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This report provides a brief overview of cancer epidemiology and capacity for comprehensive care-prevention, screening, early detection, diagnosis, treatment and palliative care- for the two most common cancers in women, breast and cervical cancer, for the non-Latin Caribbean region. This serves as a background document for discussion in the Forum on Women's Cancers in the English Caribbean, convened by PAHO and the University of Miami, May 11-12, 2016.

Women's Cancer and Comprehensive Care in the Caribbean

Situation and Challenges

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Acronyms and abbreviations

ASR: Age standardized rate

BSE: Breast self-examination

CARPHA: Caribbean Public Health Agency

CBE: Clinical breast examination

CKC: Cold knife conization

DES: Diethylstilbestrol

GDP: Growth Domestic Product

HIV: Human immunodeficiency virus

HPV: Human papillomavirus

LAC: Latin America and the Caribbean

LEEP: Loop electrosurgical procedure

NCD: Noncommunicable diseases

NLC : non-Latin Caribbean

PAHO: Pan American Health Organization

PAP: Papanicolau test

VIA: Visual inspection with acetic acid

WHO: World Health Organization

ABOUT THE REPORT

In this report, we aim to describe the situation and current status of policies, programs and services in the countries of the non-Latin Caribbean (NLC) region with respect to cancer epidemiology and comprehensive cancer care- prevention, screening, early detection, diagnosis, treatment and palliative care- for the two most common cancer types in women: breast and cervical cancer. Data were extracted and analyzed from the PAHO/WHO National Country Capacity Survey on Noncommunicable Disease Programs (2015), as well as published articles and documents. We present an epidemiological overview, a summary of the PAHO/WHO recommendations for each component of comprehensive cancer care, as well as a snapshot of the existing health policies and services for women's cancer from 13 countries in the NLC region. This document serves as a background document for discussion and reference during the Forum on Women's Cancers in the English Caribbean, convened by PAHO/WHO and the University of Miami on May 11-12, 2016.

1. The non-Latin Caribbean region: Characteristics and burden of breast and cervical cancer

1.1 Women's cancers in the non-Latin Caribbean region

The burden of non-communicable diseases (NCDs) in Latin America and the Caribbean (LAC) has increased significantly, where cancer is now the second leading cause of death (1). Breast and cervical cancer are the leading cancers in women and have a significant impact on women's health in the region. In the Caribbean, 16,305 women are diagnosed with breast or cervical cancer, and 6,182 women die from these diseases each year (2).

Table 1 summarizes the epidemiological situation for breast and cervical cancer in the non-Latin Caribbean sub-region (NLC). Bahamas and Barbados have the highest breast cancer incidence and mortality rates, and where mortality rates are approximately two times as high as those in Canada and the USA (2). Overall trends for breast cancer mortality rates are steadily increasing in NLC countries, whereas in Canada and the USA they are on the decline (3).

TABLE 1: Breast (BC) and Cervical Cancer (Cxca) in the Non Latin Caribbean Region

Country	Population[a]	No. women (30-69 years)[a]	BC no.new cases[b-]	BC incidence (ASR/100,000)[b]	BC mortality (ASR/100,000)[b]	Cxca no. new cases[b]	Cxca incidence (ASR/100,000)[b]	Cxca mortality (ASR/100,000)[b]
Antigua & Barbuda	92,000	22,908	76[c]	37.6[c]	21.4[d]	50[c]	23.0[d]	6.8[d]
Bahamas	392,000	99,960	213	98.9	26.3	44	20.6	7.0
Barbados	285,000	78,090	207	94.7	22.1	44	25.4	7.2
Belize	366,000	67,710	45	39.6.	13.5	43	32.7	14.9
Dominica	73,000	13,939	**no data**	**no data**	16.5[e]	81[f]	**no data**	21.7
Grenada	107,000	21,293	**no data**	49.1[g]	17.9[g]	**no data**	60.7[g]	17.7[f]
Guyana	770.000	157,080	168	50.4	20.1	161	46.9	21.9
Haiti	10,848,000	1,963,488	893	22.0	11.5	1048	24.9	14.6
Jamaica	2,803,000	608,251	843	55.8	18.6	392	26.3	11.9
Puerto Rico	3,680,000	964,160	1,642	57.5	13.0	259	11.4	2.8
Saint Kitts & Nevis	56,000	8,736	**no data**	**no data**	22.2[e]	**no data**	**no data**	7.4[f]
Saint Lucia	186,000	44,268	**no data**	**no data**	14.6	**no data**	**no data**	12.5[f]
Suriname	547,000	120,887	109	41.4	14.4	107	38.0	15.7
Trinidad &Tobago	1,364,000	358,732	487	56.9	23.5	209	24.5	12.0

