

Cuban Medical Education: 1959 To 2017

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Abstract

Cuba has achieved levels of health indicators that are comparable with, or better than, those of countries with far greater economic development. These improvements have occurred in tandem with major social and health policies implemented and sustained following the Revolution of 1959. Cuba's approach to medical education has been crucial in the country's development with a strong focus on primary care, moving the centre of gravity from teaching hospitals to community facilities, and the promotion of polyclinics. Cuba has invested heavily in medical internationalism. Initially the main activity was sending medical brigades in response to natural disasters. These brigades extended their services, becoming part of the health service in many countries and more recently, have been recruited to provide health care in remote, underserved areas of middle income countries, for example Brazil and Venezuela. Cuba has also provided medical education for disadvantaged students from many countries, including the United States of America. Cuban medical education differs from conventional models by providing graduates with a wider skill set: care giver; decision maker; communicator; manager; community leader;

teacher. Current concerns around transforming medical education have yet to make much impact. The lessons for medical education in other countries are profound. The Cuban approach raises questions about our principles, what we are trying to achieve, and how we go about it.

Health, Development and Medical Education in Cuba

The health status of the population of Cuba has improved dramatically over the last 70 years, with life expectancy currently on a par with the USA and higher than many European countries [1]. In 2015, life expectancies at birth were 79.1 years in Cuba and 79.3 years in USA [2]. Cuba spent US\$558 per capita (8.6% of GDP) on healthcare whereas the USA spent \$8845 (17% of GDP) [3]. The relationship between life expectancy and GDP is not linear (Figure 1) [4] and since the 1900s the relationship has demonstrated increases in life expectancy in countries with low GDPs. Development, in terms of increasing GDP, is related to population health status, but Cuba (and Sri Lanka, Kerala state in India, Costa Rica, and others) have achieved higher life expectancies than predicted from their still low GDPs. Much of the improvement in life expectancy is not directly related to GDP but to the diffusion of health and social technologies – improved sanitation and water supplies, maternal and child health services and immunisation [5]. Cuba's outstanding improvements in health are also likely to be related to the social and health policies implemented and sustained following the Revolution of 1959. In this review, the focus is on medical education as one of the main areas of development that occurred following the revolution. The major changes that were made are identified and potential lessons for other countries are highlighted (Figure 1).

Training of health professionals has been one of the factors in improvements in health status. Medical education offered by medical schools in Cuba has evolved greatly since the 1959 revolution, changing in line with government public health policy and the profile of health professionals required to deliver health services. Social responsibility, ethical values and prevention underpinned a process of continuing reform of the medical curriculum in terms of content, community engagement and a dominant role for primary care. Alongside these changes was a long-term commitment to improving health care in other developing countries through providing health services and medical education to non-Cubans.

