

The Role of Social Medicine in Filling the Gap in Human Resources in Health: The Cuba - Timor-Leste Health Program

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Abstract

Objectives

The developing world is faced with a high burden of infectious disease and insufficient physicians to address these problems. The alternative model of medical training that characterizes Cuban social medicine has been credited with the major successes of Cuba's health system, but the possibility of applying this model to other developing countries has not been well studied. In Timor-Leste, physicians newly trained in Cuba in social medicine are returning to practice in the individual patient-focused health care system of Timor-Leste. Although the 1,000 newly graduated physicians expected to enter the Timorese national health system in the coming few years will help fill the current gap in human resources in health, the different approach to health problems afforded by their social medicine training may also present novel challenges.

Methods

The study design employed mixed methods, administering a quantitative questionnaire and performing qualitative semi-structured interviews with all 18 members of the first class of Timorese graduates of the Latin America School of Medicine in Cuba as well as with key informants in the Timorese medical community.

Results

Recent graduates demonstrated a social medicine directed approach to conceptualizing and addressing health issues, including strong public health skills with an emphasis on societal-level determinants of health. In addition, all respondents referred to a humanistic motivation to practice medicine, a service-oriented work ethos and a desire to work from within the community.

Conclusions

The integration of social medicine-trained physicians into the Timorese medical system may produce physicians who put a greater focus on societal-level, public health interventions and who share a humanistic ideology to practice medicine. That approach is relevant for the health problems of Timor-Leste and may in addition provide some resistance to brain drain.

Key Words

Social medicine, human resources, brain drain, Cuba, medical training.

Introduction

Improving health conditions and health disparities in developing countries has sparked lively debate about how best to fill the current lack of human resources in health and what kind of medical training is the most appropriate for the predominant health issues in developing countries. Timor-Leste is one of the youngest nations in the world and is faced with an underdeveloped national health system and a lack of human resources. However, due to a bilateral agreement with Cuba, one thousand Cuban-trained Timorese physicians will be graduating and entering the Timorese national health system over the next several years, with the first class of graduates already at work.

Cuban medical training includes a Social Medicine curriculum, which represents an alternative perspective to traditional allopathic medical training. It comprises an expanded view of public health that considers social determinants of health and illness. The transplantation of Latin American Social Medicine into Timor-Leste's national health system creates exciting possibilities but also raises novel questions. Proponents of social medicine credit its approach with Cuba's success at achieving health status indicators comparable to the developed world. However, the different perspectives and strategies between Cuba and Timor-Leste create the potential for a clash of systems and medical cultures.

The ultimate success of this training program will depend on a comprehensive long term plan for health sector development and require the full cooperation of all stakeholders. Despite the challenges, the Cuba-Timor-Leste medical training program represents an understudied alternative method to meet the health demands of the developing world and building robust national health care systems.

Local Background

Following 24 years of Indonesian occupation, Timor-Leste declared its independence in 1999 under a United Nations-sponsored act of self-determination. During the subsequent Indonesian withdrawal, two-thirds of its infrastructure was destroyed and much of its administrative capacity left the country with the departing

Indonesians. Although Timor-Leste officially gained independence in May 2002, it remains a fragile post-conflict state experiencing bouts of conflict and violence on average every 2 years since 1999. (AusAID, 2010)

Since 2008, Timor-Leste has experienced a period of political stability; however, it continues to face major obstacles to development. It is one of the poorest countries in the world, ranking 162nd out of 182 countries in the United Nations Human Development Index. In 2010, the population of Timor-Leste was estimated to be 1,124,000, 46% of which are under 15 years old. (“WHO | Global Health Observatory Data Repository,” n.d.) Around half of the population lives below the poverty line and three-quarters lives in rural areas (AusAID, 2010). Social services and access to health care are limited outside the capital of Dili and the capacity to travel to referral hospitals for care is limited by geographical and financial barriers.

The national health workforce was also weakened by an exodus of foreign physicians, mostly Indonesian, following independence. Lacking a national medical school prior to the foundation of the Faculty of Medicine in 2005 (Anderson, 2010) by the Cuban medical brigade, all Timorese physicians had been trained internationally, the majority in Indonesia. In 2004, there were only 79 physicians in the country with a physician density ratio of 0.1 per 1,000 people (“WHO | Global Health Observatory Data Repository,” n.d.) (although this does not count the Cuban physicians who arrived the previous year as part of the first phase of the Cuba - Timor-Leste health cooperation). Consequently, the Ministry of Health relied heavily on nurses and midwives (of which there were 1,795 in 2004) to carry out the majority of health interventions nationwide.

In addition to poor access to health care caused by geographical isolation and limited health infrastructure in rural areas, certain characteristics of the Timorese population pose obstacles to improving health outcomes. Low educational levels and a poor understanding of health and health risks have constricted health care seeking behavior. A high fertility rate of 5.7 children per woman combined with poor access to antenatal care (only 55% of all births had at least 4 antenatal visits) and skilled birth attendants (70.4% of births were not attended by a skilled health professional) (DHS, 2011) all contribute to the high maternal and infant mortality levels (MMR is 557 deaths/

100,000 live births, and IMR is 44 deaths/1,000 live births) (de Estatística, Finanças, & Firm, 2010)..

Common among many developing countries, Timor-Leste suffers from a particularly high burden of infectious disease with an age-standardized mortality rate due to communicable diseases of 444 deaths per 100,000 people compared to 560 due to non-communicable diseases. Among the population as a whole, communicable diseases account for the majority of premature deaths (76% of the distribution of the years of life lost). This is particularly evident among children, where the major causes of deaths under five years of age include diarrhea (11%) and measles (9%)(“WHO | Global Health Observatory Data Repository,” n.d.). Due to the general lack of access to medical care in rural areas, a low ratio of physicians to the population and the high burden of communicable diseases, the primary health concerns of Timor-Leste may be particularly amenable to public health interventions.

