

Abstract

The Caribbean Oral Health Initiative: An International Innovative Approach between the Academia and the Industry to Improve Oral Health Across the Region

Augusto R. Elías-Boneta, DMD, MS¹, Agnes Rivera, RDH², Rahul Naidu, DDS³, Yilda Rivera, DMD¹, Ramón González, DDS, MPH¹, Professor Gloria Nazario Pietri¹, Dr. Elba Díaz, DMD, MSD, MPH¹ and Dr. Elaine Pagán, DMD¹

¹University of Puerto Rico School of Dental Medicine, ²Colgate-Palmolive Company Puerto Rico, ³The University of West Indies Dental School

Background: Several reports have established the need for stronger educational and research initiatives to reduce oral health diseases and have called for a review in the educational and research initiatives. In 2005, the Panamerican Health Organization (PAHO) highlighted many barriers on their ability to reach all the populations. These include limited or nonexistent national and provisional data for other oral and craniofacial diseases (beside prevalence of dental caries), and the need of each country to identify disadvantaged groups and develop interventions to reduce oral health status disparities in the Region. In 2010, the World Health Organization (WHO) gave high priority to oral health among emerging public health conditions. Similar barriers were identified in Healthy People 2000 and 2010 in the United States.

Methodology: The Caribbean Oral Health Initiative (COHI) idea was conceived in 2012 as a mechanism. In November of 2013 academicians, researchers, professionals and government officials (Senior Dental Officers or other key members at the Health Authorities level) from the Caribbean Region convened in a First Summit supported by The Caribbean Oral Health Initiative (COHI), University of Puerto Rico - School of Dental Medicine, and Colgate-Palmolive. The primary aim was to expand the educational and research activities and identify strategies for delimiting a collaborative approach in order to improve oral health among the Region.

Delegates from each country were asked to prepare a comprehensive report in the form of a PowerPoint presentation. Report guidelines were distributed to ensure cross-country comparison and later analysis. Instead of attempting to analyze the reports, the organizers divided the data, and used it as background information for the Summit's breakout sessions. Each country's delegate presented their reports at the beginning of the Summit. Four breakout sessions took place during the Summit. The purpose of the breakout sessions was for working groups to identify specific challenges, opportunities and to propose options/strategies to reach Regional issues in four main areas. Each breakout session had specific aims. The four sessions were: 1) Policy Options for Effective Actions, 2) Strategies for an Effective Oral Health Workforce, 3) Disease Prevention and 4) Oral Health Promotion and An Oral Health Research Agenda for the Caribbean.

Findings: Delegates identified many reasons for the lack of progress on effective oral health public policies (programs, etc.) and for the lack of strong educational and research initiatives among Caribbean countries. Some of the reasons highlighted by the group were inappropriate budget allocation, inadequate provision of resources and materials, a disarticulated regulatory framework and the need of an appropriate amount of oral health professionals along with the delimitation of specific priorities and strategies in each country. A consensus to create collaborative agreements was reached in order to develop a robust educational and research program and to expand and diversify oral health workforce using the University as a leader of these initiatives.

Conclusions: A summary of the conclusions achieved during the workgroup discussions was also presented during the summit. Some of these conclusions are:

1. To establish a robust training program, using the “train the trainer” approach and other novel strategies, with regional scope to strengthen the workforce capabilities. To establish partnerships and collaborative agreements with academic institutions and professional organizations that can help with the training programs.
2. To establish a robust research program founded on the development of a research infrastructure, to increase the number of experts and their capabilities for research in the Region.
 - a. It will use participatory action research approaches
 - b. It will focus on the oral/systemic health approach;
 - c. It will be focused on the production of knowledge
 - d. It will emphasize in the development of epidemiological and translational studies that enhances the creation of effective and sustainable public policies.
3. To establish collaborative agreements with academic institutions and professional organizations that can help with the educational (training)/research program.

Results: As a result of The Caribbean Oral Health Initiative discussion a series of activities were planned. Some of them have already taken place while others are in a planning process:

1. A course in prevention and detection of Oral Cavity and Oropharyngeal Cancer emerged as a collaboration between The Caribbean Oral Health Initiative, the University of Puerto Rico School of Dental Medicine and the Dominican Republic Ministry of Health. The activity was held from December 3-6, 2015 in Santo Domingo, Dominican Republic. Forty-five (45) oral health professionals were trained. Sixty residents of the Dominican Republic were screened during an Oral Cavity and Oropharyngeal Cancer Prevention and Detection clinic.
2. Coamo, a municipality located in the south-central region of Puerto Rico, was the host of the first Oral Health Promotion and Disease Prevention activity. A collaboration between Colgate-Palmolive, the Puerto Rico Health Department, the School of Dental Medicine, the Coamo Municipal Government and COHI; provided the first prevention and detection of Oral Cavity and Oropharyngeal Cancer massive screenings and free fluoride varnish application. Currently, the collected data is under analysis; and a school-based program proposal is being drafted in collaboration with all the partners.
3. A Needs Assessment of training needs of the existing and future workforce will be done to identify the capacity building needs of each country.