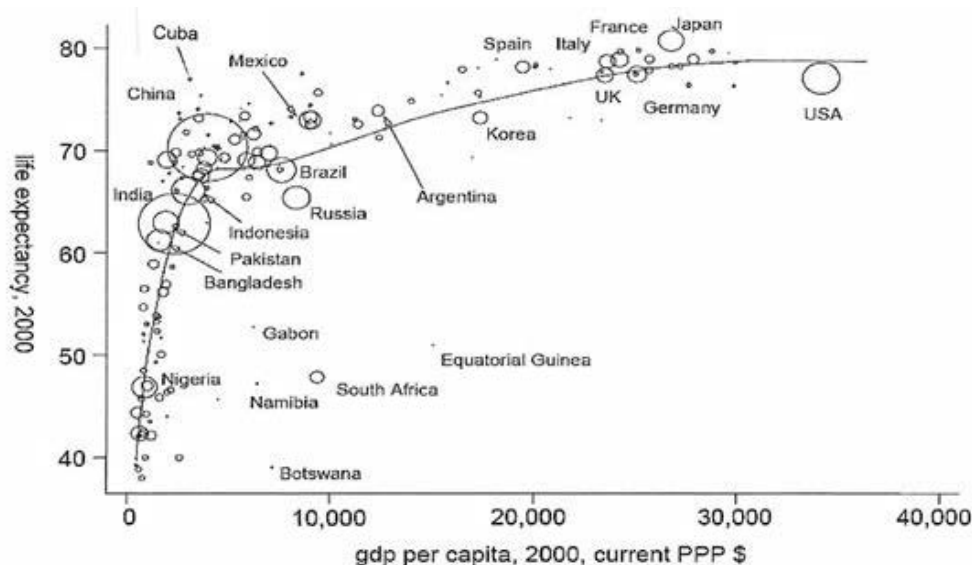


Figure 1: The relationship between life expectancy at birth and gross domestic product (GDP), 2000 Modified to highlight Cuba from Deaton A [4].

Revolutions in Training Doctors for a Universal Public Health System: the Early Years

Prior to 1959, Cuba had only one University hospital and medical school, located in Havana. Two thirds of Cuba’s 6,300 doctors were also in the capital. Mutual aid health facilities provided coverage for those in employment, particularly in the cities, but primary care for the poor and rural populations was weak or non-existent [6].

In the aftermath of the Revolution, half Cuba’s doctors left the country, either emigrating or leaving in disagreement with academic and health care reforms designed to guarantee the right to health care [7]. Only 23 of the 161 professors remained at the Havana Medical School. During the 1960s, Cuba concentrated efforts on training new doctors, offering nationals from newly independent African and Caribbean countries the opportunity of training alongside Cuban students. An emergency curriculum was developed in 1963 to accelerate the training of enough doctors to implement the vision of a universal health care system based on the principles of free services accessible to the whole population. This entailed extending the health service to rural areas and developing a nationwide primary healthcare network.

In 1965, Cuba created a system of community-based “comprehensive” polyclinics, which provide primary-care, specialist services, and laboratory and diagnostic testing. Initially each polyclinic served 45,000 people, a ratio that was later improved to 25,000 to 30,000 people in the 1970s [8]. Each of the country’s 498 polyclinics tailored medical services and health education to the epidemiologic profile of their local population. The medical education and training system supported this decentralisation of care through the creation of the Rural Social Medical Service which encouraged young graduates to work in rural areas. Although it was not compulsory, almost all graduates volunteered to serve in the service, particularly as by 1965 it had become a tradition to renounce private practice as part of a medical graduate’s oath [9]. By 1974, all medical graduates were expected to spend up to 3 years practicing community medicine in a rural area [10].

During the 1970s, the provision of primary health care became the primary objective of the Cuban public health authorities, with four basic medical specialities being considered as the basis for the primary health care programme: internal medicine, paediatrics, obstetrics and gynaecology, and dentistry. Responsibility for curriculum design, conferring degrees, and providing medical education in medicine, dentistry, nursing, clinical psychology, and various fields of health technology passed from the Ministries of Education/Higher Education to the Ministry of Public Health (MINSAP) in 1976. A selection process for entry into medical school was introduced which considered vocation and commitment to solidarity and responsibility alongside academic qualifications. Post-graduate training was also expanded and by 2008, offered a total of 54 specialisms. New medical training schools opened across the country, and in addition to the Havana Medical Faculty, three new ones opened in Camaguey, Santa Clara and Santiago de Cuba. Provincial medical schools were opened under the four Faculties so that students could train in their home provinces. There are now 13 universities of medical sciences, with 37 faculties: 25 of medicine, 4 of dentistry, 4 of nursing, and 4 of health technologies plus the ELAM (Escuela Latinoamericana de Medicina) and ENSAP (School of Public Health) and other technical schools.

The national health system strove to ensure integrated health care, regional coverage, continuity of actions and the creation of an interrelated network of medical consultation facilities linking primary with secondary care. The programme was supported the work of medical teams, and relied on the active participation of the individual, the family and community members.