Problem Statement

Although the Cuba-Timor-Leste health program is successfully moving towards filling the gap in human resources, Timor-Leste is now faced with the unprecedented task of absorbing one thousand newly trained physicians into their national health system. These physicians are being trained through an international cooperation agreement between Timor-Leste and Cuba that began in 2003, in which Cuban doctors were deployed to rural areas throughout the country while Timorese students were sent to Cuba to study at the Latin American School of Medicine (Escuela Latina America de Medicina - ELAM). In exchange for free medical education, students signed an agreement to work within in the national health system for five years following graduation with a preference for rural work placement. The first group of students arrived in Cuba at the end of 2003, with subsequent groups departing until 2006 after which Timorese students began studying medicine at home in the newly created Faculty of Medicine under the instruction of Cuban professors. Although the first cohort of students numbered only 18, by 2008 there were over 850 Timorese students studying medicine (700 in Cuba and 150 in the newly created Faculty of Medicine in Timor) with

an expected graduation of 1,000 physicians by the end of the program (Anderson, 2008).

After 6 years of years of studying in Cuba (one year of Spanish and premedical sciences and five years of medical training), the first class of Cuban-trained Timorese physicians returned to Timor-Leste to complete a final year of clinical training in rural health clinics under the supervision of Cuban physicians. They graduated in September 2010 and began working within the national health system. Although the massive influx of medical graduates scheduled to join the national health system in the coming years will provide much needed human resources, the coordination of their absorption and the nature of their medical training pose unique challenges. The Ministry of Health is responsible for distributing these graduates to rural areas throughout a newly developing healthcare system, many to isolated health posts that have never had a permanent physician on staff. The provision of clinical supervision, formal monitoring and evaluation, and long-term plans for these graduates' career trajectories within in the Ministry of Health is still in development.

In addition to the logistical feat of coordinating these graduates' work placements, the type of supplementary medical training the returning physicians receive may need to be considered when they are integrated into the Timorese health care system. The medical training at ELAM differs from traditional allopathic medical education in its inclusion of a social medicine perspective, characterized by a comprehensive view of health that includes its non-biological determinants. Combining public health skills with a focus on prevention and primary care, social medicine examines social, economic, cultural and environmental factors affecting health. Emphasizing health promotion activities aimed at empowering communities to take control of their own health issues, social medicine asserts that the role of the physician is more than just the clinical treatment of diseases, but also the promotion of health-enhancing social changes. Consequently, a stated goal of social medicine programs includes striving for social change by combating social and health inequalities.

As a result of their social medicine training in the Cuban health model, the integration of these graduates into the national health system presents an unprecedented problem: integrating this alternative model for improving health into a

system that has heretofore included only physicians trained in traditional allopathic medicine. The social medicine emphasis on prevention and primary care must be reconciled with a more standard biomedical approach that traditionally has focused on specialist care with little or no primary care by physicians available to the majority of the Timorese population. Although many of the prevalent health issues in Timor-Leste are amenable to preventive, public health interventions, these activities have not been historically included in the professional responsibilities of physicians working within the national health system. Instead, the Ministry of Health has relied on nurses and midwives to carry out most domestic public health initiatives.

The influence of socialism on the theoretical basis of social medicine training, as well as its association with Cuban revolutionary politics, may also raise issues with these graduates' integration. Social medicine not only includes processes of social transformation as a means to address health issues, its focus on the social determinants of health is a departure from the traditional medical approach that focuses on individual and biological determinants. This shift away from the biological determinants of health have raised concerns within the existing medical community in regards to the depth of the graduates' medical knowledge and the scope of clinical competencies conferred by the Cuban social medicine model of training.

The sheer number of medical graduates anticipated to enter the Timor-Leste national health system and the characteristics of their social medicine training are consequently raising multiple challenges. Integrating them successfully into the national health care system will require comprehensive, long-term planning on the part of the Ministry of Health. The ideological conflicts raised by their social medicine training could create obstacles to their acceptance by senior medical professionals, and thus their effectiveness in the system. The Ministry of Health has the major task of navigating these contradictions and integrating the newly trained physicians so as to maximize its capacity to combat Timor-Leste's health problems.

Literature Review

The alternative model of medical training exemplified by Cuba's ELAM has not been thoroughly examined by western scholars of medicine and public health. In *Health*

in Cuba, Cooper et al argue that “*the major public health advances in Cuba, and the underlying strategy that has guided its health gains, have been systematically ignored*” by western scholars due to current political alignments influenced by Cuba’s revolutionary history (Cooper, 2006). Cooper argues that Cuba represents an important alternative example that merits further study due to the possible implications it may have for other countries struggling to combat similar health problems. Through “*modest infrastructure investments combined with a well-developed public health strategy [Cuba has] generated health status measures comparable with those of industrialized countries.*” Consequently, Cuba’s “alternative model” could help inform other developing countries faced with a disproportionately high burden of diseases compared to developed nations. In addition, this alternative example could also be applicable to more developed countries with health systems that “*are fragmented and inefficient, leaving many population groups underserved and often without health care access entirely*” (Cooper, 2006).

The scant literature on social medicine that exists in the English language explains how it differs from traditional medical training and public health theory. In *Social medicine then and now: lessons from Latin America*, Waitzkin et al describe how “*social medicine differs from public health in its definitions of populations and social institutions, its dialectic vision of ‘health-illness,’ and its stance on causal inference.*” (Waitzkin, Iriart, Estrada, & Lamadrid, 2001). Tracing social medicine’s historical roots in the works of Rudolf Virchow in Germany in the first half of the 19th century to Salvador Allende’s articulation of Latin American social medicine, Waitzkin explains how social medicine differs from the traditional public health in its unit of analysis. Public health traditionally defines a population as a sum of individual characteristics, such as gender, age and income. In contrast, social medicine shifts the unit of analysis to society as a whole, analyzing a population through categories such as social class and economic production and “*not simply through the characteristics of individuals*” (Waitzkin et al., 2001). Additionally, social medicine “*conceptualizes ‘health-illness’ as a dialectic process rather than a dichotomous category*” (Waitzkin et al., 2001). Finally, proponents of Latin American social medicine have criticized the causal inference of traditional public health for their focus on the biological components of health problems such as

cancer and hypertension, arguing that this focus “*reduces the unit of analysis to the individual and thus obscures social causes amenable to societal-level interventions*” (Laurell, 1989).