The Caribbean Oral Health Initiative: An International Innovative Approach between the Academia and the Industry to Improve Oral Health Across the Region

Augusto R. Elías-Boneta, DMD, MS¹, Agnes Rivera, RDH², Rahul Naidu, DDS³, Yilda Rivera, DMD¹, Ramón González, DDS, MPH¹, Professor Gloria Nazario Pietri¹, Dr. Elba Díaz, DMD, MSD, MPH¹ and Dr. Elaine Pagán, DMD¹

¹University of Puerto Rico School of Dental Medicine, ²Colgate-Palmolive Company Puerto Rico, ³The University of West Indies Dental School

Background

The World Health Organization (WHO) in 2010, for the first time in the organization's history, gave high priority to oral health among emerging public health conditions. The criteria for the assignment were: that the condition presented a large aggregate burden, displays large disparities, and disproportionately affects certain populations or groups within populations.¹ Oral Health conditions were categorized as an emerging epidemic by WHO. However, earlier in 2000, the United States Surgeon General (David Satcher) described oral disease as a silent problem (epidemic), especially in the underserved populations².

Some years in advance (2005), the Regional Oral Health Program of the Pan American Health Organization (PAHO) anticipated the sign of an ongoing health (particularly-Oral Health) crisis in the Americas. This was due to poor and inequitable health care, changing patterns of oral diseases, and a decrease in claimed funding; the integration of oral health into primary health care services was demanded³. In the same report, PAHO highlighted many barriers on their ability to reach all the populations. These include limited or nonexistent national and provisional data for other oral and craniofacial diseases (beside prevalence of dental caries), and the need of each country to identify disadvantaged groups and develop interventions to reduce oral health status disparities in the Region.

Similar barriers were identified in Healthy People 2000 and 2010 in the United States. The barriers are consistent with what other scholars call the Caribbean population heterogeneity. They respond to inequalities in income and the capabilities of individuals and families as well as to the variation of social and environmental exposures that are directly related to infectious diseases, specific risk factors, and other health burdens in the urban or rural areas that cannot be solved only with the Conditioned Cash Transfer program⁴. Although some regional oral health policies and strategies for program implementation (especially for dental caries) were generally outlined by PAHO, the responsibility to set particular goals and outline strategies to achieve successful reductions on oral diseases burden were left to each country's government⁵.

Some Caribbean scholars claim oral health in the Region has been a low priority for local governments⁶. In addition, concerns arose regarding the inadequate access to dental care provided by the public sector (with private practice treatment being difficult to access for the most disadvantaged groups), and the lack of oral health care personnel or inadequately trained personnel in some countries⁴⁻⁵.

¹Petersen PE, Kwan S. Equity, social determinants and public health programs – the case of oral health. *Community Dent Oral Epidemiol* 2011.

²Benjamin, R. Oral Health: The Silent Epidemic. *Public Health Rep.* 2010 Mar-Apr; 125(2): 158–159.

³Regional Oral Health Program. Strategy for Improving General Health in the Americas through Critical Advancements in Oral Health the Way Forward: 2005-2015. Regional Office the WHO: Pan American Health Organization; 2005.

⁴Gomes C...Family, Poverty and Inequalities in Latin America and the Caribbean. *Sociology Mind*. Vol 3. No 1: 25-31. 2013.

⁵Adewakun, AA. Oral Health. In Pan American Health Organization: Health Condition of the Caribbean. Washington, DC: Pan American Health Organization; 1994:221-235. (Scientific Publication 561)

⁶Naidu, R., Harracksingh, A. Oral Health Inequalities in the Caribbean. *UWI Today* page 3. (Supplement to Trinidad Guardian Newspaper December 2011). Available at: http://sta.uwi.edu/uwitoday/archive/november_2011/online_oralhealth.pdf

Prior Regional Oral Health Efforts

Two prior efforts are highlighted in the Caribbean Region. The first effort was a strategic oral health policy document conceptualized in 1995 in a Caribbean Atlantic Regional Dental Association (CARDAs) meeting, later revised in 1997 and 2003⁷. The aim of the document was to provide a framework for PAHO oral health interventions in the English Caribbean with guidelines for the development and implementation of a strategy to improve oral health focusing in treatment needs, oral health promotion, disease prevention and the use of appropriate methodologies. The document was revised by two oral health leaders in the English Caribbean, Dr. Rahul Naidu and Dr. Fannye Thompson, along with feedback of the Heads of Dental Services in the area. The actions articulated in the document focused on the need of developing and using modern data gathering technologies, conducting standardized epidemiological studies and assessments in each country⁸.