The Family Doctor Programme: 1980s-1990s

By the early 1980s, the public health approach became centred

around the implementation of health promotion and disease prevention programmes owing to the demands of the population’s changing epidemiological situation in which chronic diseases had gradually assumed a greater importance. Provision of comprehensive medical care to communities using a primary health care model was not feasible using the polyclinic system due to insufficient numbers of adequately trained primary health care workers, the growth of specialists working in secondary care and limited relationships with referral hospitals [9].

The Family Doctor Programme was developed in response to these challenges and was launched in 1984. It established a national network of neighbourhood-based family medicine clinics called *consultorios* staffed by a doctor and a nurse, each covering 120-150 families (around 500 to 800 people). Polyclinics and rural hospitals acted as organisational hubs for 20 to 40 *consultorios*, providing referrals to specialists, laboratory and other diagnostic services, and organisational support. Initially each polyclinic served 45,000 people, a ratio that was later improved to 25,000 to 30,000 people. Family doctors were also located in the work place, schools and other social institutions such as homes for the elderly. In addition to providing medical services to the population, family doctors were also expected to carry out research, teaching and individual study, manage facilities and resources, and work with the community to generate participation in building health. Each of the country’s 498 polyclinics tailored medical services and health education to the epidemiologic profile of their local population [11].

The objectives of this new programme required a new medical curriculum which was designed by taking account of opinions from faculties and practitioners, Cuban health indicators and health care delivery models in other countries with innovative curricula. The concept was to train doctors who would “understand, integrate, coordinate and administer the treatment of each patient’s health needs, as well as the community at large [12]” (Table 1). A list of 286 health problems were identified that newly trained doctors should be able to tackle at primary care level: for the first time, population health needs were the starting point not the end-point for training. Patients’ needs were intended to be understood holistically rather than as fragmented “organ/systems” diagnosed and treated by different hospital specialists. A new specialisation of Comprehensive Family Medicine was created in the four medical faculties, emphasising the importance of family medicine [11] (Table 1).

Problems were encountered in introducing this new form of medical education - not least that most of the teachers were specialists (in both basic and clinical sciences) who did not necessarily share this innovative approach. Basic sciences were taught in a traditional fashion, and clinical training was hospital-based with limited contact with primary care until 2004-5 [7]. Nonetheless, acceptance of the new curriculum grew, resulting in an increase in doctors with nearly 38,000 doctors graduated in the 1990s, four times more than in the 1970s. By 1991, there were 1,400 doctors who had completed a residency in integrated family medicine. By 2003, 30,000 of Cuba’s 68,000 doctors were practising as family doctors of whom 21,000 were designated as specialists in family medicine, rising to 33,000 by 2008 [13].

Table 1: Criteria used in shaping the Family Medicine curriculum.

• Shared learning for students in medicine and nursing.
• Educational objectives based on the population's health situation.
• Health personnel acquired experience in providing care and in teaching.
• All students required to combine academic studies with practical work experience.
• Training conducted in polyclinics, hospitals, laboratories and the community.
• Integration of courses in psychology and sociology with medical sciences.

The University Polyclinic Project (PPU)

In 2003, Cuba developed a new medical training model that further transformed the way that medicine was taught by moving away from the medical schools and teaching hospitals to using the community polyclinic and clinics as the central location for the teaching general medicine. The six-year course was also the first step in training specialists in Comprehensive General Medicine, the professional profile most needed by the country [14,15]. These changes allowed a rapid expansion in enrolment in response to Cuba's commitment to train more Cuban doctors for service at home and abroad, and more medical students from developing countries.

The philosophy behind the PPU is to teach students and promote their learning in a range of different settings which include traditional classrooms, doctors' surgeries, primary health care centres and hospitals. From the first year of medical school, 75-80% of training takes place in community primary care facilities with an accredited polyclinic as the central teaching unit. The doctor-tutors, who are specialists in Comprehensive General Medicine continue to perform their basic public health functions within the national health service - teaching, medical practice, research and administration - whilst being responsible for groups of students. They are given additional post-graduate training in pedagogy and course content to support them in their teaching role [8]. The students benefit from comprehensive academic and practical learning in a tutorial style environment. The theoretical content of the course is structured to include CD- and video-based lectures, workshops, seminars, group discussions and independent studies. Practical experience is gained in primary health care centres and hospitals under the direct supervision of the doctor-tutors.