SOURCES: **a.** http://populationpyramid.net; **b.** Globocan, 2012; **c.** WIMJ Open 2014; 1 (3): 84; **d.** WIMJ Open 2014; 1 (3): 88; **e.** Bulletin of the World Health Organization 2013;91:640-649; **f.** Situational analysis of cervical cancer prevention and control in the Caribbean PAHO, Dec 2013; **g.** data from 1996-2000 reported in West Indian Med J. 2004 Dec;53(6):368-73

For cervical cancer, Grenada, Guyana and Suriname have the highest incidence rates in the region, which are approximately seven times higher than the rates in Canada and the USA. While trends in cervical cancer incidence have dramatically declined in Canada and the USA over the past several decades, the trends in NLC countries have only declined slowly and rates still remain very high (3). The high rates of breast and cervical cancer in NLC may be an indicator of the limited capacity of health systems to adequately prevent and control women's cancers.

1.2 Health system considerations for comprehensive cancer control in the non-Latin Caribbean region

Efficient and robust health systems are necessary for a comprehensive approach to cancer prevention and control. This includes sufficient financial and human resources, infrastructure and strong administrative structures that ensure quality services for the continuum of cancer care- prevention, screening and early detection, diagnosis, treatment and palliative care (4, 5). While most of the countries in the NLC have publicly funded health systems based on strong primary health care, limited public funding, limited access to specialized care, health human resource limitations and system fragmentation continue to be a challenge and impede advances in cancer control.

TABLE 2: Country GDP and Investments in Health in the non Latin Caribbean region

Country	GDP (US$Billions)	Income Group	%GDP expenditure in health**
Antigua & Barbuda	1.3	High	4.9
Bahamas	8.5	High	7.3
Barbados	4.3	High	6.8
Belize	1.6	Upper-Middle	5.4
Dominica	0.54	Upper-Middle	6.0
Grenada	0.9	Upper-Middle	6.3
Guyana	3.2	Lower-Middle	6.5
Haiti	8.7	Low	9.4
Jamaica	14.4	Upper-Middle	5.9
Puerto Rico (USA)	103.1	High	17.3
Saint Kitts & Nevis	833.3	High	6.4
Saint Lucia	1.4	Upper-Middle	8.5
Suriname	5.3	Upper-Middle	4.6
Trinidad & Tobago	24.4	High	5.5

SOURCE: World Bank, 2016 http://data.worldbank.org/country
** These numbers correspond to a combination of private and public spending

Part of the solution to strengthen health systems overall, and to better address women's cancer, is to work towards universal access to health and universal health coverage. This will require building capacity and training health providers, integrating women's cancer care into existing primary health care services, establishing clear referral pathways and strengthening system capacity for diagnosis, treatment, supportive care and palliative care, and increasing financing to meet the population's health needs.

NLC are generally classified, according to the World Bank index, as high-income and middle-income countries. Yet underfunding of health services continues to be, perhaps the greatest challenge to improve cancer outcomes in this region. **Table 2** summarizes the NLC country investments in health as compared to the country's income.

In recognition of the limited resources available to address cancer, WHO recommends a comprehensive cancer control plan, with a resource-stratified approach in which the specific strategies, interventions and services across the continuum of care are customized according to available resources.[1]

[1] More information and specific recommendations on a resource stratified approach to cancer control can be found in the WHO publication on National Cancer Control Programmes: Policies and managerial guidelines (2002).

2. Primary Cancer Prevention

Addressing modifiable risk factors can reduce cancer risk and prevent many cancer types, including breast and cervical cancer. **Primary prevention strategies** for non-communicable diseases, including cancer, involve public policies, education, and lifestyle modification of four major risk factors: tobacco, alcohol, diet and physical activity. For breast and cervical cancer, the known risk factors are summarized in **Table 3**. Breast cancer risk factors include age, ethnicity, reproductive health factors such as early menarche and late menopause, overweight/obesity, alcohol consumption, oral contraceptive use, and tobacco use. Breastfeeding and regular physical activity are protective factors for breast cancer. For cervical cancer, persistent infection with Human Papillomavirus (HPV) is the primary cause of cervical cancer, and other risk factors include reproductive health factors such as high parity, early age of childbearing and number of sexual partners. It is estimated that 20% of breast cancer cases can be prevented by modifying risk factors, and that almost all cases of cervical cancer can be prevented with HPV vaccination (6).