The second effort was a workshop to draft a research agenda for the Latino community in 2004 developed by the Hispanic Dental Association (HDA) and the University of Puerto Rico - School of Dental Medicine (UPR-SDM). A group of health care providers, educators, academicians, researchers and policy experts convened to examine the status of the Hispanic oral health research and to identify gaps in the existing data and its methodology. As result, the attendees recommended the development of a multidisciplinary pipeline of researchers and a collaborative research approach to address the growing needs of the Latinos and to advance existing oral disease prevention and promotion efforts⁹. One of the organizers of the activity was the Assistant Dean of Research of the UPR-SDM; Dr. Augusto R. Elías-Boneta.

Caribbean Oral Health Initiative

The Caribbean Oral Health Initiative (COHI) idea was conceived in 2012 with initial conversations between Dr. Elías-Boneta from the University of Puerto Rico School of Dental Medicine, and Bernal Stewart, and Agnes Rivera from Colgate Palmolive about the oral health status of the Caribbean Region. The need to expand the educational/research activities and strategies for delimiting a collaborative approach among the Region motivated the formation of the Initiative¹⁰. Colgate-Palmolive collaborative efforts, along with the officers in the Region and Dr. Elías-Boneta's past experiences resulted in the formation of a Steering Committee that included educators, academicians and researchers from the UPR-SDM, and delegates from the Region¹¹.

In November of 2013 academicians, researchers, professionals and government officials (Senior Dental Officers or other key members at the Health Authorities level) from the Caribbean Region convened in a First Summit supported by The Caribbean Oral Health Initiative (COHI), University of Puerto Rico - School of Dental Medicine, and Colgate-Palmolive. The countries represented were Barbados, Dominican Republic, Grenade, Guyana, Jamaica,

⁷ Supported by Pan American Health Organization, Regional Office of the World Health Organization, and the Caribbean Community Health desk.

⁸ PAHO/CPC/3.1/05.7. Oral Health-Office Caribbean Program Coordination. Available at: http://www.paho.org/ecc/index.php?option=com_docman&task=doc_view&gid=7&Itemid=154.

⁹ Ramos-Gomez, F., Cruz, G., Watson, R., Canto, M., Elías-Boneta, A. Latino Oral Health: A Research Agenda toward eliminating oral health disparities.

¹⁰ Bernal Stewart and Agnes Rivera are two key leaders in the oral health research and promotion activities how work at Colgate-Palmolive. Bernal Stewart is the Manager of Technology at Clinical Dental Research and Development Technology Center in Piscataway, New Jersey. Agnes Rivera is the Regional Professional Relations Manager of Colgate-Palmolive Caribbean.

¹¹ The Steering Committee members are Dr. Augusto R. Elías-Boneta(Chair), Ms. Agnes Rivera (Co-Chair) Dr. Rahul Naidu, Dr. Yilda Rivera, Dr. Ramón González, Professor Gloria Nazario Pietri, Dr. Elba Díaz and Dr. Elaine Pagán.

Trinidad & Tobago and Puerto Rico. The primary aim was to develop a collaborative approach to improve oral health across the Region. This report addresses the process prior to the Summit and the main results made in thematic discussions.

Methodology

In preparation for the summit, delegates¹² from each country were asked to prepare a comprehensive report in the form of a PowerPoint presentation. Report guidelines were distributed to ensure cross-country comparison and later analysis¹³. **Table 2** presents a summary of the reports and relevant data by country. Instead of attempting to analyze the reports, the organizers divided the data, and used it as background information for the Summit's breakout sessions. Each country's delegate presented their reports at the beginning of the Summit.

Guidelines for the Breakout Session

The purpose of the breakout sessions was for working groups to identify specific challenges, opportunities and to propose options/strategies to reach Regional issues in four main areas. Each breakout session had specific aims, which were:

- 1) **Policy Options for Effective Actions.** This session fostered a discussion around the access to oral health care services, the workforce training requirements, insurance coverage, and other crucial issues as well as to compare local oral health care policies (effectiveness and challenges).
- 2) **Strategies for an Effective Oral Health Workforce.** This session assessed the profile of oral health workforce in the Region, how well prepared are they to meet the needs of the population, what major changes are required to improve the delivery of services and how working together helps advance the implementation of these changes.
- 3) **Disease Prevention and Oral Health Promotion.** This session aims to promote an exchange of ideas to discuss what the Region is doing to reduce oral health diseases, what challenges are faced in the education of oral health care and the access people have to oral health services. In addition, actions to improve oral health promotion and delivery of oral health care services were evaluated.
- 4) **An Oral Health Research Agenda for the Caribbean** promoted a dialogue around the ongoing research activities in the Region, identified needs (policies, materials, funding, etc.) and developed a consensus for the implementation of a common agenda that addresses oral health regional issues and fosters a research culture.

By the end of the sessions, the groups presented their main results on the specific topics and provided alternatives to address the different aims. All of these discussions were recorded and transcribed in order to disseminate the session dialogues and to enhance the future development of a strategic plan for COHI.