The PPU course covers all aspects of medicine, from basic sciences to clinical sciences. Each academic year teaches different disciplines and subject areas, adjusted to the profile of the student group. The course aims to integrate knowledge, promote active learning and independent study. To achieve this, subjects which have previously been taught separately have been grouped into broader disciplines. For example, "Morphophysiology" integrates various biomedical sciences, including anatomy, normal histology, embryology, normal and pathologic physiology, and cellular and molecular biology, among others. It contains hours of theory and hours of application of the knowledge learnt in a medical setting. The approach emphasises active learning methods and independent study. The course also includes subjects such as physical education and language training. The final year is an internship at primary care level. Progress is monitored through frequent tests, midterm and final examinations.

The flexibility of the PPU's design means that it can be implemented in a wide range of teaching conditions and settings. The socio-economic and health profile of the population in which the students will practise after graduation is crucial in adapting the course content to optimise the effectiveness and economic sustainability of the healthcare that the graduates will deliver. Students learn how to treat the chronic, non-communicable diseases and the communicable diseases found in the population, and how to conduct systematic and tailored health promotion activities at community, family and individual levels [16].

Studies of students' academic progress showed that those being trained through the PPU achieved results that were as good as or better than those following the traditional teaching method [17]. Both students and teachers saw the benefits of the new model which is now being implemented in medical faculties in Cuba, through the formal accreditation of polyclinics. It is also being used in Cuban medical faculties overseas.

External verification of the quality of Cuban approach to medical training is provided by the successful performance of 113 US citizens who have trained in Cuba. Many are finishing their United States

Medical Licencing Examinations, but over a third are in residencies and 90% are practicing in much needed specialities—family medicine (61%), internal medicine (23%) and paediatrics (6%). Among those already practicing, two-thirds work in health professional shortage areas and medically underserved areas [18]. But, the medical curriculum and its implementation is not perfect. An assessment of the needs of South African students studying in Cuba, proposed that improved academic management and greater understanding by faculty of local conditions in South Africa were needed [19]. Although changes in basic medical sciences were made in 2004, by 2012 further development was proposed for integration with family medicine in the early semesters and throughout clinical courses over the 6-year curriculum [20].

Cuba's Medical Internationalism

The roots of Cuba's extensive medical internationalism are embedded in the ideology of solidarity that rose out of the continuing revolution. The genesis and development of these activities during and after the Cold War have been chronicled in detail up to 2007, focusing on the relationship between medical aid and larger foreign policy goals, the obstacles and facilitators of such aid, and the contribution of these programmes to Cuba's global leadership ambitions [21].

Post-disaster medical assistance

Cuba has a long history of sending medical teams ("brigadas") to assist other nations in the aftermath of natural disasters. The Cuban response to these disasters is always remarkably rapid, often resulting in Cuban health professionals being the first to arrive and establish services where they are most needed, as occurred in the 2014 Ebola epidemic in West Africa [22-24]. Furthermore, the Cuban response is often long-term with brigades establishing facilities and local training to strengthen capacity for the future, for example in Haiti and Angola.

