GLOBAL HEALTH

Cuba's system of maternal health and early childhood development: lessons for Canada

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A healthy, nurturing and stimulating environment during a child's early years can make a difference in his or her later life.[1] Early childhood development is one of the determinants of health being studied by the Canadian Senate Subcommittee on Population Health to identify approaches to reduce health disparities in coordinated ways. The subcommittee members recently issued 4 interim reports about the approaches tried in Canada and other countries. The reports included findings from a mission to Cuba to see first-hand how this country has had remarkable success with its focus on maternal health and early child development. This success appears to have been achieved by focusing on 3 major initiatives: primary care through polyclinics, a collaborative approach at the community level and science with direct feedback to the community. In this article, I discuss some of the lessons Canada can learn from Cuba's efforts.

International comparisons show that, despite a per capita gross domestic product (GDP) that places Cuba in the fourth quintile of nations,[2] Cuba's infant mortality rate (5.3 per 1000 live births in 2006) rivals Canada's for the best in all of the Americas.[3] A 1998 United Nations Educational, Scientific and Cultural Organization comparative study of third- and fourth-grade students in 11 countries in Latin America found that Cuban students had the highest levels of achievement in mathematics and language skills.[4]

Key points

- The Canadian Senate Subcommittee on Population Health is evaluating Cuba's models of community-based care.
- The infant mortality rate in Cuba rivals the rate in Canada at lower costs.
- Cuba's success appears to be related to polyclinic programs, multilevel collaborative programs, such as the "educate your child" program, and science-based approaches.

Prevention at the local level

The World Health Organization Commission on Social Determinants of Health identified Cuba as an example of "good health at low cost" achieved through policies that address the determinants of health and are based on principles of universality, equitable access and governmental control.[5] The focus on effective, low-cost interventions was the response to its poor economic status. Cuba has experienced a profound economic crisis as a result of disrupted trade relations with its former trading partners in Eastern Europe and the withdrawal of subsidies from the former Soviet Union. In 2006, the per capita GDP in Cuba was about $4100 purchasing power parity (PPP), compared with $35 700 PPP in Canada.[6] Because Cuba has been forced to choose primarily on the basis of cost-effectiveness, they have adopted a preventative approach to health and education organized at the local level. The unitary structure of the Cuban government, which has a parliament made up of only 1 political party, has facilitated decentralization, collaborative action and community participation. This has resulted in a local primary care system that provides not only clinical diagnosis and treatment but also community education about general health and nonmedical health determinants.

A number of serious challenges remain in Cuba, including food insecurity, a severe housing shortage, a lack of freedom of expression, and restrictions on individual rights. All of these are important health determinants. Nonetheless, there are some lessons that Canada can learn from Cuba's efforts to use its modest resources to intervene early and broadly to improve population health.

The polyclinic

Central to Cuba's approach to maternal health and early childhood development is the polyclinic. Currently, there are 498 polyclinics, which each serve an average of 22 000 rostered patients. Cuba also has 14 078 family doctors' offices that work under the auspices of the polyclinics. Overall, this provides for 1 physician per 159 people and 1 nurse per 79.5 people.[7]

The role of the polyclinic is far more extensive than that of the typical Canadian medical clinic. The polyclinic's staff is multidisciplinary and includes a wide range of professionals. Currently, the average polyclinic offers 22 services, such as rehabilitation, radiography, ultrasonography, endoscopy, thrombolysis, emergency services, traumatology, clinical laboratory, family planning, emergency dentistry, immunization, dermatology, cardiology, family and internal medicine, pediatrics, and obstetrics and gynecology.[8] Polyclinics also provide mental health care, maternal and child care, and care for diabetic and elderly patients.[8] All of the staff at polyclinics are familiar with

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and responsible for every individual in the community. They focus on prevention and universal screening initiatives, and they encourage immunization through house calls, home visits and semiannual checkups. During the subcommittee's visit, we were told that diabetes can often be diagnosed long before the patient is aware of a problem. Similarly, staff at polyclinics work closely with early child development, preschool and elementary teachers so that the moment a problem is spotted in a child, he or she can be referred to the appropriate specialist.

The polyclinic is also a hub for medical and educational training. Students in medicine and nursing receive part of their training at a polyclinic, which is often where they will work after graduation. Polyclinics are also resources for data collection and scientific research, and they are conduits for scientific advances. The data collected are used by health authorities to evaluate the effectiveness of the polyclinic programs. Scientists are frequently appointed to polyclinics, where they undertake academic research and facilitate the transfer of knowledge to and from front-line staff. For example, between 2001 and 2003, a nationwide survey about the needs of people with disabilities was undertaken by scientists, university professors, professionals and specialists in cooperation with all polyclinics and primary care settings. The results of this survey led to the development of individualized education and rehabilitation programs and improved health and social services.[9]

Starting early and following through

In Cuba, healthy development for all children is such a priority that actions are taken before conception. As part of standard surveillance, polyclinic staff classify women according to potential risk factors that could complicate a pregnancy, such as diabetes or high blood pressure. Primary care staff work with women who wish to become pregnant to mitigate risk factors and plan conception for when the woman's physical condition is optimal.