¹²Dr. Fanny V. Thompson - Senior Dental Officer, Ministry of Health (Barbados), Dr. José Manuel Saldaña – Vice-Minister at the Oral Health Department/Public Health Ministry (Dominican) Republic), Dr. Shameer Ali - Principal Dental Officer, Ministry of Health (Guyana), Ms. Juliet Yolande Powell – Regional Dental Coordinator, Southern Regional Health Authority (Jamaica), Dr. Visha Ramroop - Lecturer Community Dentistry/Unit of Child Dental Health (Trinidad and Tobago) and Dr. Ramón González - Professor, University of Puerto Rico School of Dental Medicine (Puerto Rico).

¹³ ADD

Findings

It is important to note that every breakout session underwent a unique discussion process and in certain sessions they intertwined, resulting in an enriched vision of the needs in the Region. In this section we attempt to summarize the main challenges, opportunities, and proposed strategies/action to attain the different aims of the Summit. During the analysis phase a deeper literature review was conducted to foster further comparisons and fill data gaps in some relevant topics discussed in the breakout sessions. Table 1 and 3 summarize the main findings.

Policy Options for Effective Actions

Delegates identified many reasons for the lack of progress on effective oral health public policies (programs, etc.) among Caribbean countries. The main reasons highlighted by the group were inappropriate budget allocation, inadequate provision of resources and materials, a disarticulated regulatory framework and the need of an appropriate amount of oral health professionals along with the delimitation of specific priorities and strategies in each country.

A consensus regarding policy-related aspects was achieved on the importance of the Caribbean governments to have robust evidence on the oral health status of the countries, existing disparities, and the development of surveillance systems to develop and implement effective policies. Along with the actual treatment, a curative approach towards disease prevention and promotion was recommended. Incremental changes were proposed to initiate structural changes, start gathering evidence and design effective evaluation systems to observe the specific interventions in each country. As a short-term strategy to reach children and families, some of the main incremental changes proposed were school-based interventions and social marketing.

The interactions between diverse stakeholders are a key component in the integration and discussion of particular issues of Oral Health in the political agenda at each nation. Developing a collaborative approach around all COHI members and their allies is the main strategy to achieve that interaction and influence the decision maker's perception on the importance of oral health. Surveillance activities and data sharing is a key element for developing effective policies and strategic actions and in the long run, ensure an adequate oral health system in the Region. Even though public policy interventions are never exactly the same, they can share the same goals and objectives. The data from the pilot interventions as well as an assessment of the status of the public dental facilities (materials, personnel, equipment and others) will be crucial to evaluate the context to determine necessary changes in each country.

An organizational restructure is proposed creating in each country a Chief Dental Officer (CDO) position. The CDO's responsibilities will include the position of Head of Oral Health Services, government's principal advisor on dental public health, will address the workforce, facilitate and administer the budget and develop a strategic plan for the nation. The budget should be prioritized and allocated to research and development activities, services and academia.

Strategies for an Effective Oral Health Workforce

Diversity and the lack of dental health professionals were acknowledged in the Region; some nations have dental therapists, dental nurses, dental assistants, or dental hygienists, along with dentists. A consensus to create a collaborative agreement was reached in order to develop a robust training program and to expand and diversify oral health workforce using the University

as a leader of this initiative. The proposed program should be able to reach the expanded functions of the auxiliary personnel through online continuing education courses. The goals of the training program will be aligned by country and as a Region in order to improve the oral health workforce. Online courses in epidemiology and biostatistics should be included in the online offerings.

A “train the trainer” strategy was also recommended for the Region. The “train the trainer” program will provide the key oral health professionals the skills and knowledge to develop and provide technical support for the elaboration of programs, conduct epidemiological research, and develop capacity building activities. Liaisons with Dental schools will be fostered to set them as leaders in the effort. A curricular assessment is recommended to evaluate a promotion system of the auxiliary personnel to expand their functions in order to deal with the lack of dental professionals available in each country and to develop a strong competency based curriculum to train the Caribbean’s future dentists. The curricular assessment will promote and support interventions, research and education activities in each country. A parallel effort to develop an internet based training program to address the lack of continuing education available and to expand the offer in some countries was also proposed.

Disease Prevention and Oral Health Promotion

The countries’ delegates concurred that oral health care was mostly focused on curative and emergency care. In order to change the current discourse and curative care culture, an oral health prevention and promotion reform is needed. The reform should be able to reach the oral health professionals, government officials, and policy makers. As part of the strategies, the reform will start with the promotion of an interdisciplinary and evidence-based education within academic institutions and continuing education providers. Diverse efforts of research activities are needed to develop a robust cost-benefit analysis focused in current government expenses. The results of this analysis are expected to influence government decisions on budget allocation for services.