The first medical brigade was sent to Chile in 1960 following an earthquake that killed 5,000 people. From this start, the Internationalist Medical Mission was established which made its first intervention in Algeria in May 1963, comprising 55 health professionals. It marked the beginning of medical collaboration in the form of small brigades of 50-60 volunteers, (initially Tanzania and Guinea Conakry) and working in the areas of greatest need. In the 1970s the initiative developed working in Peru (1970) and Nicaragua (1972) following earthquakes, and to Honduras after a hurricane in 1974, resulting in agreements for brigades to work in 22 countries, including Yemen, Ethiopia, Mozambique, Guinea Bissau and some Central American and Caribbean countries, including Nicaragua, Guyana and Jamaica. In 1998, Central America and Haiti benefitted from teams after the devastation wreaked by Hurricanes Mitch and Georges, El Salvador benefitted from a team to fight a dengue epidemic in 2000, and South Asian countries received teams after the 2004 tsunami. The work was not solely related to natural disasters. Emergency medical assistance was provided to the Soviet Union in 1990 when 17,733 children were treated in Cuba for radiation poisoning following the Chernobyl disaster.

In 2005, in the wake of Hurricane Katrina, Cuba created the "Henry Reeve Team of Medical Specialists in Disasters and Epidemics [25]". The Team comprises doctors, nurses and health technicians who have skills in epidemiology, conditions associated with disasters and language skills. It went into action immediately after being created, sending 2,564 doctors and other medical workers [26] to Pakistan after the Kashmir earthquake where they treated more than 70% of those affected and left behind 32 field hospitals. After the 2010 earthquake in Haiti, the first Henry Reeve detachment arrived within 24 hours to supplement Cuban doctors that had been working in Haitian public health facilities since 1998 under bilateral government agreements. Additional doctors were sent in October 2010 following the outbreak of the cholera epidemic, bringing the number of Cuban and Cuban-trained doctors in the Team to 1,398 [27]. Most recently, in 2014, Cuba committed to deploying 461 health personnel to Sierra Leone and

Liberia to work alongside other nations in the fight against the Ebola epidemic [28]. In recognition of this and previous work the Henry Reeve team was awarded the prestigious 2017 Dr Lee Jong-wook Memorial Prize for Public Health at a World Health Assembly in 2017 [29].

Building health care capacity internationally

During the 1980s, collaboration continued in the form of International Missions but by the end of the decade, “*Cooperacion Compensada*” had started in countries such as Libya, Kuwait and Algeria. Under agreements between Cuba and countries able to pay for medical services, the doctors received a salary from the receiving government, and the Cuban government also received a payment for its medical staff. During this period there was a marked increase in the number of doctors serving overseas - numbers reached 21,500 of whom 13,500 were in Africa (mainly Libya, Angola and Ethiopia); 4,300 in the Americas (mainly Nicaragua) and 3,600 in Asia/Middle East (mainly Iraq) [30].

The 1990s were marked by the collapse of the USSR, the disappearance of the Eastern Block, the Special Period in Cuba, and severe natural disasters in Central America and the Caribbean (Hurricanes George and Mitch) - all of which had an impact on the evolution of medical cooperation. Cuba had reduced its internationalist brigades owing to domestic economic pressures. But following the 1998 hurricanes, 1,000 doctors (mostly specialists in Comprehensive General Medicine) were mobilised to help Guatemala, Honduras, Belize and Haiti. After the relief phase was over, the countries asked for the Cuban doctors to stay on as they were providing services to populations that did not previously have access to health care. As a result, the Cuban government decided to establish a new form of cooperation known as the Comprehensive Health Programme (Programa Integral de Salud, PIS). Medical teams started to provide longer term assistance free of charge to strengthen local health systems in deprived areas. By 2006, Cuba was providing this type of support to 29 countries [31].

In addition to the PIS, Cuba also developed extensive health support programmes first in Venezuela and then on a smaller scale, in Bolivia. The “Mission Barrio Adentro” (Mission into the Neighbourhood) programme which started in 2003 aimed to provide health care services to the poorest and unreached sections of the population. It was staffed by Cuban doctors who lived in the community, and subsequently became responsible for training Venezuelan doctors [32]. It started in the mountains around Caracas before being rolled out across the country; 10,000 Cuban doctors were sent in the first months, and over 20,000 during the first two years. The scale of support to Venezuela resulted in reorganisation of primary health care in Cuba to ensure that it was not adversely affected. A similar medical cooperation programme started with Bolivia where by 2008, Cuban health personnel were working in 215 of the 327 municipalities.