Within the health care system, "partograms" facilitate the navigation of required services by providing an outline of the critical path for every at-risk pregnant woman. This is done in collaboration with the hospital and specialists best suited to provide care. If issues such as hypertension, anemia, poor nutrition, underweight or overweight are serious, a woman can be referred to a maternal home where she is either followed as an outpatient or admitted to stay at the centre depending on the severity of her condition.

Community medical genetics is another strength of the Cuban system. All pregnant women and newborns are evaluated by the genetic risk assessment service located in every polyclinic. These genetic services are supported by municipal, provincial and national medical genetics centres that implement the National Program for Diagnosis, Management and Prevention of Genetic Diseases and Congenital Defects.

Supporting families for early childhood development

Cuba provides comprehensive early childhood education "to achieve the greatest development for a child." Noncompulsory preschool education is directed to children aged 6 months to 5 years through child care centres, home-based preschool education and a preschool preparatory grade. Altogether, these programs reach almost all children under 6 years of age.[10]

The majority of children take part in a noninstitutional program called Educa a Tu Hijo [Educate Your Child]. This program was designed to coach and empower families to stimulate their child's integrated development, based on their own experience, interests and needs. The program provides future mothers and fathers with information and counselling about healthy pregnancies and early child development during visits to doctors and nurses. Families with children under 2 years of age receive individual home visits once or twice per week. They are guided through games, conversations and other activities to enhance their babies' development. Children between the ages of 2 and 4 and their families go on weekly or semiweekly group outings to parks, cultural facilities and sports centres with counsellors trained in child development and family participation.

A network of counsellors and program promoters organize and deliver the program. Activities provide family guidance on stimulation of the social, affective, cognitive and motor development of the child, as well as health care and nutrition. However, Cubans have learned that simply teaching the proper activities to caregivers and having those activities repeated is not sufficient. The family must recognize that it has the primary responsibility for the child's development not only through stimulating activities but also through direct participation, affection and the classic conditions of security and others that are determinants of physical and mental health. Ultimately, the program is about creating families that foster child development.

Evaluation is an important component of the Educa a Tu Hijo program. Since the program began, regular monitoring and evaluation have been performed to assess the development level reached by boys and girls as a result of educational influences. The results obtained determine the strengths and weaknesses of the program and are used to improve the educational strategies.[11]

Lessons for Canada

Canadians enjoy a very good health care delivery system, but it is overburdened with the massive amount of acute and chronic illness. Thus, we need a population health approach to optimize the health and well-being and minimize preventable disease. Until we do this, the need for more resources to deal with illness management will continue to grow.

The members of the subcommittee are under no illusions that there are aspects of Cuban society that cannot (and should not) be applied to Canada. We are not advocating the adoption of the Cuban health care delivery system for Canada, but we believe that there are at least 3 elements in the Cuban model that are key to its success. These elements should guide us to improve our health care approach in Canada.

- *Primary care*: Polyclinics provide integrated, prevention-oriented services to residents where they live. By embracing a broader role for primary care, such as that in Cuban polyclinics, Canada can make gains in population health, partic-

ularly for marginalized and disadvantaged populations.

- *Collaborative programs*: The success of polyclinics and the Educa a Tu Hijo program is primarily because of their intersectoral approach at the community level. Being able to bring together the range of service providers facilitates the integration of resources and ensures a shared responsibility focusing on results. Canada needs to examine how it can engage communities to strengthen its intersectoral programs.
- *Science*: Cuba places great importance on science as shown by the development of comprehensive databases and systematic program evaluation. When possible, government policy is informed by rigorous scientific data, and the quality of much of the research is world-class. Programs have been implemented through different stages and adapted according to the evidence gathered on a continual basis through successive evaluations. Canada should undertake more research to assess the effectiveness of government interventions and adapt its programs and policies accordingly.

Readers who are interested in obtaining more information are encouraged to view the subcommittee's full report at www.parl.gc.ca/39/2/parlbus/commbus/senate/com-e/soci-e/rep-e/rep08feb08-e.pdf.[12] The subcommittee will be continuing its hearings through the early part of 2009, and we expect to issue our final report by June 2009.

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Editor's note: In the January 6 issue, Hertzman and Williams describe how Canada should introduce ongoing evaluations and monitoring of early childhood health indicators. *CMAJ* 2009; 180:68-71.