

Delivering Healthcare in an Environment of Poverty and Exclusion: A Lesson From the Base of the Pyramid

A lack of sustainability and exclusion seem to be 2 of the main problems in healthcare faced by today's society, and these are expected to worsen in the generation to come.

A recent document published by the World Economic Forum¹ involving a broad vision looks for new models in healthcare, because we have learned that current models will not be sustainable over time with health care expenditures growing 2% faster than income, as documented in the United States² and most developed countries.

The crisis involves economics and the exclusion of large segments of people because of poverty, ignorance, lack of communication, and distance. The world's population has tripled in less than a century, and life expectancy has doubled in the same period of time. Many countries report a reduction in the number of primary care physicians and specialists, so an imbalance of supply and demand is already evident.

An increasing number of previously excluded patients are becoming new customers of health maintenance and care programs through the explosion of communication and information technologies. Nevertheless, less than 10% of the world's population can afford any major intervention on the heart, brain, kidney, or joints.

Although changes have occurred with respect to the control and prevalence of communicable diseases, the world's population is still far from seeing control of malaria, human immunodeficiency virus, and many other diseases. In addition, there are large numbers of patients who have diseases related to lifestyle, such as obesity, diabetes, and hypertension. Prevention and innovation seem to be the way to face the new trends, but these cannot become widespread unless we use novel communication and information technologies, such as telemedicine.

Innovation has been poorly oriented because of the use of older models of healthcare instead of looking outside the traditional institutions and approaches. More problems could be solved without developing new drugs, vaccines, or faster scanners by more widespread use of methods already available for prevention and cure. One example is the "Million Hearts Initiative," which could save 1 million lives over 5 years with

simple measures, such as adequate use of aspirin, blood pressure and cholesterol control, and smoking cessation.³

Other basic initiatives have been successfully implemented, such as the Sesame Workshop school program in Colombia, led by Valentin Fuster, using healthy dietary initiatives in partnership with gastronomy celebrities and the media,⁴ and the empowerment of patients for self-control of diabetes, hypertension, and obesity with the use of new electronic sensors.⁵

Another potentially important venue for disease prevention and control is the new digital world where telemedicine is part of the solution. In Venezuela, we have initiated an expanding telemedicine program with considerable success. This system could be easily implemented in other developing countries and societies.

"If you live where there are no cars, you cannot worry how to prevent automobile accidents."

In our case, with a 20-year rural telemedicine experience,⁶ facing primary care problems with a modern communicative, informational, and technologic view, we have seen an extraordinary impact with noninvasive hemoglobin detectors, mainly developed for tertiary care. These simple devices have had a significant effect on health issues predominantly seen in tropical regions where anemia is underdiagnosed and affects 1 billion people, mainly because of the prevalence of intestinal parasites, malaria, and malnutrition. School-aged children have a prevalence of undiagnosed anemia of 5% to 10% in lower middle-class society; however, this percentage increases to as high as 30% to 59% in the poorest socioeconomic classes.⁷

Until now, anemia could not be diagnosed early in life because of the need for blood samples, a laboratory, and at least a centrifuge to measure hematocrit. Resistance by the patients and their mothers at the time of evaluation, as well as waiting until anemia became clinically evident, usually created a major problem. Anemia is an important cause of school-age learning disabilities and growth retardation. If all of these patients could be identified, adequate measures for treatment and prevention could be initiated, such as treatment for parasites and malaria. Recently, we used our telemedicine system in Venezuela and included basic visual and auditory screening delivered by consumer devices and rapidly trained lay personnel.⁸

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The telemedicine healthcare venue will reduce societal health costs, exclusion, and poverty; improve education; and enable economic development to proceed through prevention with a model using advanced and inexpensive consumer technologies that are now widely available.

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