Health Care in Cuba: What We Can Learn

A fact-finding mission by a delegation from Washington state

September 5-9, 2016

BY BRENT PENDLEON – OFFICE OF LIEUTENANT GOVERNOR

Overview

Lt. Governor Brad Owen and an 18-member delegation traveled to Cuba in September on an educational mission to explore the nation's highly advanced universal health care system. Activities focused in the area of health care delivery, medical education and preventive care. The delegation met with officials from the Cuban Ministry of Public Health, the Vedado Polyclinic, BioCubaFarma, the Cuban Neuroscience Center, the Cuban Foreign Ministry and the Latin American School of Medicine (ELAM).

Delegation:

Lt. Governor Brad Owen (mission leader)
Sen. Karen Keiser, Washington State Senate
Sen. Steve Conway, Washington State Senate
Sen. John McCoy, Washington State Senate
Chancellor Lisa Brown, Washington State University-Spokane (Health Sciences)
Dan Dixon, Providence Health & Services, Chairman of the Board Global to Local
Adam Taylor, Executive Director, Global to Local
Babak Parviz, Vice President, Amazon
Dr. Erika Bliss, CEO, Qliance Management Inc.
Lisa Thatcher, Qliance Government Affairs
Cassie Sauer, Executive Vice President, Washington State Hospital Association
Janet McCoy, wife of Senator McCoy
Paj Nandi, Director of Community Relations, Washington State Department of Health
Cindy Gamble, Partnerships for Native Health, Washington State University
Janice Connolly, Chief of Staff, Swedish Medical Center
Bruce Agnew, Director, Cascadia Academy
Dolores Rossman, Rossman-Guerrero y Asociados – Seattle
Brent Pendleton, Int. Relations & Economic Development Coordinator, Office of Lt. Governor
Kimberlie Lelli, Senior Legislative Assistant, Washington State Senate

Brad Owen
Lieutenant Governor

Dear Friends:

I have led many trade and information gathering missions during my 20 years as Lieutenant Governor and I have to say that the recent one to Cuba to learn about their highly acclaimed health care system was one of the most interesting and beneficial. The commitment this small nation makes toward the health of its people is second to none. Cuba has invested in community clinics, hospitals and medical schools that are respected globally. Students come to Cuba from around the world to become doctors, then go on to practice in other countries including the United States. We learned that Cuba does not require a four-year undergraduate degree to attend medical school. Perhaps we should look at waiving that requirement in the U.S., which could save our medical students somewhere in the neighborhood of $100,000 in extra tuition.

The improving relations between Cuba and the United States will benefit both nations as we saw the tremendous research that has been done on cancer and diabetes. Cuba is anxious to share this research with us. They spoke of the need to eliminate the embargo and restrictions that go with this information. Sharing was brought up so many times that it became clear that it was not just Cuba that has missed opportunities because of it but the U.S. as well.

While Cuba's health care system was very progressive and highly praised, we saw other areas where Cuba is well behind us, such as good access to the internet and housing. While there are many fascinating buildings, it appeared to me that most of the properties throughout Havana were badly in need of repair due to years of neglect. But what I also sensed from several conversations was that the people of Cuba see things changing and they sense great new opportunities on the horizon. Significant investment is being made into renovation and renewal projects, especially where more tourism is anticipated. A statement that was made to us more than once was "there is only one golf course in Cuba, but there are thirteen being planned to be built."

So, if I was young with a few dollars in my pocket to invest I would be keeping my eye on our new (in a sense) neighbor to the south. And yes it is true there are hundreds of classic American made automobiles from before the sixties all over the place.

Brad Owen
Lieutenant Governor

September 6

Ministry of Public Health

The delegation met with Dr. Alfredo Gonzalez Lorenzo, Vice Minister of Public Health, who noted that in 1959, Cuba had three universities and just one medical school. Approximately 40 percent of the population was illiterate.

Following the Cuban Revolution of the early 1960s and the subsequent U.S. embargo, the nation experienced a gradual increase in disease and infant mortality. Dr. Gonzalez explained to the delegation that the new Cuban government asserted that universal health care was to become a priority.

Meeting with Dr. Alfredo Gonzalez Lorenzo, Vice Minister of Public Health

Dr. Gonzalez said these plans were hampered almost immediately when half of Cuba's physicians fled to the U.S., leaving the country with only 3,000 doctors and 16 professors in the University of Havana's Medical College.

