

## Upstream, Downstream: Currents of Health

In 2013 Cuba recorded its lowest infant mortality rate ever, 4.2 deaths per thousand live births, lower than anywhere else in the Americas, even the developed North. US health researchers have visited Cuba to try to understand how such an impressive outcome is possible in a grievously resource-limited setting.[1]

Part of the answer lies in Cuba's universally accessible health care with a focus on primary care and prevention. This year marks the 30<sup>th</sup> anniversary of the national Family Doctor-and-Nurse Program, which has helped Cuba achieve enviably low rates of low birth weight and infant mortality, while—not incidentally—reducing emergency room visits.

Credit must be shared, however, with determinants beyond the health system that powerfully influence population health and wellbeing; among them are education, literacy and status of women. On the other hand, Cuba has distinct disadvantages when it comes to other determinants, such as income and housing, and not all health indicators are so positive. For example, Cuban health authorities are working hard to bring down the maternal mortality ratio; while the 2013 direct maternal mortality ratio was the lowest in Cuba's history (at 20.7 maternal deaths per 100,000 live births), officials are far from satisfied, since 90% of maternal deaths are considered preventable.

Perhaps the biggest challenge on the horizon, at the other end of the life span, is rapid population aging, with 18.3% of Cuba's 11.2 million people already 60 years or older, 30% higher than in 2000.[2] The implications for health and social protection services are highlighted in Llibre's study of older adults in Havana and Matanzas (*Frailty, Dependency and Mortality Predictors in a Cohort of Cuban Older Adults, 2003–2011*). And Varona's Lessons from the Field describes an important part of the information infrastructure needed to plan such services effectively (*Implementation of Chronic Disease Risk Factor Surveillance in 12 Cuban Municipalities*).

Cuba's health system has consistently emphasized giving children the best chance possible, starting before birth. Findings from lifecourse epidemiology suggest that the benefits of such policies extend through the entire life span. For example, low birth weight, placenta size and first-year weight gain affect cardiovascular disease risk in the fifth decade.[3] Put simply, upstream prevention to keep children healthy will have downstream benefits in healthier adulthood and old age.

Indeed, Cuba could be a population laboratory in lifecourse epidemiology—an approach that looks, not just at risk factors for a given health outcome, but at the dynamic ways that social, cultural, economic and biological factors affecting health interact and influence one another to shape disease susceptibility over the life span.

Lifecourse epidemiology lessons have also gone a long way toward explaining what public health practitioners have known for generations: that interventions intended to reach entire populations may improve overall population health at the expense of deepened health inequalities, unless accompanied by targeted efforts to ensure that particularly vulnerable or disadvan-

tagged groups can access and benefit from the interventions. In this context, Cuba's approach could be termed universality with targeted support.

For example, the strategy for preventing childhood iron-deficiency anemia is national and broad-based, but has intensive regional programs where warranted, as well as activities targeting specific vulnerable populations. Pita provides an example in a Cuban region facing more severe socioeconomic problems (*Anemia in Children under Five Years Old in Eastern Cuba, 2005–2011*). And Senior Editor Gorry explores an initiative to reduce childhood anemia in Cuba, especially among premature and ill newborns (*Cuba's Human Breast Milk Banks*).

The upstream approach to promoting lifelong health is also illustrated in Esquivel's Policy & Practice, describing enhancements in Cuba's Maternal–Child Health Program (*Well Child Care: A Comprehensive Strategy for Cuban Children and Adolescents*), using both universal and targeted actions.

If "Necessity" is the mother of invention, she has many children in Cuba. Most articles in this issue have particular relevance for resource-scarce settings, demonstrating that good results are attainable without the very latest—and most expensive—technology. Chávez presents findings suggestive that an ordinary EKG can provide warning of incipient hypertensive cardiomyopathy in children (*P-Wave Dispersion: A Possible Warning Sign of Hypertension in Children*). Finally, García's Viewpoint ties together many of these themes, as he argues for exercise as cost-effective preventive medicine at any age, but one that requires extra intersectoral efforts, too. (*Exercise: The First Prescription for Cubans of All Ages*).

In closing, we congratulate Dr María Isabel Rodríguez, El Salvador's Minister of Health, on being awarded the Global Health Workforce Alliance's prize for leadership in human resources for health. She accepted the award at the Third Global Forum on Human Resources for Health in Recife, Brazil in November 2013. Dr Rodríguez was recognized for her technical and political leadership in El Salvador and in the Americas region. We are privileged to have Dr Rodríguez on *MEDICC Review's* Editorial Board.

Readers will note that, as of this issue, the often-consulted section Cuban Research in Current International Journals can be viewed online only, providing timely access to abstracts from the previous quarter. 

### The Editors

1. Neggers Y, Crowe K. Low Birth Weight Outcomes: Why Better in Cuba Than Alabama? *J Am Board Fam Med*. 2013 March–April;26(2):187–95.
2. Ministry of Public Health (CU). Anuario Estadístico de Salud 2012 [Internet]; Havana: Ministry of Public Health (CU); 2013 [cited 2014 Jan 20]. Available from: [http://files.sld.cu/dne/files/2013/04/anuario\\_2012.pdf](http://files.sld.cu/dne/files/2013/04/anuario_2012.pdf). Spanish.
3. Barker DJP. *Mothers, Babies and Disease in Later Life*. London: British Medical Journal, 1994.