricing) has not been achieved (Table 4). Policies to reduce harmful use of alcohol are lacking in the Caribbean and obesity prevention plans have not yet been developed in the majority of countries, with the exception of Barbados and Trinidad & Tobago (Table 4).

Hepatitis B vaccination has been fully integrated into national immunization programmes throughout the region, beginning in 1999 and with vaccine coverage exceeding 90% in most countries (Table 4). HPV vaccines, available since 2006, on the other hand, have not yet been fully implemented in this region where seven countries report introduction, beginning in Guyana in 2012, Suriname and Trinidad & Tobago in 2013, and more recently Antigua & Barbuda, Barbados, and the Bahamas. Six countries, predominantly from the Eastern Caribbean,

have not yet introduced the HPV vaccine into their national immunization programme. No data on HPV vaccine coverage from the Caribbean were found.

Cancer screening and early detection

Breast cancer screening programmes, mainly opportunistic, have been established in eight countries (Antigua & Barbuda, the Bahamas, Belize, Dominica, Grenada, Guyana, Jamaica, St Lucia, St Vincent and the Grenadines), mainly using clinical breast examination as the modality and with a very wide target population (Table 5). Mammography has not yet been integrated as the main screening modality in this region, with the exception of the Bahamas and Dominica. No information was found on breast cancer screening coverage.

For cervical cancer, almost all countries report having a screening programme, mainly opportunistic, with the exception of Barbados and Suriname which report not having a population-wide screening programme. The traditional Pap test is the most commonly used screening modality in all countries. Belize and Guyana have also introduced VIA screening, and no countries have yet introduced HPV testing, which is a far more effective screening test. No information was found on screening coverage.

Colorectal cancer screening has not yet been initiated in this region, with the exception of Antigua and Barbuda which reports an opportunistic programme using colonoscopy in the general population. Prostate cancer early detection has been initiated in five countries (Antigua & Barbuda, the Bahamas, Belize, Jamaica, St Lucia), but with PSA testing only in Belize and St Lucia.

Cancer treatment capacity

A cancer care system includes colposcopy services and treatment for cervical precancer (cryotherapy, LEEP (loop electrosurgical excision procedure), cold knife conization (CKC)), pathology services, surgery, chemotherapy and radiotherapy and palliative care. Chemotherapy treatment is reported as generally available only in six countries – Antigua & Barbuda, Barbados, Jamaica, Suriname and Trinidad & Tobago; while radiotherapy services are available in only seven countries – Antigua and Barbuda, the Bahamas, Barbados, Guyana, Jamaica, Suriname, Trinidad and Tobago; and cancer surgery in six of these countries (Table 6). Palliative care access, as measured by opioid consumption in morphine equivalence minus methadone, is abysmally low in all countries, well below 10 mg/capita (Table 6). This access is significantly lower than in North America where, for example, it is 733 mg/capita in Canada (16).

Cancer registries, a fundamental aspect of cancer control, capture and provide necessary population data on new cancer

Table 5: Cancer screening programmes in selected Caribbean countries (9)

		Antigua & Barbuda	Bahamas	Barbados	Belize	Dominica	Grenada	Guyana	Jamaica	St Kitts and Nevis	St Lucia	St Vincent & the Grenadines	Suriname	Trinidad & Tobago
Breast cancer	Screening programme	Yes, opportunistic screening	Yes, opportunistic screening	No	Yes, opportunistic screening	Yes, opportunistic screening	Yes, opportunistic screening	No	Yes, opportunistic screening	No	Yes, organized program	Yes, opportunistic screening	No	No
	Screening method	CBE	Mammography	n/a	CBE	Mammography	Not specified	n/a	CBE	n/a	CBE	CBE	n/a	n/a
	Population targeted by the program	General female population	Not specified	n/a	21-70 years of age	General female population	18-45 years of age	n/a	General female population	n/a	General female population	18-70 years of age	n/a	n/a
Cervical cancer	Screening programme	Yes, opportunistic screening	Yes, opportunistic screening	No	Yes, organized program	Yes, opportunistic screening	Yes, organized programme	Yes, organized programme	Yes, organized programme	Yes, opportunistic screening	Yes, organized programme	Yes, opportunistic screening	No	Yes, organized program
	Screening method	Pap test	Pap test	n/a	Pap test/VIA	Pap test	Pap test	VIA test	Pap test	Pap test	Pap test	Pap test	n/a	Pap test
	Population targeted by the programme	General female population	18-59 years of age	n/a	21-70 years of age	18-65 years of age	General female population	30-49 years of age	25-54 years of age	18-55 years of age	General female population	18-60 years of age	n/a	18 years of age +
Prostate cancer	Early detection programme	Yes, opportunistic	Yes, opportunistic	No	Yes, opportunistic	No	No	No	Yes, opportunistic	No	Yes, opportunistic	No	No	No
	Method	Prostate palpation	Prostate palpation	n/a	PSA test	n/a	n/a	n/a	Prostate palpation	n/a	PSA test	n/a	n/a	n/a
	Population targeted by the programme	General male population	Males 40-75 years of age	n/a	Males 50 years and older	n/a	n/a	n/a	Males 40 years and older	n/a	Males 40 years and older	n/a	n/a	n/a
Colorectal cancer	Screening programme	Yes, opportunistic screening	No	No	No	No	No	No	No	No	No	No	No	No
	Screening method	Colonoscopy	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	Population targeted by the programme	General adult population	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