TABLE 3: Risk factors for breast and cervical cancer (7-14)

Risk Factor	Breast Cancer	Cervical Cancer
Sexual and reproductive health factors	Early age of menarche, late age of menopause	Persistent HPV infection is the cause of cervical cancer. Risk increases with: early age of childbirth, high parity, increased number of lifetime sexual partners, chlamydia and other sexually transmitted infections
Overweight/obesity	Increases risk in postmenopausal women. Some studies support that an estimated 20% of cases could be averted by increasing exercise and maintaining healthy weight (7).	Increases risk for adenocarcinoma of the cervix (8, 9)
Physical activity	Protective effect with an estimated risk reduction of 25%-40% with daily physical activity 10)	n/a
Tobacco use	Inconclusive	Increases risk
Alcohol consumption	Increases risk—an estimated 2%-12% risk increase with 10g of daily alcohol consumption (11, 12)	n/a
Oral contraceptives and hormone drug use	Hormone replacement therapy increases risk	Use of oral contraceptives for extended periods of time increases risk (although the benefits outweigh the risk)
HIV/AIDS	n/a	Higher risk for HPV infection in HIV infected women and pre-cancer may evolve faster into invasive cancer
Breast feeding	Protective effect of breast feeding with an estimated risk reduction up to 13% (13, 14)	n/a
Age	Increases with increasing age	Increases with increasing age

2.1 PAHO/WHO recommendations for primary cancer prevention

The PAHO Plan of Action for the Prevention and Control of Noncommunicable Diseases in the Americas (15) provides the overall framework for primary prevention, and control of NCDs. The recommended primary prevention actions include: implementation of the WHO Framework Convention on Tobacco

Control to reduce tobacco use; regulations and policies to reduce alcohol consumption; policies and regulations that support healthy eating, promote breast feeding and promote physical activity, and HPV and HBV vaccination to prevent cervical and liver cancer respectively.

Regarding HPV vaccination, PAHO/WHO recommends introducing it into national immunization programs when **i)** cervical cancer or other HPV-related diseases are a public health priority; **ii)** vaccine introduction is programmatically feasible; and **iii)** sustainable financing can be secured (16). The vaccine is recommended for girls aged 9-13 years and is administered in 2 or 3 doses within a 6 month period (16).

2.2 Primary prevention policies in the non-Latin Caribbean countries

A summary of the health policies and plans related to primary prevention of NCDs, including cancer, as reported to PAHO by the NLC countries in a 2015 survey, is shown in **table 4**.

Tobacco control policies need to be strengthened in almost all countries, particularly to implement several key measures of the WHO Framework Convention on Tobacco Control (FCTC) as noted in **table 4**. Most countries have policies on smoke free spaces, but only Trinidad and Tobago report a ban on smoking in all public spaces. Tobacco advertising policies are lacking in the region and warning labels on tobacco product packages are generally absent, and when in place, too small to be effective (3).

Regarding **obesity prevention**, Barbados, Puerto Rico and Trinidad and Tobago report having developed a national obesity prevention plan; while Belize, Guyana, Jamaica and Saint Lucia note that one is in development. With regards to **alcohol,** NLC countries are lagging, with the exception of Puerto Rico, and need to urgently establish alcohol policies to restrict advertising, promotion, and other measure to reduce its harmful use.

NLC are lagging behind the rest of the Americas region with regards to introducing **HPV vaccines**. Only 6 countries/territories (Bahamas, Barbados, Guyana, Puerto Rico, Suriname, and Trinidad and Tobago) have included the HPV vaccine in their national immunization program. Several counties have conducted studies on HPV prevalence - Guadeloupe (17), Trinidad and Tobago (18, 19) and Jamaica (20) and demonstrated that, similar to other countries, HPV prevalence is high and HPV 16 and 18 are among the most common HPV types which strongly supports the introduction of HPV vaccines. Of note is the negative perspective of some communities against HPV vaccines- observed in Guyana (21) and Puerto Rico (22). This is generally related with poor knowledge of HPV and its association with cervical cancer,

as well as concerns about the safety of the HPV vaccines. This calls attention to the need for much more public awareness and education about HPV, cervical cancer prevention and HPV vaccination

TABLE 4: Primary Prevention Policies in the non Latin Caribbean Countries (3)