Beginning in 1960, the Ministry of Public Health instituted a program of nationalization and regionalization of medical services. Fidel Castro declared: "Public health is the right of all Cuban people." Preventative health care was the initial focus.

A network of institutions was built, and a vaccination system created. In the 1970s, the focus switched to special care for mothers and children. A system of family doctors and nurses was created in the 1980s.

The 1990s are known as the "special period," which occurred when Cuba experienced a period of economic crisis after the collapse of the Soviet Union. This forced Cuba to be creative with health care as resources were scarce.

Types of Health Care

Health care in Cuba is notable for its community-based practice. There are three types of health care institutes where residents can access medical treatment. First, residents can go to their assigned family physicians who live in their neighborhoods and practice out of government-subsidized clinics in their homes. These are called family physician units, and are where patients will check in for primary diagnosis and (non-life threatening) emergency treatment. Then, if needed, patients will be required to go to the polyclinic in their neighborhood to receive further physical examination and diagnosis. If the situation is too severe or complicated for the polyclinic to deal with it, patients will be referred to a hospital.

Dr. Gonzalez explained a reorganization that began in 2010 resulted in a collection of 451 polyclinics, 10,782 doctors and 91,000 nurses. He explained how each area has its own polyclinic, an outpatient facility for patients who don't require an overnight stay. As of 2015 there were about 134,000 physicians in Cuba for a ratio of 7.7 doctors per 1000 inhabitants. Currently there are 14 medical universities in Cuba. A cutting-edge program for patients with dementia and Alzheimer's disease is in the process of being developed.

Senator Keiser asked about dental care. Dr. Lorenzo replied that there are more than 16,000 dentists in Cuba and dental care is available 24 hours a day. Of particular note, medical and dental services are provided free-of-charge to all Cubans.

Cuba is among six countries in the world that produce interferon, a form of immunotherapy that helps the immune system fight cancer and may slow the growth of cancer cells. Cuba's vaccines against meningitis B and C and hepatitis B are unique in the world. These achievements are possible thanks to the existence of 211 scientific research and production institutes.

The life expectancy in Cuba is currently 76.2 years for men and 80.4 years for women. Cuba is one of the best performers on the American continent and in the Third World, achieving results similar to those of most developed nations. On the average, Cubans live 30 years longer than their Haitian neighbors. In 2025, Cuba is expected to have the highest proportion of its population over the age of 60 in all of Latin America.

In Cuba, healthy patients are required to visit their doctor at least one time a year while at-risk patients must visit their doctors at least twice a year.

Family Physicians

Family physician units provide family physician services. Usually, there is one family physician per unit, with one unit every four blocks. The family physician unit in Cuba is the most primary level of health care services. In most cases, diseases can be treated by family physicians because the most common illnesses in the neighborhood are not so severe. Residents have the habit of going to their family physician, so most illnesses can be diagnosed and treated at the very first stage. In Havana, every family physician is serving approximately 300 families; every polyclinic has 19 family physicians on average.

Family physicians provide not only medical treatments, but also health consultation. Because the family physician's office is at his or her house, it is very convenient for the residents to visit them even for a minor question and also for these doctors to interact with their patients. Every family physician is very familiar with the residents in his neighborhood including their health conditions, medical histories, families, education, occupations, psychiatric conditions and sanitary conditions. Therefore, the family physician is able to offer an overall treatment and consultation for his residents.

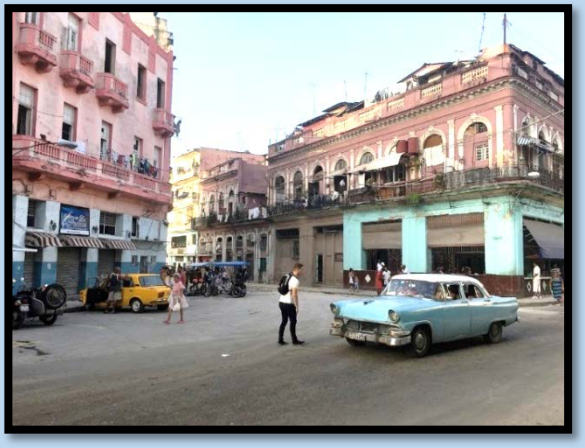
Communication between primary and secondary care (specialists) happens mainly via the polyclinic. The relationship is largely driven by the family doctor, who is expected to follow their patient throughout the system and make sure they get what they need.

