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TODAY

April 2011

Volume 38 • Number 2

Going Global



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Primary healthcare for poor nations

The Cuban system is not an anecdote for U.S. healthcare woes, but it might be just what the doctor ordered for developing countries.

By
Hari Balasubramanian

No two doctors are the same, but the most basic division is between a generalist and a specialist. A generalist is someone who understands the body as a whole while the specialist knows more about a specific part of the body – the heart, for example.

A generalist physician provides the most basic kind of care – primary care. If a population has good access to generalists then it is likely that its health will be strong [1]. Put another way, if an individual regularly sees and trusts a family doctor, he is less likely to have serious health problems in the long run. The primary care physician emphasizes preventive care and a holistic view of the patient’s health; she is aware of the patient’s social context and has the potential to influence the patient’s lifestyle choices. This long-term patient-physician relationship is at the heart of primary care.

In the United States, however, the number of generalists does not satisfy the population’s needs. Primary care does not pay as much as specialty care. Incentives are in favor of high-end, sophisticated medical procedures and technology rather than basic prevention. A surgeon or colonoscopist will earn significantly more than a primary care physician. Procedures are far more “tangible” and easily billed for; a conversation with a primary care physician may be of great value, but it is harder to quantify. This imbalance in reimbursement prompts medical students to pursue lucrative specialties.

Meanwhile, family physicians have a hard time keeping their businesses afloat. If they work under the fee-for-service system, they are incentivized to see more patients to increase revenues. That gives them less time to spend with each individual patient. And there’s also the frustrating billing and reimbursement process that involves much haggling with insurance firms.

Partly due to the shortage of generalists, patients in the United States experience healthcare in a fragmented and uncoordinated way. This is the system’s bane. Many don’t have a personal doctor. Those who do are often unable to secure a timely appointment. They instead see an unfamiliar physician or visit an emergency room, urgent care facility or clinic. At the Holyoke Health Center, a community clinic in Western Massachusetts, the wait for a first appointment is a few months. Massachusetts implemented a health insurance reform act in 2006, which has allowed more than 500,000 uninsured patients to be covered. However, the supply of primary care physicians in the state has not met the demand. The sudden influx of newly insured patients has exacerbated the problems of timely access to primary care. If President Obama’s health insurance reform succeeds in extending coverage to other currently uninsured individuals throughout the country, the Massachusetts situation will likely be replicated.

Neighborhood Health Status

Figure 1 depicts a wallboard – mural *consultario* – inside the lobby of a family doctor clinic in downtown Havana. The wallboard, captured in a photo by the author during a visit in June 2010, displays the health status and demographics of the neighborhood surrounding the *consultario*. The language is Spanish, but what’s described can be easily inferred.

The marked portion of the map at the top shows the streets of Havana covered by this clinic. There are 3,398 residents who live in these streets – 1,749 male and 1,641 female. The four Roman number categories (I, II, III and IV) indicate “apparently healthy,” “with risk,” “sick” and “with post disease complications,” respectively.

Below the map and numbered categories are two sets of classifications. The first indicates the number of women not of childbearing age, smokers, the obese, people with sedentary jobs, alcoholics and people living in difficult social conditions. The second breaks down the neighborhood by non-transmittable chronic conditions such as hypertension, asthma and diabetes. The numbers corresponding to each characteristic are updated constantly as the family doctors who work at this clinic (three of them) obtain more information. The interesting aspect regarding the mural *consultario* is how well the clinic knows the community it serves and the health status of the population.

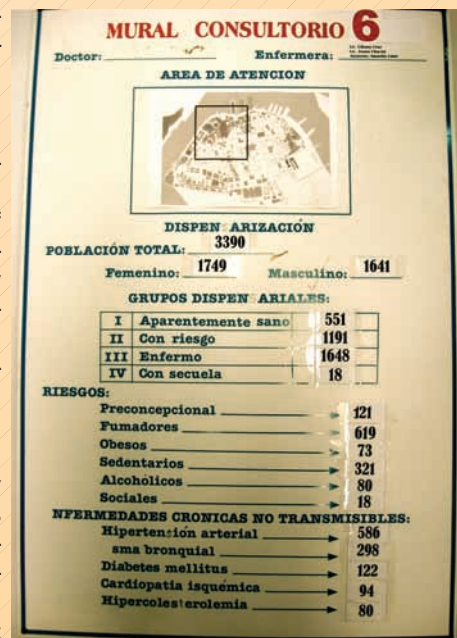


Figure 1: A mural *consultario* provides a snapshot of the demographics and general health of a Havana neighborhood.