Country	Tobacco Control Policy[a]	Obesity Prevention Plan[b]	Alcohol Policy[b]	HPV Vaccination[b]
Antigua and Barbuda	• Generally no smoke-free spaces • No specific taxes on cigarettes • No warnings/advertising banning on tobacco	No	No	No
Bahamas	• No smoke-free spaces • 43% of specific taxes on cigarettes • No warnings/advertising ban on tobacco	No	No	Yes. It was established in 2015 for children 9- 12 years old.
Barbados	• There are smoke-free spaces • 27% of specific taxes on cigarettes • No warnings/advertising ban on tobacco	Yes there is a plan since 2009	No	Yes. It was established in 2015 for girls 11 years old (10-50% coverage).
Belize	• No smoke-free spaces • No specific taxes on cigarettes • No warnings/advertising ban on tobacco	Under development	Under development	No
Dominica	• No smoke-free spaces • 10% of specific taxes on cigarettes • No warnings/advertising ban on tobacco	No	No	No
Grenada	• No smoke-free spaces • No specific taxes on cigarettes • No warnings/advertising ban on tobacco	No	No	No
Guyana	• There are some smoke-free spaces • No specific taxes on cigarettes • No warnings/advertising ban on tobacco	Under development	Under development	Yes. It was established in 2012 for girls 10- 13 years old (10-50% coverage).
Haiti	• Up to 2 public places completely smoke-free • No warnings/advertising ban on tobacco	Not Reported	Not reported	Not reported
Jamaica	• There are smoke free places • 26% of specific taxes on cigarettes • No warnings/ advertising ban of tobacco	Under development	Under development	No
Puerto Rico	• No data in the 2015 PAHO/WHO NCD Capacity Survey	Yes there is a plan since 2007	Yes there is a plan for alcohol prevention since 1972	Yes. Since 2006 in girls 11-12 years old (10-50% coverage).
Saint Kitts & Nevis	• No smoke-free spaces • No specific taxes on cigarettes • No warnings/advertising banning on tobacco	No	No	No
Saint Lucia	• No smoke-free spaces • 49% of specific taxes on cigarettes • No warnings/advertising banning on tobacco	Under development	Under development	No
Suriname	• There are smoke-free spaces • 49% of taxes on cigarettes • Warnings/advertising banning on tobacco	No	No	Yes. Since 2013 in girls 11-12 years old(50-70% coverage).
Trinidad and Tobago	• Every public space is smoke-free • 17% of specific taxes on cigarettes • Warnings/advertising banning on tobacco	Yes there is a plan since 2012	No	Yes. Since 2013 in girls and boys from 11 years old (less than 10% coverage)

Sources: a. Cancer in the Americas. Basic indicators (PAHO, 2013). **b.** Pan American Health Organization. Tobacco Control Report for the Region of the Americas. WHO Framework Convention on Tobacco Control: 10 Years Later [Internet]. (PAHO, 2016**).**
Available at:: http://www.paho.org/hq/index.php?option=com_content&view=article&id=11965&Itemid=40312&lang=en

3. Cancer Screening and Early Detection

Organized screening programs, with quality assurance processes, contribute to early detection of breast and cervical cancer, and can lead to improved outcomes. For breast cancer, mammography coupled with treatment, has shown to reduce mortality (4). For cervical cancer, screening with the Papanicolau (Pap) test, coupled with treatment has shown to reduce mortality; and new cervical cancer screening methods are available- HPV DNA testing, and visual inspection with acetic acid (VIA)(23). To be effective, however, screening programs require robust health systems that can assure: i) **high screening coverage** in the age group of women at risk for breast or cervical cancer; ii) **follow up** diagnosis and treatment for all women detected through the screening program with a suspicion of cancer, or cervical precancer; and iii) **quality** assurance of the screening test, and treatment method.

3.1 PAHO/WHO recommendations for breast and cervical cancer screening

Population based breast and cervical cancer screening should be part of a comprehensive cancer plan, when resources and health system capacity permit having an organized, quality screening program. The specific interventions and strategies will depend on the resources available, and thus a resource-stratified approach is recommended.

For breast cancer screening, based on an extensive review of evidence, WHO issued a position paper on mammography screening, as summarized in **Table 5** (4).

	TABLE 5: WHO recommendation for mammography screening		
Resource level	**40-49 years of age**	**50-69 years of age**	**70-75 years of age**
Well-resourced settings with strong health systems	**Suggested,** if conducted in the context of rigorous research, monitoring and evaluation	**Recommended,** if conditions for implementing an organized program are met, with a screening interval of 2 years	**Suggested**, if conditions are met and only after programs are established for women aged 50-69.
Limited-resource settings with relatively strong health systems	Recommended **against**	**Suggested,** if conditions for implementing an organized program are met, with a screening interval of 2 years	Recommended **against**
Limited-resource settings with weak health systems	Recommended **against**	Early diagnosis of women with symptomatic lesions, followed by treatment, should be the priority in this setting. Clinical breast examination seems to be a promising screening approach for these settings.	Recommended **against**

It is recognized that, in order to be effective, screening services must reach a high proportion of the at risk population. In this regard, the **PAHO NCD Plan of Action** (15) identifies a target for countries to achieve at least a 50% population coverage among women 50-69 years of age for breast cancer

screening, and that is linked to effective treatment. In addition, mammography services must adhere to quality assurance procedures to attain high quality results and quality of care. Gaps in quality assurance of mammography have been noted in the region. In this regard, PAHO is currently developing a how to guide for mammography quality assurance procedures, which will be issued later in 2016.