Delegation with Dr. Alfredo Gonzalez Lorenzo

In the stairwell of the Ministry of Public Health

City view from Fortaleza de San Carlos de la Cabaña

Downtown Old Havana



Vedado Polyclinic

A polyclinic is an outpatient facility for patients who don't require an overnight stay. A patient can only stay in this polyclinic for six hours. They don't keep electronic records. All records are all completed by hand.

The delegation met with Dr. Yoandra Valle, Director of Primary Care, and Dr. Carlos Lopez. Dr. Valle said one of the main goals of polyclinics is to promote healthy actions and attitudes, focusing on preventative medicine. Each polyclinic serves about 300 families. Each clinic has one doctor, one nurse and rotating medical students. The doctors often do home visits and community events, while dental services are available 24 hours a day.

A recent reorganization of the system has seen these clinics benefit from medical equipment usually found at hospitals, but their biggest impact still is to serve as regional training centers for up-and-coming physicians.

Dr. Yoandra Valle, Director of Primary Care and Dr. Carlos Lopez led the delegation on a tour of their Polyclinic

Polyclinics offer more than just treatment and consultations: they also provide counseling on a bevy of health challenges, including education programs related to smoking, infant care and, in areas with high pollen counts, allergy testing services. The local polyclinics offer lab, X-ray, emergency room services, physical therapy, and specialty services, usually on a rotating basis. There is usually only a maximum 72 hour wait to see a specialist. The goal is to reduce congestion at the hospitals.

During the "special period" of economic crisis in Cuba after the collapse of the Soviet Union, the Cubans were forced to be creative with health care since resources were scarce

When asked about prenatal care, Dr. Valle replied that women who need prenatal care go through an intensive risk-assessment program, and the country maintains a network of homes for women with high-risk pregnancies.

Patients who need specialized inpatient care or specialized testing such as an MRI can be referred on to one of the region's specialty centers. Dr. Valle suggested that this comprehensive health care system combined with Cuba's nearly 100 percent literacy rate allows Cuba to post some of the best health indicator results in the world.

Communication between primary and secondary care (specialists) happens mainly via the polyclinic. The relationship is largely driven by the family doctor, who is expected to follow their patient throughout the system and make sure they get what they need.

Delegation with Dr. Yoandra Valle and Dr. Carlos Lopez

Hospital Hermanos Ameijeiras

This institution was opened in 1982 by Fidel Castro, the nation's longtime commander-in-chief. It was created during the revolution to give the people care in the field of the best centers of its kind in the world. It was called Hermanos Ameijeiras Clinical Hospital in honor of three brothers, martyrs of the revolutionary struggle that started in the vicinity of the building.

Dr. Juan Prohias Martinez, Director of Cardiology and
Dr. Sc. Emilio F. Buchaca Faxas, Ph.D, Internal Medicine

Dr. Prohias told the delegation the hospital is a tertiary care center with multiple specialties for highly complex medical care. Research is also conducted at the facility. Dr. Buchaca stated the doctors at Hermanos Ameijeiras perform over 20,000 surgical procedures a year. There are more than 800 nurses and a large support staff at the hospital. The hospital has 600 beds with 400 specialists and 400 doctors in residence.

Hermanos Ameijeiras is the training hospital for medical students in specialties. There are 44 different specialties. Some of the specialties that have brought worldwide recognition are: organ and tissue transplantation, interventional endoscopy, microsurgery, imaging, hyperbaric oxygenation, advanced techniques in histological and cytological diagnosis and surgical techniques in highly complex diseases and minimally invasive surgery. The hospital has medical protocols for over 300 conditions.

While visiting the hospital, the delegation learned about CimaVax, which is both a treatment and vaccine for lung cancer. CimaVax has been the subject of research in Cuba for 25 years and has been free to the Cuban population since 2011. As of this date, 5,000 patients worldwide have been treated with CimaVax, including 1,000 patients in Cuba. It was explained that the vaccine attacks tumors without damaging other tissue's development. The injection is cheap. Studies have found there are no significant side effects.

Dr. Prohias also spoke about the hospital's committee on hygiene and safety, which administers real-time quality audits of patients. A daily review of antibiotic use is also conducted, and the committee works with the commission on pharmacotherapy, using information on antibiotic resistance at the hospital. Reports go out to all directors of all services, showing levels of infection rates.