High poverty levels, limited resources, social inequalities and cultural diversity are the main challenges in the Region. Although all the Caribbean nations share the same vulnerable groups (children, elderly, special needs people, single parent, patients with non-communicative chronic disease) the prevalence and the geographical localization of these groups are uncertain. Launching an oral health prevention and promotion agenda that includes enacting strategies that target oral health inequalities, and raise oral cancer awareness in the Region was proposed. It is necessary to educate oral health professionals and politicians on the topic in order to develop programs that target vulnerable groups and assess their needs.

An Oral Health Research Agenda for the Caribbean

The main problem identified by country delegates was the lack of funding to subsidize research activities. Epidemiological studies (prevalence and incidence) of oral health diseases (dental caries, periodontal disease, oral cancer, craniofacial disorders (cleft lip and palate) are a priority for the Region. Building a pathway and pipeline in each country will be necessary to assign priorities and develop a research agenda. Incorporating researchers from across the region and identifying collaboration points will be essential to foster the train the trainer strategy. The development of standardized methodologies including qualitative research, along with epidemiological data gathering is proposed to create a research program for the Region. Many delegates expressed a desire to work with community based research methodology. The

attendees mentioned the need to develop a multidisciplinary pipeline of researchers and a collaborative research approach

Although it is recognized that many countries do not have surveillance systems, the importance to standardize record and data gathering instruments in different age population groups was emphasized. The Caribbean standard epidemiological methodology for caries, periodontal disease reporting, among others was debated. In order to maximize resources it will be important to provide services and care while conducting our research programs to minimize budget constraints. Puerto Rico was identified as a resource for research activities due to the robust infrastructure. The island will foster the development of standardized protocols, training, and calibration.

COHI members identified the budget reduction of the Pan-American Health Organization (PAHO) as a factor that affected oral health research activities. The decrement in Decayed/Missing/Filled Teeth (DMFT) and the achievement of oral health agenda in many countries were the reasons for the budget reduction. Nowadays, the organization invests a considerable amount in non-communicative chronic diseases. A call to insert an oral health agenda in non-communicative chronic diseases was proposed as a strategy to allocate budget to develop a research agenda. Although Colgate is providing some funding money, other institutions should be approached to finance research activities. Approaching the International Association for Dental Research (IADR) Global Oral Health Inequalities Research Network (GOHIRN), the IADR Caribbean Section, and Public Health Agencies, is a priority to allocate budget for conducting research activities. Other agencies or programs mentioned were: ADA Foundation and Fogarty Award (NIH). A search of possible agencies or foundations was recommended including PCORI, Quorum, etc.

In order to strengthen collaborations and increase dissemination of results of research projects between COHI members, several measures were proposed:

- 1) To promote COHI members' participation in the UPR Medical Sciences Campus Research Forum, IADR meetings and others.
- 2) To establish a regional Agenda of Research Activities, a list of Research Resources and ongoing or proposed projects.
- 3) Possible expansions/replications of the UPR School of Dental Medicine SOALS cohort study (PI Joshipura); and the Grenada Project (NYU/Colgate) were mentioned.

COHI participants coincide that the Oral Health Research Agenda for the region must address oral health disparities framed on the social determinants of health. This agenda must embrace a collaborative oral/ systemic research approach with a final goal to impact oral health policy. Participants agreed that the sustainability of the oral health research agenda demands an interdisciplinary pipeline of regional researchers and the fiscal support of local governments as well as external funding. Universities and other health training centers should play a central role in establishing oral health research culture. This can be achieved by offering trainings and courses in systematic literature review, research methodology (epidemiology and statistics) courses, scientific writing and by following an evidence-based curriculum.

Conclusions

A summary of the conclusions achieved during the workgroup discussions was also presented during the summit. These are:

Policy Options for Effective Actions

4. To provide government officials, linked to Oral Health with the needed tools so they can analyze and establish effective public policies that meet the needs of its population.
5. To interconnect the government officials of the Region of the Caribbean; this implies the creation of strong communication networks that promote the sharing of resources and knowledge despite linguistic and geographic barriers.

Strategies for an Effective Oral Health Workforce

6. To establish a robust training program, using the “train the trainer” approach and other novel strategies, with regional scope to strengthen the workforce capabilities.
7. To establish partnerships and collaborative agreements with academic institutions and professional organizations that can help with the training programs.
8. To conduct a Needs Assessment of training needs of the existing and future workforce to identify the capacity building needs of each country.

Disease Prevention and Oral Health Promotion

9. To promote oral health prevention at all levels, and the prevention of systemic diseases in the Caribbean through a collaborative program.
10. To establish effective partnerships that promotes networking and collaboration between government agencies, professional organizations, communities and other entities.