Previous literature focused specifically on the Cuban-Timor-Leste health program is limited to only a few researchers, such as Tim Anderson of the University of Sydney. In *Solidarity Aid*, Anderson examines the opportunities and challenges posed by the program, which he identifies as organization and retention. In addition to the administrative task of absorbing new doctors, Anderson discusses how the “*service ethos of Cuban medical education will be important is combating brain drain, and in encouraging the new doctors to keep working at the village level*” (Anderson, 2008).

In *Social Medicine in Timor-Leste*, Anderson considers “*to what extent an endogenous ‘social medicine’ might be developing in Timor-Leste,*” and points out that “*such a development would require a transition away from the existing small, private clinic-based model.*” Anderson argues that a transition to social medicine in Timor-Leste has several advantages, including “*the large scale of the new training program, a sympathetic culture [of community solidarity, inclusive Christianity and independent spirit] and potential leadership.*” He concludes by suggesting that despite the importance of the Cuban influence, endogenous factors would cause social medicine in Timor-Leste to “*necessarily be an East Timorese synthesis*” (Anderson, 2010).

Despite a general lack of scholarly work examining the social medicine model of medical training, what exists raises important questions regarding its significance to other countries struggling with high burdens of diseases and/or inefficient primary care systems.

Specific Aims

This study examines the experiences of Cuban-trained Timorese physicians integrating into the national health care system and the unique circumstances of importing social medicine-trained doctors into a traditional health system and medical culture. The graduates’ social medicine perspective has the potential to strengthen preventive public health activities and facilitate the development of a strong primary care system. In particular, the humanitarian principles inherent to social medicine

training may have implications for minimizing brain drain and increasing physicians' willingness to practice in rural areas. However, the different approaches to addressing health may also create conflicts that limit the graduates' ability to pursue public health activities and constrict their acceptance by the existing medical community.

The specific objectives of this study are: (i) to collect and synthesize the experiences of the first class of graduates during their first year of service in the Timor-Leste national health system, (ii) to determine what, if any, effect their social medicine training has had on their professional efficacy and career goals, and (iii) to identify possible strengths and weaknesses of applying a Latin American Social Medicine perspective to developing health care systems. To this end, this study researched the following questions:

1. How did social medicine training influence these graduates' motivation to practice medicine and the way in which they approach health problems?
2. What are the benefits of applying social medicine ideals towards the health problems of developing countries, specifically in terms of public health orientation, rural placement and minimizing human capital flight?

Methods

Sample

The sample for this study was comprehensive, including the entire population of the inaugural class of 18 graduates. The criteria for inclusion in the study were membership of the inaugural class of Timorese students who studied at ELAM in Cuba and graduation in September 2010. Members of subsequent classes or anyone not graduating on schedule were excluded. The class valedictorian facilitated recruitment of the other members of the cohort via email. All participants were given informed consent and the opportunity to decline participating prior to the data collection. Of the 18 members of the inaugural class, 16 were interviewed, 15 of whom completed questionnaires.¹

¹ 2 people were working in rural communities and were not contactable. 1 person completed the interview process, but did not complete the questionnaire.

In addition to the individual interviews with members of the inaugural class, the author conducted semi-structured interviews with key informants in the medical community. These informants included Dr. Rui de Araujo, the former Minister of Health, Dr. Joao Martins, the vice-dean of the Faculty of Medicine in Dili, Dr. Virna [sp?], the Director of the Timor-Leste Medical Association, Dr. Emilia Botello, the Cuban Dean of the Faculty of Medicine, and Dr. Eric Vreede, an anesthesiologist working at the Dili national hospital. Interviewees were asked to share their perceptions of how prepared the graduates appeared and to discuss any differences in their approach to health problems.

Description of data analysis

The research questions were aimed at uncovering common themes from the experiences of these young physicians. As an exploratory study aimed at understanding the individual experiences of these recent graduates, in addition to identifying differences in the way they approach health challenges, this study employed mixed qualitative and quantitative methods. The qualitative portion entailed semi-structured and structured elicitation methods to illuminate the integration experience of these 18 Cuban-trained physicians. The quantitative portion involved a survey questionnaire that asked respondents to rank obstacles and answer 68 multiple-choice questions about basic clinical competency, orientation and supplementary training, and work place assignment.

Quantitative data from the completed questionnaires were fragmented by question and then aggregated into an excel spreadsheet to yield overall responses to numerically scaled questions. Those responses were then represented visually with pie charts or bar graphs, depending on the question format.

Qualitative data from interviews recorded by the author were reviewed with representative quotations and commonly cited terms or phrases transcribed. Through the use of open-coding and from a grounded theory epistemology, common themes were coded with a conceptual title. As the review and coding process progressed, 78 codes were initially attained which were then pooled into 28 categories.

Data Collection and Analysis

The standardized questionnaire collected measures of the perception of the graduates' basic medical competency, orientation to the national health care system, and work place assignment. For each topic in basic medical competency—such as indications for further testing, screening protocols for diabetes, and newborn resuscitation—respondents separately indicated their perceived level of basic (theoretical) training as well as their level of clinical experience. Ranked on a 4 point scale, respondents selected either (1) none, (2) minimal, (3) basic, or (4) comprehensive for basic medical training and either (1) none, (2) minimal, (3) substantive or (4) extensive for clinical experience using those skills.

Questions on orientation focused on the respondents' perception of how well they felt prepared to work within the national health system. Topics in the work place assignment section asked about the availability of basic medical supplies, transportation and the adequacy of their housing. The semi-structured interview guide asked participants to discuss their vision of medicine, motivation to become a physician, experience studying in Cuba and experience returning to work in Timor-Leste. All participants were given time at the conclusion of the interview to discuss any other items they wished to share.