For **cervical cancer screening**, based on an extensive review of evidence PAHO/WHO issued guidelines in 2015 (5). It recommends screening women aged 30-49 years, maximizing coverage and follow up care, and extending to younger and older age groups as resources permit (5). All three screening tests are recommended: HPV DNA tests, PAP and VIA; however, the recommendation is to use HPV test as a primary screening test, when feasible, based on its superior performance. Strategies include a screen and refer approach; screen and treat in the same visit; or screen, triage and treat. A decision tree to determine which test and which strategy is suitable for the country context, based on the available resources, is shown in **Figure 1**. The PAHO NCD Plan of Action includes a target for countries to achieve a cervical cancer screening coverage of 70% in women aged 30-49 years, linked to treatment (15).

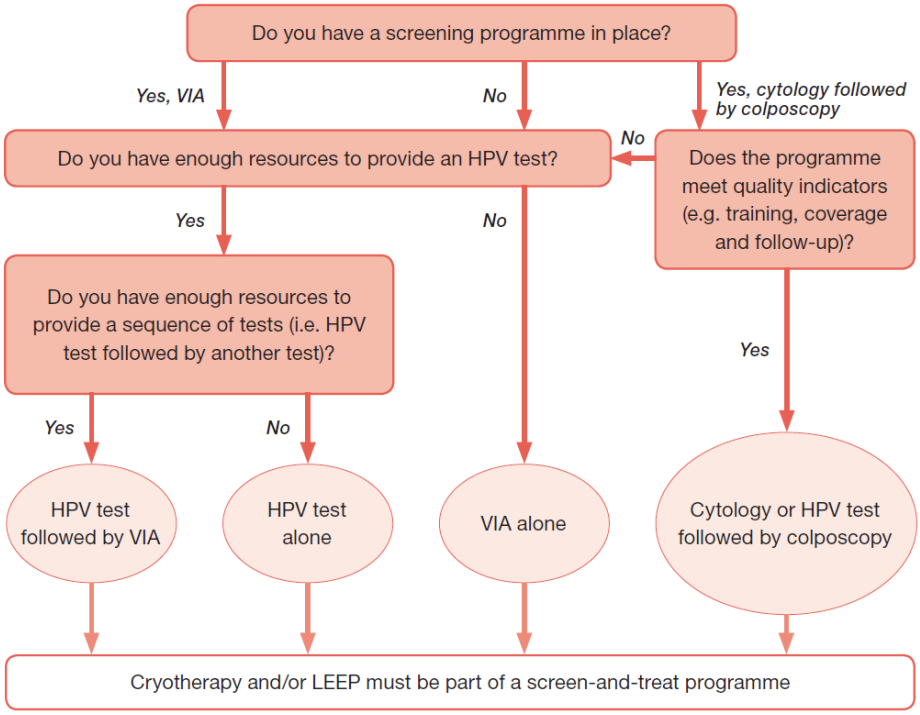

Figure 1: Decision tree for screen and treat strategies for cervical cancer
Source: WHO guidelines for screening and treatment of precancerous lesions for cervical cancer prevention (5)

3.2 Screening for women's cancer in the non-Latin Caribbean.

Table 6 summarizes the availability and characteristics of breast and cervical cancer screening programs in several countries in NLC, based on information provided by Ministries of Health to PAHO in the 2015 NCD Capacity Survey.

TABLE 6:Characteristics of screening programs for breast and cervical cancers in the non-Latin Caribbean (3)