At a regional level, another wide ranging medical initiative was “Operation Miracle”, launched in 2004 by Cuba and Venezuela to offer free ophthalmological surgery to poorer sections of the population across Latin America and later expanded to some Asian and African countries. By June 2014, over 3.4 million people had been treated [33,34]; 6 million people were expected to benefit. The most recent large scale medical cooperation agreement known as “*Más Medicos*” was signed with Brazil in 2013. One year later, 14,462 doctors of whom 11,456 are Cuban are working on the periphery of Brazilian cities, in 34 indigenous areas, and in 3,785 remote rural municipalities [35,36]. Cuban support is not always welcome. In 2005, when Hurricane Katrina destroyed much of New Orleans, Cuba was one of the first countries to offer support but this was rejected by the United States administration [37]. The *Más Medicos* programme that provided Cuban doctors to work in rural northern parts of Brazil was endangered by a joint lawsuit by Brazilian Medical Association and Federal Council of Medicine to the Federal Supreme Court claiming employing Cuban

doctors was illegal [38]. The South Africa – Cuba programme that is training large numbers of black students from rural and under-served urban areas is also under criticism on grounds of not training students capable of dealing with South Africa’s major health problems [39].

In October 2014, 50,000 employees of the Cuban health ministry were serving abroad in 66 countries [40,41], of whom 30,000 were stationed in Venezuela. At any time almost a third of Cuba’s 83,000 doctors are working outside Cuba.

Training for Medical Students from Other Countries

Cuba has a long history of training students from developing countries in medicine at Cuban medical faculties; between the early 1960s to 2004, 3,612 international students from all over the world had trained as doctors in Cuba [42]. Some of them now hold key positions in their national health ministries.

Cuba’s overseas emergency medical assistance strategy in the 1970s also incorporated the training of local doctors to replace those serving in the Cuban Brigades. Between 1975 and 2003, 11 Cuban medical schools were established in Africa and Latin America, all of which were staffed by Cuban doctors and were initially under the supervision of Cuban medical schools – a role now played by Latin American School of Medicine in Havana (ELAM) (see below). Medical Schools were opened in Southern Yemen, Guyana, Ethiopia, Guinea Bissau, Uganda, Ghana, Angola, Gambia, Guinea, Haiti, and Eritrea. When the early schools were established in some countries, medical students travelled to do their 6th year internship overseas, accompanying the Cuban Brigade to open and staff the new schools. The approach of gradually replacing Cuban teaching staff with qualified local doctors was intended to guarantee a sustainable future for medical provision in these countries. All the schools teach the curriculum taught by the Latin American School of Medicine in Havana (ELAM), but adapt it to ensure that the students place special emphasis on the medical issues faced by local populations.

The Cuban approach of training doctors in Cuba and then augmenting in-country training with Cuban professors can tackle the problem insufficient numbers rapidly. For example, in Timor-Leste 700 new doctors were produced between 2003 and 2013. However, an appraisal showed that to make effective use of this rapid expansion in the workforce Timor-Leste politicians had to face several challenges: i) increased health funding to create new posts in rural areas; ii) opportunities for career development; iii) supportive supervision for these young doctors; iv) building rural health infrastructure and logistics to ensure a reasonable working environment [43]. Training the doctors is relatively straightforward. Ensuring financial sustainability for health care, making equal investment in allied health professionals and integrating public and private provision are more complicated but need to be tackled to retain doctors in rural areas and achieve better health outcomes.

A recent appraisal of the Cuban approach to developing medical capacity in Cape Verde highlights the trajectory from the brigades providing health care from independence in 1975 to the opening of its first medical school in 2015 [44]. Importantly, this case study demonstrates that the Cuban approach has produced geographic equity of distribution of doctors across the islands of Cape Verde, has feminized the workforce, and has produced a higher ratio of doctors to population than other African countries (with the exception of South Africa). Health indicators in Cape Verde are considerably better than in other African countries.