On the front steps of Hospital Hermanos Ameijeiras

September 7

The Center for Generic Engineering and Biotechnology

Delegation with Manuel Raices Pérez Castañeda and Norkis Arteaga Morales

BioCubaFarma, the Group of the Biotechnology and Pharmaceutical Industries of Cuba

BioCuBaFarma is an enterprise organization for the production of high-tech medicines, equipment and services intended to improve human health, and the generation of goods and services for export, along with food production with the aid of advanced technologies. Its human resources include over 21,600 workers, hundreds of them highly skilled professionals who are integrated in research-production activities. Its products and services exhibit high standards with a solid international positioning.

BioCubaFarma produces 525 out of the 849 medicines included in the Essential Drugs List of the Cuban Ministry of Public Health, which are distributed nationwide. The organization was granted over 800 registries abroad and exports products to 48 countries.The delegation met with Manuel Raices Pérez Castañeda, researcher, Scientific Secretary of the International Congress, Department of Strategic Products and Government Programs; Norkis Arteaga Morales, head of Business Department and Merado Pujol Ferrer, Business Development Director.

Manuel Raices Pérez Castañeda welcomes the delegation

Manuel Raices Pérez Castañeda explained that BioCubaFarma is comprised of 31 companies and 64 manufacturing facilities dedicated to developing strategies and technologies for the prevention, diagnosis and treatment of multiple ailments. It has more than 1000 products sold in 48 countries. Pharma and biotech work closely together with the health and agriculture ministries to direct activities.

A question was asked about Cuba's collaboration with the U.S. regarding pharmaceutical products. BioCubaFarma has over 2000 patents granted in many countries, including Europe and Japan, but due to current regulations and the trade embargo it is very difficult to negotiate the patent and licensing process in the United States.

Raices stated that BioCubaFarma would like to be able to import raw materials from the U.S. and produce the pharmaceutical products in Cuba.

Delegate Lisa Brown, the chancellor of the WSU-Spokane campus, suggested the company try to connect with Life Science Washington. She suggested that a collaboration between the two entities could be mutually beneficial. Mr. Castañeda replied that BioCubaFarma is very interested in doing research and development with U.S. institutions and universities. Senator Keiser asked if BioCubaFarma would be interested in travelling to Washington state to start a dialog with legislators and universities. He replied they were very interested in pursuing that idea. Brown agreed to reach out to make the connection.

BioCubaFarma has developed some products that have seen promising results including Heberprot-P, used in treating diabetic foot ulcers, Hebernasvac, a therapeutic vaccine for Hepatitis B, and several cancer vaccines.

BioCubaFarma is making a high social impact with the following programs:

- Prevention of infectious diseases with prophylactic vaccines
- Early diagnosis and treatment of different cancer pathologies
- Monitoring and treatment of diabetes and its complications, such as foot ulcers
- The diagnosis and rehabilitation of cardiovascular diseases
- Care program for hearing impairment
- Early detection of neurological development in infants
- Massive pre- and neonatal screening
- Epidemiological surveillance

Raices told the group Cuba's biotech industry and revenue for the 2013-2017 period is projected to double the 2.5 billion dollars that it earned in the last five years.

Cuban Neuroscience Center

*The **Cuban Neuroscience Center** (**CNEURO**) is a research institute located in Playa, Havana City. It was founded in 1969 as one of the first groups in the world to use informatics for the analysis of the brain's electrical activity. CNEURO was officially established in 1990 and is now one of the BioCubaFarma institutions, focusing on basic and applied research as well as the development of high technology in order to screen, diagnose and treat problems related to mental health. It has a DNV health care accreditation.*

Dr. Valdes-Sosa started the tour by showing the delegation the first Cuban microcomputer, followed by a discussion about the work the center is doing on hearing aids for infants. Infants and toddlers are tested for their hearing ability, and any who are found to need assistance are given hearing aids that are produced using 3-D printers., which the delegation had the opportunity to view in a small lab setting.

Valdes-Sosa showing Fidel Castro the first Cuban microcomputer in 1969

Pedro Antonio Valdes-Sosa, who was born in Chicago, is the General Vice-Director for Research of the Cuban Neurosciences Center, which he cofounded in 1990.