Country	Breast Cancer	Cervical Cancer
Antigua and Barbuda	Opportunistic program uses CBE for every woman, unknown coverage. 2 MU.	Opportunistic program uses PAP test, unknown coverage
Bahamas	Opportunistic program uses BSE or MMG,10-50% coverage. 4 MU.	Opportunistic program uses PAP test in women 18-59 years of age, unknown coverage
Barbados	No screening program for breast cancer. 1 MU.	No screening program for cervical cancer
Belize	CBE recommended for women between 21-70 years old. 4 MU.	Organized program uses PAP test in women from 21 to 70 years of age, reported 10-50 % coverage
Dominica	Opportunistic program uses MMG for women >15 years old, reported more than 70 % coverage. 2MU.	Opportunistic program uses PAP test in women 18-65 years of age, reported coverage higher than 70%
Grenada	Opportunistic program for women between 18-45 years of age, reported 10-50% coverage. 1 MU.	Organized program uses PAP test, unknown coverage
Guyana	No screening program for breast cancer. 3 MU.	Organized program uses VIA in women 30-49 years of age, reported 10-50% coverage
Haiti	No screening program for breast cancer	No screening program for cervical cancer
Jamaica	Opportunistic program uses CBE for every woman, reported more than 70 % coverage. 11 MU.	Organized. PAP test in women 25-54 years of age, reported 10-50% coverage
Puerto Rico	Opportunistic program uses CBE for every woman, reported more than 70 % coverage.	Organized. Pap test/21-65 years of age/every 3 years HPV and Pap test/30-65 years of age/every 5 years
Saint Kitts Nevis	No screening program for breast cancer. 1 MU.	Opportunistic program uses PAP test in women 18-55 years of age, reported 10-55% coverage
Saint Lucia	Organized program uses CBE for woman older than 16, reports less than 10% coverage. 2 MU.	Organized program uses PAP test in women 18-55 years of age , reported less than 10% coverage
Suriname	No screening program for breast cancer. 4 MU.	No screening program for cervical cancer
Trinidad and Tobago	No screening program for breast cancer. 5 MU.	no information provided

Abbreviations: CBE (Clinical Breast examination) **BSE** (Breast Self-Examination) **MMG** (Mammography) **MU:** number of mammography units. **Source:** PAHO 2015 NCD capacity survey

The majority of screening programs in NLC are opportunistic and report a low screening coverage, well below the target established in the PAHO NCD Plan of Action (15). For **breast cancer screening**, only Saint Lucia reported an organized screening program. CBE is reported as the most commonly used breast cancer screening technique in NLC countries. Mammography services, mainly used for diagnostic purposes rather than for screening programs, are available in the public sectors of 8 countries - Antigua & Barbuda, Bahamas, Barbados, Saint Kitts & Nevis, Saint Lucia, Suriname, Trinidad & Tobago and Puerto Rico (3). The breast cancer screening policies vary considerably by country, in terms of age groups and frequency of screening in the NLC.

Low screening coverage has been noted in almost all countries in NLC as noted in table 6. In addition, several studies have noted low screening coverage, such as a study in Jamaica indicating that only 5% of women diagnosed with breast cancer had actually been screened with mammography (24). Another study in Trinidad & Tobago showed that only 7% of women with breast cancer were first detected by mammography (25). Yet for programs to reach a high screening coverage, health system strengthening will be required. For example, many countries note limited number of mammography units, malfunctioning units, and limited service delivery sites, all which hinder population access to mammography (26, 27). Several research studies to examine ways to improve breast cancer are underway in Trinidad and Tobago (26, 28, 29) and Jamaica (24, 30), and will provide valuable information for the region.

For **cervical cancer screening**, only 5 countries -Belize, Grenada, Puerto Rico, Guyana and Saint Lucia- report having an organized screening program. Antigua & Barbuda, Bahamas, Dominica, Saint Kits & Nevis have opportunistic programs. Barbados, Suriname and Trinidad & Tobago did not report any national cervical cancer screening program. The screening technique generally used is the PAP test, which is widely available in both public and private sectors (3). HPV testing is not yet included in the screening programs of NLC countries. However, HPV testing has been used in some feasibility studies in the region (17-20, 31, 32). The coverage achieved by cervical cancer screening programs in the NLC is also far below the recommended screening coverage of 70% (15), as documented in **Table 6** as well as in studies from the region (33, 34).

Low screening coverage is related to health system barriers, as well as women's attitude and knowledge about cervical cancer screening. In the NLC, studies regarding attitudes, beliefs or socioeconomic factors related to participation in cancer screening were conducted in Grenada (35), Trinidad & Tobago (36), Jamaica (33, 37), Haiti (38) and Puerto Rico (39). Cervical cancer education interventions were implemented in Jamaica (40) where knowledge and intention to screen for cervical cancer increased as a result of the intervention. These efforts are promising, but clearly much more intensified health education needs to be put in place in all countries of NLC in order to increase breast and cervical cancer screening coverage.

4. Cancer Diagnosis and Treatment

To be effective, cancer control programs require sufficient health system capacity for quality, timely and accessible diagnosis and treatment. This includes colposcopy services (for cervical cancer), pathology, surgery, chemotherapy and radiotherapy. Treatment for **breast cancer** is based on the cancer stage and characteristics of the tumor, therefore pathology services must be able to provide such information to clinicians. Treatment options must include –surgery with or without radiation therapy- and systemic treatment- chemotherapy, hormone therapy (tamoxifen), targeted therapy (trastuzumab).