The Human Subjects Division at the University of Washington approved the study's research protocol and the Human Research Ethics Committee within the Timor-Leste Ministry of Health also reviewed the study protocol and presented no ethical objections.

Results

The study results are separated into four sections. The first section on clinical skills reports the graduates' perceived strengths in primary care skills and addresses perceived deficits in procedural skills. The next section covers public health skills and the community/population level perspective the graduates possess. The third section addresses some system-wide factors influencing the graduates' preparedness and ability to function independently. Finally, the fourth section discusses the mission-driven work ethos of the graduates and how it influences their professional efficacy.

Clinical Skills

The graduates' education in primary care skills was reportedly strong, with the majority indicating that they received comprehensive training in screening for heart disease (73%) and diabetes (67%), family planning (different contraceptive methods) (73%), and antenatal care (60%). The vast majority reported comprehensive training in medical history taking (100%) and physical exam skills (80%), with corresponding lower level of clinical experience practicing these skills: only 36% reported extensive history taking skills and 27% extensive physical exam skills. The trend of reporting higher degrees of basic training compared to clinical experience was repeated over every category. However, the highest-ranking level of basic training and clinical experience was predominantly limited to activities traditionally included in primary care.

Compared to primary care skills, respondents indicated a lower level of procedural skills. For example, 50% reported minimal or no basic training in performing caesarian sections, 80% received no basic training on endotracheal intubation and 60% reported no training in setting fractures. Their level of clinical experience managing serious obstetric conditions appeared even more limited. Seventy-four percent of respondents reported minimal or no clinical experience with caesarean sections. Likewise, 35% of respondents reported minimal or no experience treating postpartum hemorrhage and 66% reported minimal or no experience dealing with obstructed labor.

Senior Timorese physicians working with the graduates reported that they had also observed some deficits in procedural skills. Dr. Virna, the Director of the Medical Association, noted that compared to physicians trained in Indonesia “*the ones from*

Cuba are not as confident, they require more consultations and don't function as independently." In particular, she noted that graduates appear to lack minor surgery skills, advanced life support skills such as intubations, and obstetric skills such as managing complicated deliveries.

Although key informants from the Timor-Leste medical community identified some deficiencies in procedural skills, Dr. Botello argued that this perception is influenced by a lack of understanding of social medicine training and the importance it puts on health promotion:

"Physicians trained in an illness-focused [traditional allopathic] system believe that our graduates are simply health promoters. Our graduates not only promote health and primary prevention, they also diagnose, treat and reevaluate in a comprehensive process. They're not just health workers who go into communities to do health promotions, they are health care professionals with general medical knowledge that they continue to develop and build upon in their post-graduate careers." (Botello)

From Dr. Botello's perspective, the perceived deficiencies in clinical skills are to be expected in young graduates. As opposed to an implication of inherent weaknesses in their training, graduates simply need greater clinical experience that will build upon the foundation that they established during their medical training.

Although there was a general consensus among graduates as well as the key informants that they were in need of greater procedural skills, there was less consensus regarding how best to attain those skills. The traditional organization of postgraduate training in the Cuban system sends recent graduates to rural locations where they are expected to function independently without supervision for up to two years. The first class of graduates was initially sent to rural clinics following graduation, in line with the traditional Cuban program. However, after 6 months in these rural clinics, the Ministry of Health recalled the majority of these graduates to Dili National Hospital due to a shortage of human resources there.

Dr. Botello, the Cuban Dean of the Faculty of Medicine, lamented the short stay of the graduates in the rural work placement. Referring to the underlying goal of social transformation in social medicine, Dr. Botello argued that 6 months is *"not long enough to transform a community."* Although she recognized the need to reinforce hospital

staffing, Dr. Botello maintained that graduates should continue to spend their first two postgraduate years in rural clinics once there are enough graduates to staff the national hospital.

Dr. Botello's perspective differs from other physicians working in the national health system. Dr. Vreede, an anesthesiologist, argued that they are not fully prepared to practice independently. *"In this country it is important that they have a number of skills so that they can actually do a number of procedures. Because that's what they'll have to do in the districts."* Dr. Vreede pointed to key differences in geography and health care system organization between Timor-Leste and Cuba that requires a greater command of clinical skills for these graduates compared to recent graduates in Cuba.

"The big difference between Timor-Leste and Cuba is that Cuba is a flat country with a few mountains on both sides. This country is a mountainous country with a bit of flat on the North and South coasts. As a result, it's very difficult for patients to reach a health facility. So the demand on the general practitioner will be much higher than it is in Cuba where you have a sub-specialist on every corner. So overall doctors here will need to have considerable practical skills to deal with a wide variety of cases that normally you'd like to be able to refer to a hospital or another facility." (Vreede)

Although the graduates themselves unanimously reported positive experiences working in the rural clinics, many of them reported feeling unprepared and uncomfortable dealing with the common presentations that they encountered while working in the rural clinics. The "first time alone in the rural clinics, without another physician to look over my shoulder, it was scary to be responsible for every patient." Lacking both substantive clinical experience and procedural skills, many graduates reported sending patients to referral centers that may have been safe to manage medically at the clinic level, but whom they did not feel comfortable treating without greater supervision. The lack of supervision and limited ability to consult senior physicians via telephone combined with the absence of reliable patient transport places even greater autonomy on physicians practicing in these rural settings.

Public Health Perspective and Health Promotion Activities

Graduates tended to view health problems from a public health perspective and emphasized preventive interventions over clinical treatments. Respondents frequently referred to non-biologic determinants of health such as low educational levels, poor understanding of the causes of illness, and inadequate health care seeking behavior. They identified the need for health promotion activities on a community level to “*change the status quo [of health seeking behavior] in this country that is caused by lack of understanding of health problems and resistance to come to the doctor.*” From a population-level perspective, respondents frequently asserted the primacy of improving population health as “the action that is going to advance the country” in terms of development and health status indicators.