Valdes-Sosa initiated work with quantitative electrophysiology in 1969 with the first Cuban microcomputer, co-founding CNEURO in 1990, an institution which has changed health indicators in his country as well as in others. He has been active in promoting brain mapping, setting up international collaborations and societies, the Cuban and Latin-American Brain Mapping projects, participating actively in OHBM since 1998, having served on its program committee.

Dr. Valdes-Sosa describes a project to the delegation

Dr. Valdes-Sosa demonstrated equipment that, when fully developed, will integrate all known hearing screening techniques. It allows the implementation of a neonatal screening program that will cover not only infants at risk, but all newborns. In use are hearing aid implants that work on the principle of bone conduction (the conduction of sound to the inner ear through the bones of the skull. Bone conduction transmission can be used with individuals with normal or impaired hearing.) These implants are primarily suited for people who have conductive hearing losses, unilateral hearing loss, single-sided deafness and people with mixed hearing losses who cannot otherwise wear in-the-ear or behind-the-ear hearing aids.

The research is aimed at developing new technologies for studying the brain for the diagnosis and treatment of diseases related to the nervous system, and the center is working on several projects of social impact related to disabilities caused by neural dysfunction, neurodevelopmental problems and aging, covering major population groups.

The delegation heard an interesting story about the center's first MRI machine, a used one that came to the facility unassembled. Because of the trade embargo, technical assistance from the U.S. was unavailable. The center successfully assembled the machine anyway, and made it functional.

Dr. Valdes-Sosa discussed the center's efforts towards diagnosing and successfully treating Alzheimer's disease, using a variety of organic compounds. He provided details about the center's Department of Neurochemistry, which consists of three groups: Neurochemistry, Molecular Neurobiology and Experimental Neurobiology. The central objective is the search for biological and chemical markers for the diagnosis and treatment of Alzheimer's disease. The center has three patents in several countries.

Also studied at the center are common neurodevelopmental disorders of children at school age, concentrating on the study of dyslexia, language disorders and Attention Deficit Disorders.

Cuban Neuroscience Center – Delegation with Dr. Pedro Antonio Valdes-Sosa

September 8

Ministry of Foreign Affairs of Cuba – (MINREX)

The delegation met with **Josefina Vidal Ferreiro**, Director General, United States General Division and **Gustavo Machin Gomez**, Deputy Director.

Lt. Governor Owen talks with Josefina Vidal Ferreiro, Director General, United States General Division and Gustavo Machin Gomez, Deputy Director

The delegation was welcomed by Director General Josefina Vidal Ferreiro. When Lt. Governor Owen asked Director General Vidal if she had ever been to Seattle, she indicated that she had not, but would like to visit someday.

Director General Vidal told the group Cuba is diligently working with the U.S. government to get the embargo lifted. She explained that Cuba and the United States have created a Bilateral Commission, and the group has held more than 30 technical meetings regarding subjects such as economy, human rights, claims for damages, climate change, and the protection of trademarks and patents. The embargo is discussed at every meeting and can only be lifted by the U.S. Congress.

Director General Vidal said Cuba has a strong interest in working with the U.S. Health Department and the Centers for Disease Control and Prevention (CDC) on diabetes and cancer research and treatment. The U.S. Secretary of Health will be visiting Cuba in December for the 2016 International Diabetes Conference and Director General Vidal extended an invitation to the members of the delegation who are focused on health care to return to Cuba for the conference. The mission of the conference is to create an open discussion of recent advances, innovations, and new developments in the field of diabetes. Vidal suggested it would be an excellent opportunity for U.S. citizens to network and exchange scientific knowledge with over 300 Cuban attendees, including high-level scientists, practicing clinicians, podiatrists, surgeons, nurses, wound care personnel, and health policy experts. Chancellor Brown indicated that she would communicate with Initiative for Research and Education to Advance Community Health (*IREACH*), the public health research group at Washington State University, to see if they may be interested in sending representation to the conference.

Director General Vidal said Cuba is interested in collaborating with the U.S. on the Zika virus. At the time of the delegation's visit Cuba had fewer than 30 cases. Vidal mentioned the total cases reported in Puerto Rico to date is over 15,000, according to the CDC.

Cubans would also like to learn more from the U.S. about agriculture, law enforcement and environmental issues. Brown spoke to the director general about setting up a dialog for possible collaboration on biotech, health, animals and agriculture with WSU.