Treatment for **cervical cancer** is also determined on the cancer stage (5, 23), and pathology services must be in place to provide diagnostic and staging information to clinicians. For cervical pre-cancer, treatment options include cryotherapy, LEEP (loop electrosurgical excision procedure) or cold knife conization (CKC). For invasive cervical cancer treatment options include surgery, radiotherapy or chemotherapy.

4.1 PAHO/WHO recommendations for breast and cervical cancer treatment

The PAHO/WHO recommendation is for a comprehensive cancer plan, which includes health system capacity for diagnosis, treatment and supportive care, to cure or prolong the patient's life and ensure the best possible quality of life. The most effective and efficient treatment programs are those that: **a)** are provided in a sustained and equitable way; **b)** are linked to screening and early detection; and **c)** adhere to evidence-based standards of care patient-centered, and multidisciplinary approach. The WHO recommendations for cervical cancer treatment are published in the Guide on Comprehensive Cervical Cancer Control (23), and include the following: for pre-cancer lesions, treatment with cryotherapy (if lesion size is suitable for this type of treatment) and for larger lesions LEEP or CKC. For invasive cancer, the recommendation follows the guidelines established by other major professional associations and include surgery, radiotherapy and chemotherapy. For breast cancer treatment, WHO does not have a specific guideline but has included chemotherapy, trastuzumab and tamoxifen in the WHO model list of essential medicines (41).

The PAHO Strategic Fund, a bulk procurement mechanism for essential medicines, includes chemotherapy drugs as well as tamoxifen, and offers one unique price to all Member States to procure these medicines and improve access to cancer treatment. This is also accompanied by technical support from PAHO in the management of pharmaceutical supply systems and the acquisition of low cost products that meet international quality standards.

4.2 Treatment capacity for women's cancer in the non-Latin Caribbean

Table 7 summarizes the health system capacity in the NLC region for cancer treatment, based on information provided by Ministries of Health to the PAHO 2015 NCD capacity survey. The study shows that in the NLC countries, chemotherapy is generally available in 8 countries- Antigua & Barbuda, Barbados, Dominica, Grenada, Jamaica, Puerto Rico, Suriname and Trinidad & Tobago. Radiotherapy is only in the public health system in 4 countries - Barbados, Guyana, Jamaica and Trinidad & Tobago (42). *Tamoxifen*, an essential drug for some types of breast cancer treatment (41), is widely available and provided free of charge in Antigua & Barbuda, Barbados, Dominica, Guyana, Jamaica and Trinidad & Tobago , but not available in St Kitts and Nevis or Grenada (27, 42). Trastuzumab is generally not available in the NLC region.

TABLE 7: Public sector treatment capacity for women's cancer in the non Latin Caribbean

Country	Available options for cervical pre-cancer treatment [a]	Is pre-cancer treatment free of charge?[a]	Radiotherapy available[b]?	Radiotherapy free of charge[b]?	Chemotherapy available?[c]	Chemotherapy free of charge?[c]	Tamoxifen free of charge [**]?
Antigua & Barbuda	**no data**	no data	No	No	Yes	Yes	Yes
Bahamas	**no data**	Partially	Yes	No	No	No	No
Barbados	Colposcopy, Cryotherapy, LEEP, CKC	Yes	Yes	Yes	Yes	Yes	Yes
Belize	Colposcopy, LEEP,CKC	Partially	No	No	No	No	No
Dominica	Colposcopy, Cryotherapy, LEEP, CKC	No	No	No	Yes	Yes	Yes
Grenada	**no data**	no data	No	No	Yes	Yes	No
Guyana	Colposcopy, Cryotherapy,LEEP,	Yes	Yes	Yes	No	No	Yes
Jamaica	Colposcopy, Cryotherapy, LEEP, CKC	Yes	Yes	Yes	Yes	Yes	Yes
Puerto Rico (US)	**no data**	no data	Yes	No	Yes	Yes	No
Saint Kitts & Nevis	Colposcopy, CKC	No	No	No	No	No	No
Saint Lucia	**no data**	no data	No	No	No	No	No
Suriname	Colposcopy, Cryotherapy, LEEP,	Partially	Yes	No	Yes	Yes	No
Trinidad & Tobago	Colposcopy, LEEP	Partially	Yes	Yes	Yes	Yes	Yes

SOURCES: a. http://www.paho.org/hq/index.php?option=com_docman&task=doc_view&gid=23829&Itemid**. b.** Cancer in the Americas. Basic indicators (PAHO, 2013).**c**. PAHO NCD Capacity survey 2015. **d**. Bull World Health Organ 2013;91:640–649. **e**. NCD Capacity survey 2015 ** *Tamoxifen is available in all the countries except saint Kitts and Nevis and Grenada*

For cervical pre-cancer treatment, the majority of the NLC countries report having colposcopy, cryotherapy, LEEP and CKC, as noted in table 7 and in the the PAHO situational report on cervical cancer in the Caribbean (43). Although cancer treatment services are reported to be available in many

countries, many challenges continue to assure adequate treatment. This includes delayed referrals, late stage diagnosis, delayed treatment, quality of radiotherapy services, among other challenges.