Dr. Botello argued that this focus on including health promotion into the professional responsibilities of physicians is a departure from the traditional doctor-patient relationship. She explained that what social medicine views as limitations of the traditional “*clinically-centric model focused on the physician-patient encounter. [T]he product is a doctor who works in a clinic and only addresses the concerns that the patient brings with him or her, but does not offer a wider, more comprehensive approach.*” In contrast, graduates continually referred to the need for the physician to seek out the patient in the community, in order to observe his or her social environment and intervene where unhealthy situations are discovered.

“[I]n social medicine we work closer with the population. For example, if a doctor has a patient in the community with hypertension, then he or she is monitoring him every week or month, watching the evolution of the disease and identifying the other factors of the disease, [such as] the patient’s living conditions, etc. And from this approach the physician is able to fully explain the patient’s risk factors and work to reduce them. And this is how we achieve the best outcome by modifying the patient’s lifestyle [and other determinants of health].” (Botello)

Despite the importance that graduates placed on health promotion activities, many reported that their ability to perform health interventions on a community level was limited because the Ministry of Health employs them to work primarily as clinicians. One graduate reported collecting data on all of her patients living with tuberculosis, including demographic information, living conditions and other risk factors. However, when she presented her (raw) data to a ministry official, they were unable to use it.

Dr. Botello considers that this missed opportunity is a result of a poor understanding of the Cuban medical training and a barrier to improving health.

“The Timor-Leste Medical Association does not understand our training and so they wish to employ the facilities of our graduates in a limited position for a physician that could be much more useful in a society such as Timor. [They] do not take into consideration the largest contributor to mortality in Timor-Leste: social determinants of health related to lack of development.” (Botello)

Systemic Limitations

Graduates reported various instances in which they felt unprepared to work in rural areas due to system wide issues such as resource limitations and lack of feedback from the Ministry of Health on the clinical performance. In terms of resource limitations, graduates identified the lack of essential medicines, basic diagnostic and laboratory equipment and transportation as major barriers to their clinical efficacy. Fifty percent of respondents reported lacking basic diagnostic equipment on at least a weekly basis. Thirty-six percent reported lacking essential medical supplies on at least a weekly basis, and 50% reported lacking access to patient transportation on at least a weekly basis.

In regard to formal evaluations, graduates reported that they had received no formal feedback on their clinical activities from the Ministry of Health. Part of this lack of feedback may have been due to their short stay in the rural clinics: *“They’re supposed to [give feedback] every 6 months, but because we were reassigned to the National Hospital it didn’t happen at 6 months, so we’re still waiting.”* However, other graduates reported a systematic absence of a formal feedback mechanism. *“[T]here’s no control over health care workers. There’s only an annual evaluation of the director of the health centers, but we lack a specific evaluation from the Ministry of Health of our work.”* Regardless of the cause, all graduates unanimously stated that they would prefer to have a formal evaluation of their clinical performance by the Ministry of Health.

Another finding that confronted the graduates’ abilities to function as young doctors was a difference in medical culture between Cuba and Timor-Leste. Compared to the graduates experience in Cuba, the Timor-Leste medical culture was more traditional and hierarchal. For example, one respondent commented:

“In Cuba we were taught to be physicians but without the medical hierarchy that exists elsewhere. For example, if you’re in a year above me, we are still friends.”

But in Indonesia, if I'm at a higher level than you then I am going to treat you differently. I can order you to do anything I want, but in Cuba no. Everyone is friends and equal. So when we arrived, since they were senior they felt like they could order us to do what they liked. 'You can't go in there, you have to do this, you must sit here...' They don't treat us like we're Timorese here to improve the health of our country. Instead they act like 'we were here first, you're the last who arrived so you have to follow what we say.' (anonymous graduate)

Graduates attributed this difference in medical culture to some difficulty in establishing professional relationships with senior physicians. This tenuous relationship may have created an environment where graduates encountered problems attaining further clinical skills. *"Here in Timor-Leste, we do not have access to professors outside of our curriculum or until we have reached the appropriate level of training."* (anonymous graduate)

This commentary on interpersonal relationships among physicians from different training backgrounds reveals another important obstacle to the graduates' integration: a sense of incomplete acceptance by the existing medical community. In addition to concern expressed by some senior Timorese physicians in regards to the quality and depth of Cuban medical training, graduates felt that political bias may also be preventing their acceptance.

"I think that many people view our training in Cuba with a political interest. They don't like that students go to Cuba to study medicine, especially at the volume in which they go. So there's [sic] a lot of Timorese doctors who studied medicine in different countries who are a little jealous to see us becoming physicians at such a high rate. And I think that this jealousy influences the degree to which they accept us to work with them." (anonymous graduate)

It is unclear whether any perceived reluctance to accept Cuban-trained physicians is a function of entering a traditionally hierarchical medical culture where young physicians must prove themselves or is more due to politically motivated discrimination. Nonetheless, the overwhelming perception expressed by the graduates was that their acceptance as co-workers was less than complete. Consequently, two-thirds of respondents indicated that they felt unwelcome and unaccepted, or only partially so, by senior Timorese physicians. Two-thirds also reported that they received minimal or no support from senior Timorese physicians. Eighty-seven percent of

respondents indicated that either the existing cooperation with senior physicians was good but more was needed, or that much greater cooperation was needed.

A Mission-Driven Work Ethos

A particularly mission-driven ideology was one common factor that appeared to contribute to the graduates' perceived preparedness to enter the national health care system and to work in rural areas. Graduates cited a commitment to humanistic values —“*humanismo*” in Spanish—as a driving force behind their professional goals. They referred to the importance of human life and to serving the community as major motivators to practice medicine.

“What is more important than a human life? That's what drew my interest to medicine and motivated me. That we can do something to help and that Timor-Leste can have physicians to serve its population.” (anonymous graduate)

This humanistic motivation to practice medicine was routinely combined with the idea of serving the population by being part of the community. *“My intention is to help people. To help people and alleviate the suffering of the sick. And that means not only treating my family, my uncles, my parents, but also treating the rest of my community like they were my family.”* This concept of not only serving the community, but also living with them as equals reflects the social medicine training the graduates received.