Cuban Telecommunication Infrastructure

Babak Parviz, the member of the delegation representing Amazon asked about the telecommunications infrastructure in Cuba. Deputy Director Machin said the government has deals with AT&T, Verizon, Sprint and ITT for internet access and roaming, and they are working with China on cell towers and telephones. Deputy Director Machin said that it was problematic doing business with these companies because when payments are made to the companies they have to go through banks in a third country, with an added cost due to extra fees.

U.S. Relations

There was some discussion of trade and a delegate asked if trade is better since President Obama's visit in May. Deputy Director Machin said exports to the U.S. have expanded slightly, consisting mainly of

charcoal, coffee and honey. Senator Conway inquired about difficulties working with U.S. government agencies, to which Machin replied that the U.S. Treasury Department is the biggest hurdle on trade. However, with the thawing in relations, Cuba has received five governors and several mayors from the U.S. in the past few months, and joint resolutions were passed with the National Conference of Mayors. Cuba also has a sister sanctuary relationship with the Florida Keys. The meeting concluded with a reminder to the delegation that Cuba has the perfect weather for tourists, with over three million visiting each year.

Delegation with Josefina Vidal Ferreiro and Gustavo Machin Gomez

Latin American Medical School (ELAM)

*Latin American Medical School (**ELAM**), formerly Escuela Latinoamericana de Ciencias Médicas is a major international medical school in Cuba and a prominent part of the Cuban Health care system.*

Established in 1999 and operated by the Cuban government, the Latin American Medical School (ELAM)has been described as possibly being the largest medical school in the world by enrollment, with approximately 19,550 students from 110 countries reported enrolled in 2013. All those enrolled are international students from outside Cuba, mainly from Latin America and the Caribbean as well as Africa and Asia. Initially only enrolling students from Latin America and the Caribbean, the school has opened to applicants from impoverished and/or medically underserved areas in the

United States and Africa. As part of Cuban international cooperation, ELAM is also training 800 medical doctors from Timor-Leste. Preference is given to applicants who are financially needy and/or people of color who show the most commitment to working in their poor communities. Tuition, accommodation and board are free, and a small stipend is provided for students.

The mission of ELAM is to accredit competent and cooperative doctors with the degree of MD (doctor of medicine), the same degree conferred upon medical graduates throughout the Americas. The Latin American School of Medicine is officially recognized by the Educational Commission for Foreign Medical Graduates (ECFMG) and the World Health Organization. The university is fully accredited by the Medical Board of California, which has the strictest US standards — meaning that qualified US graduates of the Latin American School of Medicine are eligible to apply for residency placements in any state of the US.

Final admissions decisions are made by a committee representing ELAM's faculty and the Cuban Ministry of Public Health.

Dr. Antonio Lopez Gutierrez, Rector of ELAM describes the layout of the campus to the delegation.

The delegation met with Dr. Antonio Lopez Gutierrez, Rector of ELAM. Cuban medical schools all fall under the Ministry of Health and are integrated into the health system as a whole.

He told the delegation ELAM plans to educate enough doctors to meet the needs of the country by 2030. Currently, 85-90 percent of students graduate within six years.

ELAM has agreements with other countries and social organizations that provide scholarships for their students.

Enrolled currently are students from over 90 countries and all students have to complete a preparatory year to learn Spanish and courses in pre-medicine, chemistry, math and biology. After that, they start their first year of medicine. First and second years consist of basic anatomy, biochemistry and physiology classes. Students then begin to practice in preventative care in the polyclinics. Each province in Cuba has its own medical university, 14 in all. The third year of school focuses on internal medicine while the fourth year is spent learning pediatrics and obstetrics. Fifth year student studies focus on ophthalmology and hygiene, while the sixth year is an internship in surgery.

An important aspect for the students is on-the-job training. It is imperative that medical students learn how to work with patients and study diseases directly from people impacted, not just in the classroom.

In order to graduate, students must pass a state exam, both a theoretical exam and a practical exam in front of a board of professors who did not teach them.

Following graduation, pursuant to agreements between Cuba and other nations, most foreign students must return to their home areas after they graduate. ELAM has graduated 28,000 students from 135 countries and 5,000 graduates have stayed in Cuba to become specialists.

The delegation met with students from the U.S.