An Oral Health Research Agenda for the Caribbean

11. To establish a robust research program founded on the development of a research infrastructure, to increase the number of experts and their capabilities for research in the Region.
 - a. It will use participatory action research approaches
 - b. It will focus on the oral/systemic health approach;
 - c. It will focus on the production of knowledge
 - d. It will emphasize in the development of epidemiological and translational studies that enhances the creation of effective and sustainable public policies.
12. To establish collaborative agreements with academic institutions and professional organizations that can help with the research program.

Results

As a result of the The Caribbean Oral Health Initiative discussion a series of activities were planned. Some of them have already taken place while others are in a planning process:

4. A course in prevention and detection of Oral Cavity and Oropharyngeal Cancer emerged as collaboration between The Caribbean Oral Health Initiative, the University of Puerto Rico School of Dental Medicine and the Dominican Republic Ministry of Health. The activity was held from December 3-6, 2015 in Santo Domingo, Dominican Republic. Forty-five (45) oral health professionals were trained. Sixty residents of the Dominican Republic were screened during an Oral Cavity and Oropharyngeal Cancer Prevention and Detection clinic.
5. Coamo, a municipality located in the south-central region of Puerto Rico, was the host of the first Oral Health Promotion and Disease Prevention activity. A collaboration between Colgate-Palmolive, the Puerto Rico Health Department, the School of Dental Medicine, the Coamo Municipal Government and COHI; provided the first prevention

1. and detection of Oral Cavity and Oropharyngeal Cancer massive screenings and free fluoride varnish application. Currently, the collected data is under analysis; and a school-based program proposal is being drafted in collaboration with all the partners.
2. A Request for Proposals was issued to support Research or Educational Projects, Oral Health Promotion and Disease Prevention, Special Meetings and Products Requests: A total of \$20,000 matching funds will be granted to support research/educational projects and other activities related to one of COHI working groups' agenda.
3. Two upcoming events are planned for 2016. These are:
 - a. University of Puerto Rico School of Dental Medicine Graduate Student Research Forum and Craniofacial Research Forum, June 9-10 2016
 - b. Prevalence of Gingivitis in Three Caribbean Cities: Puerto Rico, Trinidad and Tobago, Dominican Republic Coordination Meeting March 31, 2016

Table 1 : Country Profile 2010-2013

Primary source: World Statistics Pocketbook | United Nations Statistics Division

	Barbados	Jamaica	Trinidad & Tobago	Guyana	Puerto Rico	Dominican Republic	Grenada
Population	283,221	2,714,734 (2013) ¹⁴	1,317,714 (2010)	795,400 (2012)	3,725,789 (2010)	10,280,000 (2012)	105,000
% Urban Population (2013)	45.4	54 ²	14.3	28.3	99.1	70.8	39.8
GNI: Gross national income per capita (current US\$)	14,739.2 (2012)	5,186.6 (2012)	1,8067.1 (2012)	3,583.2 (2012)	1,8634.3 (2012)	5,512.0 (2012)	6,989.3 (2012)
Major trading partners (% of imports)	-United States (31.0) -Trinidad & Tobago (28.9) -Suriname (6.2)	-United States (35.7) -Venezuela (15.4) -Trinidad & Tobago (10.6)	-United States (28.0) -Gabon (12.9) -Colombia (9.5)	-United States (26.0) -Trinidad & Tobago (14.9) -Curacao (10.5)	--	-United States (38.6) -China (10.0) -Venezuela (6.3)	-United States (31.9) -Trinidad & Tobago (25.2) -United Kingdom (4.2)
Unemployment (%)	11.6	14.0	4.9% (2012)	10.70%	14.80%	14.7 (2012)	24.8 (2008)
Poverty rate (%)	13.90	20.3 (2010)	16.7 (2005)	Not reported	45	40.9 (2012) World Bank	37.7 (2008)
Individuals using the Internet (%)	73.3	46.5 Estimated	59.5 Estimated	33.0 Estimated	51.4 Estimated	88.8 (2012)	42.1 Estimated
Mobile-cellular subscriptions⁷ (per	126.4 Estimated	96.5	139.4	72.2	81.8	45.0 Estimated	121.6 Estimated

¹⁴Statistical Institute of Jamaica

	Barbados	Jamaica	Trinidad & Tobago	Guyana	Puerto Rico	Dominican Republic	Grenada
100inhabitants)							

Table 2: Oral Health Profile 2010-2013Primary source: COHI 1st Summit | Presentations: <http://cohpr.com/2013-summit-2/2013-presentations/>