In 2005, the New Programme for Training Latin American Doctors was created (separate from ELAM and on a much bigger scale) as a joint Cuba-Venezuela initiative to train doctors from Latin American and other developing countries [45]. Many Venezuelan students were trained in-country by Cuban doctors working in the assistance

programmes (Medicina Integral Comunitaria training programme). Some students gained scholarships to study in Cuba and were based in the provinces of Pinar del Rio, Matanzas, Cienfuegos and the Municipality of Isla de la Juventud.

Latin American School of Medicine (ELAM)

In conjunction with sending doctors through the PIS, a medical school - Escuela Latinoamericana de Medicina (ELAM) - was opened in 1999 in Cuba to train international students from rural, remote, resource scarce and other disadvantaged communities in Latin America [46]. Initially, 10,000 full scholarships were offered to students from developing countries or disadvantaged communities with the idea that the graduates would strengthen their national health systems, and gradually replace the Cuban doctors working in their countries under the PIS. Most these international scholarship students were recruited from underserved communities (from poor, remote, marginalized and indigenous populations) and were expected to return to work in them after graduation. Currently, some students are accepted onto the six-year course at Cuba's expense as an extension of medical cooperation, whilst other students are paid for by their national government or cover their own fees. This has resulted in an alumnus made up of 101 ethnic groups from 27 countries, of whom 51% are women. By 2005, enrolment had reached 10,000 students coming from countries with which Cuba had a government-to-government agreement and other countries that did not. Following the visit of a US Congressional Black Caucus delegation to Cuba in 2000, free scholarships were also given to students from students from low-income and medically underserved regions of the United States [47,48]. The majority of these students were successful in gaining American board certification to practice in the USA on their return. By 2015, ELAM had graduated almost 25,000 international students from 84 countries, almost all from low income families and over half of them women [49]. While the USA has a system for recognition of overseas degrees, many poorer countries do not. This is has become a barrier to employment of international students graduating from Cuban medical schools [50].

What Makes Cuban Medical Education Different from Conventional Models?

Cuba's concept of being in a state of continuous revolution has meant that medical curricula have never been static for long periods of time. Many innovations in both medical education and health service delivery have occurred in response to need. Exploiting the teaching potential of community-based services has been a central characteristic resulting in a much stronger training in primary health care.

The scarcity of resources, particularly during the 'special period', may have fuelled new ways of doing things and self-reliance – for example, in the development of large generics pharmaceutical and diagnostics industries. However, the backbone of medical education in Cuba is made up of values of solidarity and equality and principles for health care were developed at the outset and subsequently incorporated in the Constitution (Table 2) [11].

Cuban medical training provides a much wider set of skills that doctors need to be effective. Entry into medical school in most

Table 2: Principles of Cuban health care [11].

• Health care is a right, available to all equally and free of charge.
• Health care is the responsibility of the state.
• Preventive and curative services are integrated.
• The public participates in the health system's development and functioning.
• Health care activities are integrated with economic and social development.
• Global health cooperation is a fundamental obligation of the health system and its professionals.

Table 3: Roles of doctors trained in the Cuban system [7].

• Care giver
• Decision maker
• Communicator
• Manager
• Community leader
PLUS
• Teacher – to fill the health professional gap

countries is based on academic achievement but in Cuba it is not. For international candidates applying to ELAM, high school certificates are required and a commitment to work with low-income and medically underserved communities after graduation [51]. The multiple roles of future doctors have been considered from the viewpoint of how improvements in health can be achieved (Table 3). Few curricula in other countries consider the managerial and leadership roles required for successful delivery of health care (Table 3).

The lessons for medical education in other countries are profound. The Cuban approach raises questions about our principles, what we are trying to achieve, and how we go about it. For medical schools there are major implications for admission criteria, the balance of community vs. hospital-based teaching, achieving curriculum reform with changing health care needs, acquiring essential skills for teamwork and leadership, and understanding the wider roles of the doctor.

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