U.S. Medical Students in Cuba

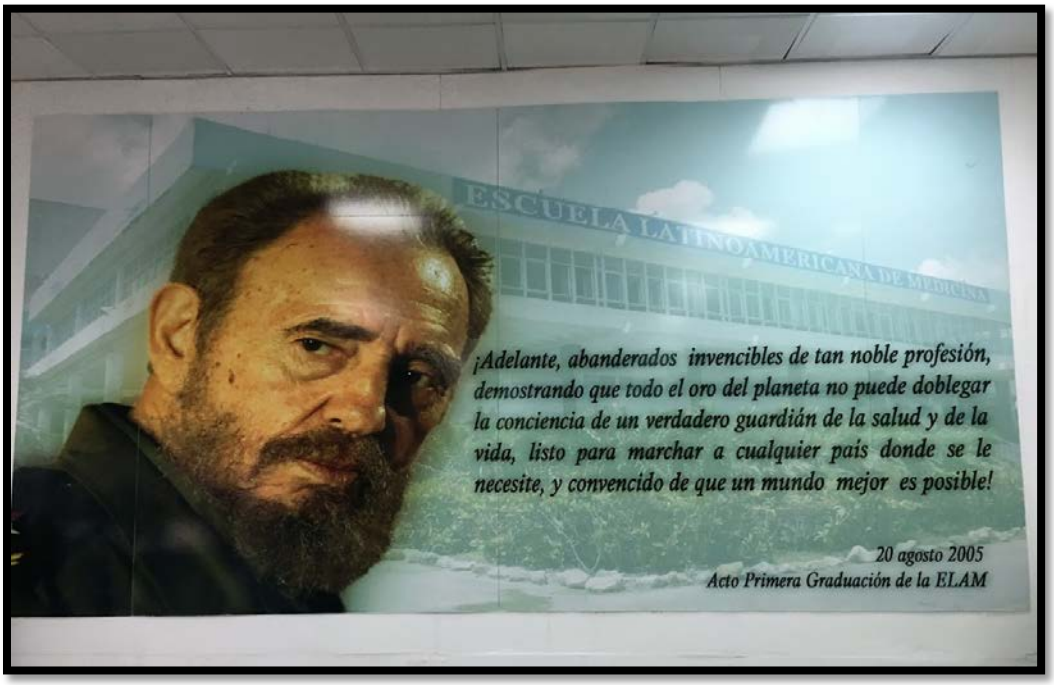
To date, 146 students from the U.S. have graduated from ELAM. Ten students just arrived from the U.S. for their first year. Last year, twelve students from the U.S. graduated. Twenty-nine U.S. students are now in their sixth year. Sixty graduates have begun practicing in the U.S. Dr. Lopez told us there are four students from Washington state attending the school at this time. U.S. medical students are required to pay a portion of the tuition.

Members of the delegation asked about the quality of education and the cost of each student's education to Cuba. Dr. Lopez said there is a system of quality control in the polyclinics and hospitals and evaluations determine whether or not a student can further study in their specialty. He said 85 percent of students pass the exams. On the cost issue, Dr. Lopez indicated that Cuba pays between $80,000 to $100,000 per student. Students from the poorest countries in Caribbean and Latin America are awarded

scholarships. Some countries pay for additional students beyond the 10 to 20 scholarships awarded to the country. Of every 100 applicants, 10 students are selected.

The Lieutenant Governor asked Dr. Lopez if international students were required to have four years of college prior to entering medical school. He said it is not a requirement. The Lt. Governor mentioned it is a requirement in the United States. He said that system seriously drives up the cost of becoming a doctor, and needs to be changed.

Delegation with Dr. Antonio Lopez Gutierrez



Poster in the lobby of the Latin American Medical School

Key takeaways from the mission

Dan Dixon, Providence Health & Services, Chairman of the Board, Global to Local

"I have never been so surprised with an international visit. The trip was brilliant and fantastico.

Not knowing what to expect given the country's dark years, I was surprised, impressed and humbled by what Cuba has accomplished with negligible resources. A vibrant and working health system--with an emphasis on wellness and prevention and burgeoning biotech and medical technology sectors. We learned how a health system dedicated to the well-being of the many can work--warts and all. We also learned that through remarkable innovation they have developed vaccines and procedures for diabetes and cancer; advancements that we have yet to put into our health practice.

The Cubans are giddy about the opportunity to renew ties and friendships with the United States. There are many ways that partnerships may be available in health care and biotech down the road.