Primary Care in Cuba

OTHER COUNTRIES, even resource poor ones, have placed their bets on strong primary care. Cuba is a good example. Michael Moore in his typically emotional and unrigorous way endorsed Cuba’s healthcare in the movie “Sicko,” but gave little sense of why the system is good. While no definitive statement can be made – and complex political, economic and historical factors confound the matter – a plausible hypothesis is that the strong emphasis on primary care is one reason for Cuba’s generally good health indicators. (Cuba and the United States share near identical life expectancy and infant mortality rates, according to the CIA World Fact Book, and Cuba ranks

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far ahead of virtually every developing country in this regard [2].)

Cuba's family doctors are the pivot point around which its nationalized health system revolves; they provide and mediate the majority of the population's care. The country's medical education mandates family medicine residencies for all prospective doctors. How does it work? Every neighborhood has a family doctor who works in a *consultario*. The *consultario* might just be a room in the doctor's home or a formal clinic. Geography is important; the neighborhoods of a city are sectioned. Each doctor is responsible for 125 to 150 families, which translates to about 800 to 1,000 residents.

The *consultario* does not take office appointments. The morning is reserved for walk-ins; in the afternoon, the doctor does home visits (hence the strictly geographic design). She knocks on the doors of the disabled, those who haven't visited in a long time and those who recently returned from the hospital. Sometimes the doctor takes the patient to a polyclinic (larger secondary care centers) to consult with specialists. Since the doctor is away in the afternoon, patients who need immediate care visit emergency rooms or urgent care centers. The next morning they might follow up with the family doctor. If the patient is too sick or has been hospitalized, a family member will inform the doctor, who will then schedule a home visit.

Thus, the family doctor's holistic assessment of the patient, developed over the years, permeates through the system. Statistics about each family are maintained in a basic folder – a physical paper folder. These statistics are eventually entered into an electronic system, so it is conceivable that Cuba's Ministry of Health has epidemiological data at the neighborhood level for every community in the country (see accompanying sidebar story).

Cuba's healthcare system has its shortcomings, and the shortcomings are the reason why the United States will never move toward a similar design. First, patient choice is restricted. If you live in a certain neighborhood, you will likely have to visit the doctor assigned to that neighborhood . . . and you may not like that doctor. The idea that the government dictates what doctor you can see is simply untenable in the United States.

Second, while American doctors, specialists especially, have high salaries (even after adjusting for medical school debt and malpractice insurance), in Cuba you find the other extreme. Doctors are severely underpaid. It is not uncommon to find Cuban doctors working as waiters in the evening, which prompts the question: Does the lack of adequate reward alter how a doctor practices or is the humanitarian impulse behind the medical profession motivation enough?

But the U.S.-Cuba comparison – a sensitive debate that often disintegrates into ideological rabble rousing – may not be appropriate. There is something to be said about a nation's political culture and what its citizens are comfortable with. The United States is a much larger country and parts of its health

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system work extremely well. It also has safety nets (even if they are not always easily accessible) in the form of federally supported community clinics in economically depressed regions that provide care irrespective of the patient's insurance status or ability to pay.

The more pertinent point is the relevance Cuban primary care has for the developing countries of the world, where the pressing issues are not patient choice or sophisticated technology but how large numbers of the poor can be provided access to basic care. If Cuba, a country that has faced economic crisis ever since the Soviet Union collapsed, can use its meager resources to design an excellent family doctor system, then that model – whether controlled by government or private enterprise or by both working together – offers hope to dozens of other nations.