“[There is a] difference between doctors trained elsewhere [compared to those trained in Cuba]. [It] is the mentality, [doctors trained elsewhere] seem to believe that because they are doctors, they should earn a lot of money and with this money they should live well, because as a physician you are superior to everyone else. But not in Cuba. There the doctors are trained to serve, to serve the community. Yes, they are still paid with money, but that's not why they practice medicine. They practice medicine because they must work for humanity.” (anonymous graduate)

According to the graduates, fulfilling this humanistic maxim reportedly has two logistical advantages for physicians combating community-wide health problems. First, it allows physicians to gain first-hand knowledge of the prevalent health issues in a given community. Secondly, it provides the opportunity to directly intervene to improve health behavior.

“[Where] we work is very close, side-by-side the community, and therefore we know the health challenges to the population. So we're intimately involved in the

health of the population, providing primary care, but also attempting to change [unhealthy] lifestyles.” (anonymous graduate)

When asked directly about their thoughts on the influence of their social medicine training, graduates reported that the perspective of social medicine specifically prepared them to take on the health concerns of Timor-Leste. One graduate stated that her motivation to practice medicine began with a desire *“to treat infectious diseases in Timor-Leste, [and I] realized that these diseases were preventable, compared to the chronic diseases elsewhere, and so I wanted to be a doctor to help prevent these diseases. And Cuban medicine appealed to me because it believes that ‘to prevent is better than to treat’.”* Graduates cited the desire to develop national campaigns to eradicate infectious disease and launch community health promotions aimed at correcting unhealthy behavior. Although none had yet to take part in a large-scale public health program, they consistently reported feeling particularly prepared to take on the predominant health issues of Timor-Leste with the public health skills and perspective afforded by their social medicine training.

Discussion

This exploratory study highlights the complex strategic, ideological and sociopolitical issues raised by importing social medicine-trained physicians into a developing health care system. At the same time, the results suggest that certain aspects of social medicine training may be particularly effective in developing countries with health problems amenable to preventive and primary care interventions. Compared to traditional allopathic medical training, social medicine provides young physicians with supplementary skills and a humanistic motivation to practice. The integration of social medicine-trained physicians into the Timor-Leste national health system thus raises novel issues as well as the potential for unprecedented contributions.

This study investigated an important example of social medicine-trained physicians integrating into a traditional allopathic health system that is dominated by health officials with standard allopathic medical training. Due to the small sample size and unique characteristics of Timor-Leste, the results are unlikely to be generalizable to other countries receiving graduates with social medicine medical training. Nonetheless, the insight gained from the experiences of these graduates does contribute to an understanding of the value of social medicine training and its implications for developing countries, and suggests possible areas of further study.

The discussion section is divided into 4 sections. The first examines the significance of the graduates' humanistic motivation to practice medicine and its implications for physician retention and rural placement. The next section discusses the graduates' clinical competencies and potential deficits in procedural skills. The third section covers their public health training and what implications that may have for Timor-Leste's greatest health concerns. Finally, the fourth section discusses the clash of cultures and systems created by the integration of social-medicine trained physicians.

“Humanismo” and its Implications

The graduates' self-reported motivation to practice and their underlying ideology are perhaps the most striking results of this study. Although medicine has always been a profession of service, the provision of health services in both the developed and developing world has become increasingly commodified and commercialized. Developing

nations have been encouraged to develop their private sector health services as a means to create revenue and jobs. The humanistic motivation articulated by the graduates flies in the face of this trend.

This humanistic motivation is by no means unique to social medicine-trained physicians. Indeed, there are many examples of physicians trained in traditional allopathic programs who demonstrate great humanism and self-sacrifice in their professional lives. What is unique to these graduates is that every respondent reported a commitment to humanistic ideals as the reason they wanted to become physicians, and that it influenced the type of physician they intend to be. Compared to traditional allopathic medical schools, there are a myriad of alternative personal motivations for pursuing a career in medicine. While students with humanistic ideologies are certainly encouraged and supported, so are students with a desire for scientific rigor, a special capacity for surgical skills, or the need for job security. The range of sources of personal motivation for students in standard medical schools stands in stark contrast to that of the students and graduates of social medicine-based training, where a humanistic motivation appears to be almost a prerequisite.

This humanistic motivation also influences the relationship these physicians have with the community that they serve. The importance of living in solidarity with their community has several logistical and social implications. Both developed and developing countries have historically encountered problems obtaining enough doctors to staff rural health facilities. In Timor-Leste prior to the Cuban-Timor-Leste health program, there were virtually no physicians outside of Dili and a limited number of national referral centers. The contract signed by all graduates prior to beginning their training committed them to five years of public service, with a preference for rural areas. Yet fulfilling this contract and maintaining physician staffing after this commitment has been met will be threatened multiple factors drawing doctors away from rural placements.

Human capital flight—or “brain drain”—of physicians from rural areas to urban areas or international destinations represents a major challenge to strengthening health systems worldwide (Sherr et al., 2012) Drawn by higher salaries, greater professional opportunities and higher standards of living, physicians represent one of most heavily

sought human resources as well as one of the most mobile. For physicians guided primarily by professional ambition and/or financial gain, there is little reason for them to remain working in rural areas under austere conditions.

The problem of medical brain drain is critical in the developing world, where a relatively small number of physicians are available to meet the demands of expanding populations and for whom opportunities to earn more and specialize further are particularly attractive. Consequently, there is a need to create incentives for physicians to remain working in rural areas. Although the contractual agreement with the Timor-Leste government represents one factor encouraging graduates to practice rurally, their professional convictions and humanistic ideology are even stronger motivating forces to do so.