cases and deaths. In our analysis, we found only four countries (Barbados, Jamaica, Guyana, and Trinidad & Tobago) with population-based cancer registries that meet international standards of quality and report data in an ongoing and systematic manner.

Civil society initiatives

Across the region other actors, such as civil society organizations (CSOs), academia, regional and international donor agencies, and the private sector, have contributed significantly to the cancer control landscape through prevention, screening and diagnosis, treatment and psychosocial and palliative care. The Healthy Caribbean Coalition (HCC) is one such entity. The HCC is the only regional network of over 100 health and non-health NCD-focused CSOs including 21 national cancer societies which collectively form the Caribbean Cancer Alliance (CCA). National cancer societies play a central role in educating local communities, providing screening and referral and in some instances offering support, counselling and end of life care; especially for vulnerable and marginalized populations, such

as the poor, youth and indigenous communities. Through the HCC, and in partnership with the public and private sector, the CCA has focused its efforts on advocacy for expanded cervical cancer screening and increased HPV vaccination coverage. Since 2013, when the HCC and the American Cancer Society hosted a cervical cancer advocacy capacity-building workshop, the CCA has partnered with PAHO to develop a joint cervical cancer situation analysis (17); launched a regional petition to “End Cervical Cancer Now” which received approximately 20,000 signatures (18); successfully lobbied for the introduction of national HPV vaccination programmes in two territories; and contributed to national attainment of cervical cancer screening targets in support of global cervical cancer screening targets found in the existing and updated Appendix III of the WHO Global NCD Action Plan 2013–2020 (6). Most recently, the HCC and the CCA reaffirmed a collective commitment to high-level cancer advocacy through the Caribbean Cancer Advocacy Agenda launched on World Cancer Day 2017 (19). The agenda highlighted priority advocacy areas from the perspective of cancer survivors. In support of the 2030 agenda,

Table 6: Cancer treatment and palliative care capacity in selected Caribbean countries (9, 15)

	Available in public sector	Not available in public sector
Cervical precancer treatment services available with colposcopy, cryotherapy, LEEP/LEETZ and/or cold-knife conization	Bahamas, Barbados, Belize, Dominica, Jamaica, St Kitts & Nevis, Guyana, Suriname, Trinidad & Tobago	
Pathology services for cancer diagnosis	Antigua and Barbuda, Bahamas, Barbados, Dominica, Grenada, Jamaica, St Kitts and Nevis, St Lucia, Suriname, Trinidad and Tobago	Belize, Guyana, St Vincent & the Grenadines
Cancer surgery	Antigua and Barbuda, Bahamas, Barbados, Jamaica, Suriname, Trinidad and Tobago	Belize, Dominica, Grenada, Guyana St Kitts and Nevis, St Lucia, St Vincent & the Grenadines
Radiotherapy services	Antigua and Barbuda, Bahamas, Barbados, Guyana, Jamaica, Suriname, Trinidad and Tobago	Belize, Dominica, Grenada, St Kitts and Nevis, St Lucia, St Vincent & the Grenadines
Chemotherapy available	Antigua and Barbuda, Bahamas, Barbados, Jamaica, Suriname, Trinidad and Tobago	Belize, Dominica, Grenada, Guyana St Kitts and Nevis, St Lucia, St Vincent & the Grenadines
Palliative care access as measured by opioid consumption (in morphine equivalence minus methadone, mg/capita)	<p>0-1.9mg/capita: Grenada, Suriname</p> <p>2.0-4.9mg/capita: St Kitts & Nevis, Dominica, Guyana, Jamaica, St Lucia, St Vincent & the Grenadines</p> <p>5.0-7.9 mg/capita: Trinidad & Tobago</p> <p>8.0+ mg/capita: Barbados</p>	n/a