Role of Operations Research

WHAT ROLE can operations research play in improving primary care access? At the local level, the supply of physicians needs to be large enough to meet the demand of patients. Looking at the same question from the physicians' perspective, how many patients should the physician have in his/her panel? The term "panel" refers to the patients whose primary care the physician is responsible for. These are the patients the physician intends to develop familiarity and a long-term relationship with.

The size of the panel determines the physician's appointment burden, and hence her ability to provide timely access and continuity of care. But size is not the only factor. The type of patients in the panel, or case mix, plays an equally important role. A panel where the majority of patients are young and healthy will have a different appointment profile compared to a panel consisting mostly of elderly patients with chronic conditions. This is where a close understanding of the diseases and epidemiological trends within a community – as illustrated in the case of the downtown Havana clinic – could assist a clinic in managing its capacity more effectively.

How primary care appointment systems should be designed is another question that needs to be addressed. In the late 1990s, Mark Murray, a physician, introduced a concept called advanced access [3]. Advanced access promises same-day appointments with one's own physician. The urgent care centers of today are examples of such a system (except that in urgent care centers familiarity with a physician is not given great importance).



How is advanced access implemented? First, each physician works away at his or her existing backlog of appointments (which is not so easy to accomplish in practice). Next, the physician tries, as far as is possible, to “do today’s work today” – that is seeing all patients who call today on the same day, irrespective of whether it is an urgent or non-urgent request. This avoids the booking of future appointments. In the ideal case, the physician’s calendar is completely free at the beginning of the day. Such a system is similar to the walk-in primary care clinics found in developing countries where patients simply walk in, wait, see the doctor and then leave (first come, first serve).

The Cuban family clinics discussed above are advanced access clinics. The clinics completely open themselves to variable demand on any given day. The wait times in an advanced access clinic are lobby wait times – patients may wait an hour in the clinic, but they get their care on the same day. This is in contrast with the traditional appointment system, where the patient’s appointment may be scheduled weeks or months in advance. The patient is not physically waiting in the clinic, yet it cannot be said that access is timely. Furthermore, the longer the lead time to an appointment, the greater the chance of a patient no-show.

A perfect advanced access system, however, is rarely possible, as outpatient clinics have discovered in the United States. The culture of making a future appointment (or a follow-up visit for a patient with a chronic condition) is strong and may even be preferred by patients. In addition, the need for a timely appointment conflicts often with the need to see one’s own doctor, and the personal doctor may be available only at a future time. So clinics have to work with some blend of the traditional and advanced access system.

The operations research community has been very active over the last decade in addressing analytical questions related to appointment system design. To cite some examples, work has been done on what an appropriate panel size is for a physician and how it is impacted by the uncertainty in demand [4], the impact of panel case-mix [5], no-shows [7], capacity allocation under uncertain demand streams (urgent and prescheduled) [6], and analytical comparison of advanced access and traditional systems [8].

To complement the analytical work, rigorous empirical studies of how primary care outpatient clinics actually function in practice are needed. A family medicine office in a rural town will be very different from an urban urgent care center, and an OB-GYN clinic is different from a pediatric practice. How do appointment systems vary from one setting to another? Across countries, how do different incentives and the nature of health systems affect appointment systems and consequently access to primary care?

Observations & interactions

The observations about Cuban primary care in the accompanying article are based on a visit by the author to Havana (on an Indian passport) in June 2010. The visit was informal, and it included discussions with a pediatrician and staff at a family doctor clinic in downtown Havana.

The Cuban Ministry of Health has its headquarters in Havana, but the author was unable to secure an appointment. The conclusion that the Ministry of Health has electronic records of the epidemiological trends in each neighborhood of Cuba therefore could not be verified, but the clinicians interviewed independently agreed that such records exist.

Observations about U.S. primary care are based on the author’s interaction with academic medical centers in the Midwest and the Northeast, the Holyoke Health Center in Western Massachusetts, the family practice of Katherine Atkinson in Amherst, Mass., and independent discussions with primary care physicians.

Across countries, how do different incentives and the nature of health systems affect appointment systems and consequently access to primary care?

What basic tools are necessary to maximize access to primary care in developing countries?

Clearly, operations research has much to contribute. **IORMS**

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