	Barbados	Jamaica	Trinidad & Tobago	Guyana	Puerto Rico	Dominican Republic	Grenada
Public Sector¹⁵	-Dentist: 7 -Assistant: 15 -Hygienist: 2 -Nurse: 10 -Technician: 0 - Polyclinics: 9	-Dentist:60 -Assistant: 150 -Hygienist: -- -Nurse: 180 -Technician: --- -Clinics: Over 80	-Dentists: 25 -OM surgeons: 2 Assistant: 46 Hygienist:-- Nurse: 49 -Technician: -- -Health Centers: 110 (47 dental units).	-Dentist: 27 -Assistant: 23 -Hygienist: -- -Nurse: 59 -Technician27 - Clinics: 57	-Dentist: 42 -Assistant: -Hygienist: -- -Nurse: -Technician - Clinics:	Dentist: 1,554 -Assistant: 376 -Hygienist: -Nurse: -Technician: -Units ¹⁶ :1,853	18
Service Delivery Public Sector	-Primary Care -Secondary care -Tertiary care: limited -In Hospital: n/a	-Primary care -Secondary care -Tertiary care ¹⁷	-Primary care -Secondary care -Tertiary care ¹⁸		-Public Healthcare Insurance ¹⁹ ("La Reforma")	-Primary ²⁰ care -Secondary Care -Tertiary care	• General Services ²¹
Budgetary Allocation: Oral Health	2.5% of Primary Health Care budget ²²		0.7% of the annual health budget	\$197.18 M (0.175% of the general budget).	Not reported	US \$404,000 ²³ thousand	\$980,905 ²⁴ (US 367,380.15)

¹⁵ All persons have access to emergency care (extractions) through the public sector.¹⁶ 1.703 primary care units.150 second and third level specialized care centers (15 specialized hospitals,11 regional, 20 provincial and 104 municipal hospitals)¹⁷ Long waiting times and lack of vital equipment and medicines are reported.¹⁸ Public services limited to provision of care for children up to the age of 18 and emergency/palliative care to adults. Tertiary oral health services (specifically maxillofacial surgical services) are offered at three of the national's hospitals.¹⁹ Includes: Diagnosis- Exams, Radiographs, Preventive, Restorative (Resins, Amalgams), Basic Surgery and Endodontics in Anteriors and Premolars. More than 1.6 million Puerto Rico residents are covered by the island government's Mi Salud (Medicaid) program (Puerto Rico Health Insurance Administration, 2011)²⁰ Dental services are delivered in academic centers and union sectors.²¹ Include: examinations, fillings, extractions, prophylaxis, partial services²² Primary Health Care budget represent a 27.2 % of the national budget.²³ 0.1 % of the General Budget for Health •0.03 % Health Budget corresponds to the Oral Health Plan²⁴ % of MOH budget: 1.68% for the 2013

	Barbados	Jamaica	Trinidad & Tobago	Guyana	Puerto Rico	Dominican Republic	Grenada
Private Sector	Dentist: 79 Assistant: 73 Hygienist: 9 Nurse: n/a Technician: 7 -Offices: 41	Challenges: No private-public sector collaboration on Oral Health.	-Dentist: 338 -Assistant: -Hygienist: -- -Nurses: Very Few	Dentist: 28	Dentist: 1,362 -Assistant ²⁵ : (900) -Hygienist: -- -Nurse: -Technician: - Clinics:	1,554	
Service Delivery Private Sector	-Primary care -secondary care -Tertiary care - Offices: 41		Deliver the majority oral health services through direct payment or insurance coverage.		Services are provided mostly by private sector.		
Dentists by specialty- Private Sector	-Pediatric: 1 -Orthodontist: 4 -Periodontist: 3 -OMFSurgeon:3		-Pediatric: -Orthodontist: -Periodontist: -OMF Surgeon: 2		-GP/Pedo: 1,202 -Other specialties: 160	---	
Oral Health Workforce to Population Ratio	1:3,293 1: 2,950 (With ADO)	1:17,000	1:3,846	1:14,462 1: 9,943 (with ADP)	1:2,367 ²⁶	Not Reported	1,5,800
Organized Dentistry	-Barbados Dental Association Barbados -Dental Education Network -Association of Dental Hygienists and Dental	-Jamaica Dental Association -Jamaica Association of Public Dental Surgeons -Jamaica Dental Nurses Association -Jamaica Dental Assistant	-Dental Council -Dental Association		-Colegio de Cirujanos Dentistas de Puerto Rico	-Dominican Dental Association -23 Provincial Associations -7 Specialized Societies -Dental School Directors Association -Diverse Study Groups	

²⁵ Around 900 dental assistants are reported in the Puerto Rico Board of Dental Examiners. However, Not all of them are licensed to practice, but the Department of Health is currently working on issue.

²⁶ A total of 1,574 dentists are active (Area Health Resource File, US Dept. of Health, 2010).

	Barbados	Jamaica	Trinidad & Tobago	Guyana	Puerto Rico	Dominican Republic	Grenada
	Therapists	association					
Oral Health Ongoing activities	-Oral Health Month ²⁷ (yearly) -Few media marketing campaign	-Sealant retention studies in Hanover.		The ministry of health runs several TV programs, which highlight medical and dental health topics routinely.	“Give Kids a Smile”: an activity to provide dental services to underserved children ²⁸ .	-“Mira y Sonríe Dominicano, Quisqueya Aprende Contigo ²⁹ ”	
Oral Surveillance System	Oral Health system only within MOH ³⁰	National Health Information system is entrained ³¹ .	Under development part of the National Oral Health Plan		Not reported	Not reported	Under development

²⁷Island-wide screenings along with participation from the Barbados Dental Association.