the 25x25 targets, the recently endorsed Cancer Declaration, and in the lead-up to the 2018 UNHLM, the HCC and the CCA will continue to work in multisectoral partnerships to advocate for cancer policy and programming across the following priority areas: HPV vaccination, cervical cancer screening, improved palliative care; and creating networks to facilitate the establishment and strengthening of affordable and accessible regional treatment platforms.

The HCC has also been among regional catalysts and partners in the Caribbean Cancer Control Leadership Forum (CCCLF), led by the United States National Institutes of Health/National Cancer Institute to support cancer control planning in the region through engagement of multiple sectors, introduction of evidence-based resources and practical planning tools, technical assistance, and information exchange between Caribbean countries. Since its inception in 2015, the CCCLF has worked with teams comprised of government, academic, care delivery, and civil society professionals from eight Caribbean countries, as well as individuals from five additional countries in the region. Outcomes thus far include providing technical guidance for the Bahamas in their successful bid to pass cancer reporting legislation and initiate a national registry and technical support on cervical cancer prevention for Guyana and Suriname as they develop their screening programmes.

Discussion

The cancer mortality rates in the Caribbean countries reviewed

in our analysis are comparable to rates observed in other world regions and patterns are similar with leading causes of cancer death from prostate, lung and colorectal cancers in men, and breast and cervix in women (20). However, the remarkable difference is in prostate cancer, where the Caribbean region has been noted to have the highest age-standardized rates in the world (21), and, similar to the experience of African American men, is largely attributed to race and genetic factors (22).

Although an estimated 40% of cancers can be prevented through health promoting policies and behaviour change (23), our analysis highlights the limited cancer prevention policies in place in this sub-region. Of concern are the limited policies and regulations related to healthy eating in the face of a high prevalence of overweight/obesity. Another concern is the limited implementation of HPV vaccines in this sub-region, which is lagging as compared to other world regions (24). This highlights the need for increasing advocacy activities of civil society organizations to garner greater political and public support for stronger tobacco, alcohol, diet and physical activity policies, as well as HPV vaccination.

A comprehensive cancer plan can reduce cancer mortality and improve quality of life (25). While it is encouraging to note that almost all countries have initiated plans, it will require efficient health systems with sufficient financial and human resources to ensure accessible, quality cancer care. Our analysis highlights the limited health system capacity in this

sub-region and investments are clearly needed to increase access to care. An essential package of cancer prevention and control interventions is estimated to cost about 3% of total public spending on health (26), but this may be prohibitive for many countries in this sub-region and innovative funding mechanisms may be the solution. One such example is in pooled procurement mechanisms to increase access, availability, quality and consistent supply of essential cancer drugs. The Organization of Eastern Caribbean States Pharmaceutical Procurement Scheme (27) and the PAHO Strategic Fund (28) provide such services and are key opportunities to bridge the gaps in access to chemotherapy and opioids. Another example of innovations in cancer care is in the shared cancer treatment services which are emerging through the establishment of informal networks, supported by civil society, linking patients in countries with no cancer treatment services to countries where such services exist.

Nevertheless, there is a need to extend and strengthen regional and national multisectoral partnerships in cancer which facilitate knowledge and resource sharing across and within the countries/territories. This has already begun, with initiatives such as the PAHO Women's Cancer Initiative (29), Healthy Caribbean Coalition Cancer Initiative, Caribbean Cancer Control Leaders Forum, the International Atomic Energy Agency's Program of Action on Cancer Therapy, and the IARC/CARPHA/CDC/NCI Caribbean Cancer Registry Initiative. But these initiatives are nascent and more intensified cooperation, especially for cancer treatment, is needed.

As the global health community prepares to report on progress in NCD prevention and control for the 2018 UN High-Level Meeting on NCDs, the Caribbean sub-region will be well positioned to highlight its advances in cancer control, while describing its urgent need for more intense multisector collaboration, technical assistance and funding support to improve cancer care and reduce the cancer burden. ■

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