5. Palliative Care

Palliative care is an essential element of cancer control as it improves the quality of life of the patients and their families. Palliative care seeks to relieve both physical and emotional pain and helps the patients to find peace and dignity during difficult or final phases of the disease. To be established, palliative care services need multidisciplinary teams that include the patient, her family and close support persons, community health workers, palliative health care providers. Palliative care services include pain relief, symptom control, as well as emotional, psychological and spiritual support.

5.1 PAHO/WHO recommendation for palliative care

PAHO/WHO recommends palliative care services as an integral part of a comprehensive cancer plan. Specific policy recommendations have been issued for palliative care medicines (44, 45), and palliative care in children (46). Recently, in 2014, the World Health Assembly issued the first worldwide resolution on palliative care, urging Member States to improve access to palliative care services as a key component of health system strengthening, with a special emphasis on community and home-based care.

Palliative care is included in the PAHO NCD Plan of Action (15), which calls for improvements in the access to palliative care as assessed by an increase in morphine equivalent consumption of opioid analgesics. Opioids are included in the WHO list of essential medicines (41) and are offered at a unique low price for all Member States through the PAHO Strategic Fund.

5.2 Palliative care services in the non-Latin Caribbean

A recent systematic review (47) documents the status of palliative care services in the Caribbean. This review highlights the need for improving training of health providers, educating the public, and guaranteeing the access to palliative care services in the region.

Table 8 shows the status of palliative care policies and services in NLC countries, according to the data reported by the countries in the PAHO 2015 Country Capacity Survey. Only 3 countries -Haiti, Puerto Rico and Trinidad & Tobago- report having generally available palliative care services in the public system. Morphine is available in the public sector in 5 countries - Antigua & Barbuda, Bahamas, Dominica, Puerto Rico, and Suriname. As such opioid consumption is still very low, for example the USA has a morphine equivalent consumption 40 times higher than that in Barbados.

TABLE 8: Palliative care services in the non Latin Caribbean region				
Country	**Palliative care services available?[a]**	**Palliative care in community home-based care available?[a]**	**Availability of oral morphine[a]**	**Opioid consumption in morphine equivalence excl. methadone (mg/person)[b]**
Antigua & Barbuda	No	No	Yes	4.3
Bahamas	No	No	Yes	7.3
Barbados	No	Yes	No	14.3
Belize	No	No	No	5.0
Dominica	No	No	Yes	3.8
Grenada	No	No	Yes	1.8
Guyana	No	No	Unknown	2.1
Haiti	Yes	No	No	0.16
Jamaica	No	No	Yes	3.8
Puerto Rico	Yes	Yes	Yes	No data
Saint Kitts & Nevis*	No	No	No	2.2
Saint Lucia	No	No	No	3.5
Suriname	No	No	Yes	0.71
Trinidad & Tobago	Yes	Yes	Unknown	5.7

SOURCES: a. Cancer in the Americas. Basic indicators (PAHO, 2013)**.**
b. Pain & Policy Studies Group. University of Wisconsin-Madison **Available at:** http://www.painpolicy.wisc.edu/countryprofiles

Conclusions

- Cervical and breast cancer are a significant and important women's health issue in the non Latin Caribbean (NLC) region, where 16,305 women are diagnosed and 6,182 women die from these cancer types each year.
- PAHO/WHO recommends a comprehensive cancer control plan, with leadership and sufficient funding, and strategies for primary prevention, screening and early detection, diagnosis, treatment and palliative care, using a resource-stratified approach.
- In the NLC region, limited funding along with health system barriers challenge the development and implementation of effective breast and cervical cancer programs.
- To improve the cervical cancer situation, HPV vaccines need to be urgently implemented in all NLC countries, along with community education initiatives and organized screening programs that achieve a high screening coverage with quality testing, and linked to timely and effective treatment.
- To improve the breast cancer situation, early diagnosis and treatment capacity needs to be significantly improved in all countries.
- All NLC countries need to establish palliative care services and ensure that adequate pain and symptom control, together with emotional, psychological and spiritual support are provided to its citizens.
- Cancer registration needs to be improved to be able to record cancer incidence, mortality and inform cancer programs and policies.

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