You will remember that when asked, the professionals with whom we met noted that what made them proudest about their work and the country's support for that work—was support for their calling to make sure that everyone had the opportunity and facility to live a healthy life and in healthy communities. While the country remains poor and glorious buildings are in great disrepair (ranging from the 16th century on) investors are beginning to bring them back to life. Imagine a city that has baroque to art deco along promenades leading to city squares."

Babak Parviz, Vice President, Amazon

*"*The Cuban system makes a strong case for having primary care be universally available at a minimum cost to the patients. Even though there is upfront investment involved in offering primary care to everyone for free (or nearly free); the overall system level health care cost might drop as issues are caught and attended to earlier.

Cuba appears to have a strong generic drug production effort. It is worth a closer look as using equally effective generic drugs can lower the cost of health care for everyone.

Finally, there is significant interest from the Cuban side to partner with Washington state companies and universities; it merits further exploration*."*

Lisa Brown, Chancellor, WSU-Spokane

"Cuba has built a neighborhood-based primary care delivery system organized through a nationwide system of "polyclinics" that is worth engaging with, as U.S.- Cuba official relations improve. Particularly notable is their success at preventing transmission of communicable diseases and their attention to maternal and child health.

They have a team-based multi-level approach in which doctors, nurses, pharmacists, dentists, mental health workers, and infectious disease prevention workers provide the primary level of care. We in Washington state are working on integrated delivery of physical and behavioral health care, so there are some parallels that could be mutually beneficial to explore.

We visited "BioCubaFarma", an impressive integrated biotechnology, pharmaceutical, and medical equipment industries group. Connecting this entity to our Washington state industry group, Life Science Washington, could be mutually beneficial.

There is a network of community-based medical schools which is educating doctors in every province in Cuba and accepting students from over 90 countries. We visited ELAM (the Latin American Medical School) and learned about the model and curriculum."

My specific follow-up actions will be:

- Communicating about the trip with IREACH, the public health research group at WSU, who may be interested in sending representation to the International Diabetes Conference.
- Discuss the trip with a key researcher from the WSU Allen Global Animal Health Institute
- Presenting to the Spokane Teaching Health Center about the community based primary care delivery model and connecting with Grant Makers in Health, which has been exploring philanthropic partnerships with Cuba.
- Exploring a second WSU work-study trip (there has been one already) focused on health.

Dr. Erika Bliss, Family physician leader, CEO and co-owner of Qliance Management Inc.

"Having the opportunity to see how the Cuban health care system is organized and operates was an inspiring and thought-provoking experience. As a primary care physician who believes wholeheartedly in the importance of basing health care systems on a firm foundation of public health and primary care, it was so rewarding to see somewhere where that has been done in such an organized and seemingly efficient way. With very limited resources, Cuba has achieved remarkable health gains, including things like a 100 percent vaccination rate (and average people who can't understand why anyone *wouldn't* get vaccinated), complete eradication of maternal-to-child transmission of HIV for three years running, an 80 percent reduction in diabetic amputations, and much more. Not only is there a firm foundation in public health and primary care, it is apparently very well

distributed throughout the country. And, despite limitations on communications (internet is spotty and there isn't enough bandwidth), they somehow manage to keep very good national data on everyone that informs their planning and resource distribution. Perhaps most important of all, everyone I saw on the streets and in stores and restaurants looked healthy – well-fed (they are starting to see some obesity), and with good teeth (dental care is a part of the health care system and primary care, dentistry being just another specialty, not a whole separate silo).

I couldn't help but think about what lessons we could apply in Washington state. I think there is a great opportunity for us to take advantage of the various innovation funding sources currently in play and our current state funding streams to re-organize at least the base of our system. If we could join together public health and primary care, expand primary care services to include things like dental and behavioral health, and implement an organized plan statewide to tackle our most pressing problems together, we could make great strides in a short time. Right now, with primary care being just another piece of a very fragmented and troubled health care system and at the same time being divorced from public health, we are operating with our hands tied behind our backs. And the irony is, even in the US, public health and primary care are *very* inexpensive services but give the biggest return on investment of anything available in health care.

While Cuba is a completely unique situation, a product of its history and social compact (including minimizing the gap between rich and poor and a relentless focus on education and health), there are many aspects of the way they organize and run their health care system that we would be wise to implement here."