In addition to financial remuneration and job security, the social status of physicians has traditionally been an employment benefit. However, the social medicine-trained graduates attribute their social status to being part of the community and providing essential care to the underserved. This perspective contrasts sharply with the traditional social status of physicians that comes from being part of a professional guild and benefiting from a higher socioeconomic status than the majority of the population. As a consequence of this alternative source of social status, the graduates could possibly be less susceptible to the forces fueling brain drain. The potential resistance to brain drain could have implications for other developing countries struggling to fortify, or simply maintain, their human resources in health.

Consequently, the influence of social medicine training may have important implications for other countries struggling to maintain their human resources in health in rural areas. There is a need for greater evaluation of the effects social medicine training in physician retention and efficacy outside of Timor-Leste, both in developing countries as well as developed countries. The particularly humanistic motivation of graduates from social medicine-focused training programs has the potential to help mitigate the detrimental effects of brain drain and increase the human resources available to address health concerns in rural communities.

Clinical Competency

The unorthodox and poorly studied Cuban system of medical training raises questions about clinical capabilities of the physician it produces. The inclusion of a social medicine curriculum into an already rigorous medical education could lead to the omission of other key elements of medical curricula in place of the social medicine training.

The question of whether or not graduates of Cuban medical education possess the same clinical skills as graduates from traditional allopathic medical schools is beyond the scope of this study and would require a much larger quantitative approach with standardized evaluation measures. However, the specific procedural skills which the graduates reportedly lack—intubation, setting fractured bones, managing postpartum hemorrhage—are rarely skills that are mastered while still in medical school, regardless of the type of medical training. Rather, as Dr. Botello argues above, these types of skills “*continue to develop and [are built] upon in... postgraduate careers.*”

In most western countries graduation is followed by additional training and specialization under the direct supervision of senior physicians. However, the geographical isolation and current organization of the national health system in Timor-Leste requires that physicians have certain clinical skills mastered in order to function independently. The realities of working in the rural clinics appear to demand greater proficiency than most graduates possess at the time of graduation. Consequently, it may be necessary to alter the traditional postgraduate trajectory of the Cuban system in order to allow graduates to continue their training under direct supervision prior to working independently in the rural clinics.

Therefore, one recommendation is that graduates not be placed immediately at rural health clinics to practice independently. Instead they should continue to train under the supervision of more senior physicians. This postgraduate training could take place at Dili National Hospital, a regional referral center, or even at rural health clinics. One advantage of training in Dili National Hospital or a regional referral center is the availability of greater material resources, specialty consultation and exposure to more critically ill, hospitalized patients. In these secondary or tertiary care centers graduates

could gain skills in certain advanced procedures, such as intubation and setting bone fractures, that they would not perform in rural clinics (due to the absence of mechanical ventilation machines or radiographic diagnostics).

The possibility of supervised training at the level of rural clinics could help prepare graduates to function more independently and to utilize referral services more efficiently. The inability to consult senior physicians when unsure about the appropriate treatment course was a major obstacle to the graduates' ability to function independently in rural clinics. Consequently, the ability to consult senior physicians could help to strengthen graduates' medical decision-making capacity as well as to conserve resources by limiting inappropriate patient referrals. One barrier to direct consultation by senior physicians is that the Ministry of Health has historically had difficulty placing senior doctors in rural health clinics. Apart from Cuban physicians participating in the Cuba-Timor-Leste health assistance program, senior Timorese doctors have traditionally preferred to work in Dili or national referral centers.

One alternative to direct consultation at the rural clinic level could be telemedicine, using mobile phones and/or Internet services to communicate with senior physicians in Dili. Many graduates reported that despite their relative isolation while working in rural clinics, they routinely consulted Cuban physicians via mobile phone. Building upon this precedence, a formalized program under the Ministry of Health could bolster young physicians' independence while simultaneously improving national oversight of their clinical activities. Such a program would require a robust communication network and a centralized supervision system that monitors and directs junior physicians working in remote areas. Although the national health system currently lacks the infrastructure and organization to support such a program, it could be included in a larger effort to establish stronger monitoring and evaluation of rural clinic activities.

Public Health Skills and a Social Medicine Perspective

The primary health concerns of the Timor-Leste population are amenable to public health and primary care interventions and could be addressed by the growing cadre of medical graduates. Examining the history of controlling communicable diseases, such as tuberculosis, in developed countries supports the primacy of broad

public health interventions. The sudden decline in the prevalence of tuberculosis in the United States in the first half of the twentieth century predated the availability of antibiotic treatment by decades, instead owing its success largely to public health interventions that improved housing and sanitation. Timor-Leste is no different than many developing countries struggling to control communicable disease, which would likely be amenable to population-level public health interventions.

Graduates consistently indicated that they planned to integrate preventive health interventions into their professional responsibilities. As one graduate explained during their graduation in 2010, *“In Cuba they taught us to work, but to work with love – as a doctor, a scientific doctor but a doctor with a heart. More than the work to cure illnesses, we have the responsibility to prevent it, to teach people so they can participate actively in the prevention of illness.”* (Anderson, 2010)

These graduates’ public health training and familiarity with community wide interventions represents an important potential contribution to the development of the national health system. Their understanding of a wide spectrum of determinants of health and their experience with community health interventions in Cuba makes them particularly proficient in preventive health interventions. However, heretofore, graduates have not been able to employ many of their public health skills.

There are several reasons why graduates have largely been unable to employ their public health perspective thus far. These include a lack of understanding of the breadth and depth of their social medicine training by the existing medical community, the need for graduates to gain more clinical experience in their first year after graduation, and the historical precedent in Timor-Leste of public health activities being the responsibility of nurses and midwives, not physicians. In order to utilize the public health skills of these graduates, the Ministry of Health will need to reorganize how public health interventions are planned and executed, ideally with the active participation of the graduates.

Although this change will not come without conflict or compromise, the Ministry of Health is already charged with reorganizing and rethinking their national health system by placing graduates in rural clinics that have never had full time doctors on staff until now. Consequently, their rural placement is particularly useful for them to serve as

“sentinels” of the public health system, collecting epidemiological data and executing public health campaigns.