²⁸A collaborative activity organized by UPRSDM, CCDPR and Department of Health.

²⁹Dental Assistance for adults in alphabetization.

³⁰Information not used as surveillance tool or for trends. Does not include oral health indicator data.

³¹Monthly Summary of clinical reports and hospital clinical reports.

	Barbados	Jamaica	Trinidad & Tobago	Guyana	Puerto Rico	Dominican Republic	Grenada
Oral Health Policy	· Adopted in 2009 ³²	Rights-Based Approach to Social Protection; Public Oral Health Care System is part of a Comprehensive National Health Care System ³³ .	· The National Oral Health policy and plan have been developed to fill gaps in the key areas ³⁴ .		PENDING	· “Quisqueya Sonríe”: National Oral Health Plan	Under development ³⁵
Dental Officer Position			State Dental Officer recently appointed.				
Continuing Education Offer	Caribbean Dental Program	· Jamaica Dental Association (JDA): A recognized provider of ADA CERP.			-School of Dental Medicine -The Advanced Dental Implant Institute of Puerto Rico -Colegio de Cirujanos Dentistas de Puerto Rico		

³³ The first Oral Health Policy focus on the development: of a Center of Excellence, the CDO position, Oral Health Services Branch in the MOH, Regional Dental Surgeons and Workforce training.

³⁴ The national Oral Health policy and plan have been developed to fill these gaps by addressing several key areas: integration of oral health into primary health, decentralization of dental services, human resource development and improving oral health services including the development of national health information and surveillances systems (Trinidad and Tobago Report; 2013).

³⁵ Supported by PAHO.

Table 2: Oral Health Profile 2010-2013 (Cont).

	Barbados	Jamaica	Trinidad & Tobago	Guyana	Puerto Rico	Dominican Republic	Grenada
Training Oral Health Professional Offer	<ul style="list-style-type: none"> · No formal training facilities in Barbados · Barbados Dental Association trained a small cadre of Dental Assistants. Program ended in 2000 	<ul style="list-style-type: none"> -University of Technology: <ul style="list-style-type: none"> -BS in Dental Nursing -BS in Dental Hygiene -Diploma in Dental Assistance -BS in Dental Laboratory Technology 	<ul style="list-style-type: none"> · Mount Hope Dental School (University of West Indies) <ul style="list-style-type: none"> -DDS -BSc Dental Hygiene and therapy (UWI) -Certificate Dental surgery assistant 	<ul style="list-style-type: none"> -Texila American University (DDS) -University of Guyana (DDS) 	<ul style="list-style-type: none"> · University of Puerto Rico School of Dental Medicine: <ul style="list-style-type: none"> - DMD - Postdoctoral Programs: 6 	<ul style="list-style-type: none"> -Graduate Schools: 12 -Specialties and Master's Program: 5 -Postgraduate School: 1 -Technical institutes for the training of dental assistants and laboratory technicians: 2 	

<p>Research Agenda</p>	<p>Needs -Studies with adult population. -Asses the association of diabetes/ cardiovascular disease with periodontal disease.</p> <p>Infrastructure -Biostatistician: 1 (MOH) Data collection and training: previously done</p> <p>Budget Allocation Funding for research is dependent on specific requests within the MOH (usually through PAHO).</p>	<p>Needs -CPITN & DMFT 33-44 age cohort -DMFT 18yr-olds -Oral Cancer screening -Fluorosis screening -Prevalence studies for enamel erosion and oral mucosal lesions -KAP studies targeting parents knowledge of fluoride exposure -HPV driven Oral and Pharyngeal Cancers -Prevalence of head & neck related intentional and unintentional trauma</p>	<p>Needs -National Health survey for the adult population. - Assess the oral health needs of the elderly & Special needs population³⁶</p> <p>Infrastructure Staff of UWI has presented various pieces of in CARPHA's annual scientific meetings³⁷.</p>		<p>Infrastructure -A research pipeline exists at UPR-SDM that starts at the secondary school level to the postdoctoral level. - The UPR-SDM mainly conducts corporate clinical and public health research with emphasis on oral health disparities.</p> <p>Budget Allocation Research funding is provided by private corporation and federal institutions (NIH).</p>	<p>Budget Allocation No specific funds for Research; some funds are available using the following mechanism: • FONDOCyT (National Funds) • Universities (PUCMM and UNIBE) and •Private Companies</p>	
-------------------------------	---	--	--	--	--	---	--

³⁶ Data available from a 2004 study by Naidu et al. on 410 special Olympic athletes reported a high prevalence of untreated molar decay (43.7%) and gingival