One recommendation for future policy directions is to include graduates in the strategic planning of public health initiatives on a national level. Participating in the development of a national public health surveillance apparatus and the subsequent interventions could have many benefits. First, the inclusion of recent graduates could influence the professional trajectory of some graduates, effectively grooming the next generation of Timorese public health officials. Secondly, it would facilitate the integration of a social determinants of health perspective—including society-level health determinants such as living conditions, educational levels and cultural influences—into the analytical framework of Ministry of Health. Expanding the unit of analysis to include both individual and societal characteristics could both supplement and strengthen the current understanding of the causes of illness as well as reveal additional areas to which to target public health interventions. Finally, the participation of recent graduates could help create a system that more effectively utilizes their unique public health skills, such as collecting epidemiological data and performing health promotion activities.

Clash of Cultures and Systems

The addition of one thousand physicians with social medicine training into a developing health care system in a small country will undoubtedly challenge the status quo and influence the ultimate form that the system takes. The sheer number of graduates anticipated to enter the national health system in the coming years will soon make Cuban-trained physicians the overwhelming majority in the Timor-Leste medical community. This virtual invasion of the preexisting Timorese medical community by social medicine-trained physicians has not been without conflict.

Historical political allegiances and different professional values have limited the degree of cooperation between graduates and the senior Timorese medical community thus far. Questions about Cuba’s intentions and political influence appear to have created apprehension among the medical community and likely influenced their skepticism about the quality of the graduates’ medical training.

Although this clash of cultures may have been influenced by political allegiances, another underlying issue appears to be a difference in the forms of medicine represented by the graduates compared to the existing medical community. Anderson argues that *“the root of [this conflict] lies in the different modes of medicine the groups represent: one a community service, public system approach and the other a private practitioner, fee-charging system.”*(Anderson, 2010)

The difference between the service-oriented, humanistic motivation of the graduates and the professional, biomedical approach of the existing medical community challenged many within the existing medical community to examine their underlying beliefs about the causes of illness and their professional responsibility to address those causes.

Although there are certainly many senior Timorese physicians who are motivated to practice medicine for humanistic reasons, they view the causes of illness from a more biologically-determined point of view. In contrast, social medicine-trained physicians are taught to identify the societal causes of illness and how those determinants place a disproportionate burden on the poor. Consequently, the graduates view the social causes of illness, such as poor education and economic inequality, to be as important as the biological causes and have been trained to pursue social transformation as a means to improve health.

In addition to the differences in which these two groups view the underlying causes of illness, the systems in which they trained differ. Compared to the graduates' experience training in Cuba's national health care system where physicians see patients both in clinic and in the community, the majority of senior Timorese physicians were trained in Indonesia or elsewhere, where the physician-patient relationship was limited to the clinical setting. In addition, while many of the senior physicians work in the national hospital, others are employed in private clinics where a traditional fee-for-professional-service paradigm characterizes their clinical activities.

The Ministry of Health is now charged with the task of finding what balance can be struck between these two different modes of medicine. Ideally these decisions will be based on which aspects of each system are most appropriate for Timor-Leste's health problems. There are benefits to a social medicine, public health approach that make it

an appropriate fit for Timor-Leste. Despite important differences, post-independence Timor-Leste and post-revolutionary Cuba share many similarities. Both suffered from a lack of medical doctors, poor health infrastructure, a high burden of communicable and preventable diseases, and a population with limited health knowledge. Considering the success of Cuba's health system in attaining health status indicators comparable to developed nations, the potential of drawing from Cuba's example to inform the development of the Timor-Leste health system merits discussion.

In *Social Medicine in Timor-Leste*, Anderson argues that the development of an endogenous social medicine in Timor-Leste will “*necessarily be an East Timorese synthesis*” (Anderson, 2010). Fortunately, the history of social medicine in Latin America has demonstrated its flexibility and ability to adapt to local conditions. In particular, the underlying theory behind the social causes of health and illness has proven to be flexible.

“Anticipating current methodological trends in the United States, leaders in Latin American social medicine since the mid-1970s have called for a multi-method approach that ‘triangulates’ complementary methods at both individual and societal levels of analysis.” (Waitzkin et al., 2001)

The fact that the leadership within social medicine voluntarily compromised the theoretical foundation of their perspective to include the more traditional public health unit of analysis is a testament to the malleability of its practitioners. Similar compromises between the social medicine trained graduates and the existing Timor-Leste medical community could help pave the way for an East Timorese synthesis.

Consequently, an initial recommendation to facilitate a cooperative working relationship between social medicine-trained graduates and the existing Timor-Leste medical community could be to expand the dialogue on the different approaches to examining the determinants of health. Clearly, there is no one correct way to analyze the determinants of population health. Both individual and societal levels of analysis contribute to the understanding of disease processes and help identify areas towards which to target interventions. By increasing the current understanding of social medicine's approach to analyzing society-level determinants, the Timor-Leste medical

community can begin to elucidate benefits of a complementary approach and move towards an agreeable synthesis.

Conclusion

The Cuba-Timor-Leste medical training program reveals an important insight into how the type of medical training and the underlying work ethos may affect physician preparedness to work in rural locations within a developing national health care system. The social medicine perspective exemplified by the Timorese graduates of ELAM provides them with unique public health skills and an alternative motivation to serve. Consequently, the inclusion of a social medicine-focus in the medical training of physicians destined to work in underserved areas may contribute strengthening health systems in the developing world. In addition, their greater willingness to work in rural areas may also have applications to developed nations struggling to improve their primary care systems and staff their rural health clinics.

Reconciling the different approaches and ideologies of social medicine-trained physicians and traditional allopathic trained physicians will not take place overnight. In Timor-Leste, an incomplete understanding of what social medicine training entails, as well as political and professional conflicts, have limited the degree to which graduates are able to make use of their public health training. Whether or not a social medicine perspective is incorporated into the strategic planning of future policy in the developing health care system in Timor-Leste will depend on how successfully the precepts can be synthesized with East Timorese culture and society.

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