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Impact of the Mexican Government's System of Social Protection for Health, or *Seguro Popular*, on Pediatric Oncology Outcomes

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Whatever the setting, effective management of pediatric cancer is complex and costly. Often, in low- and middle-income countries (LMIC), pediatric cancer is identified but not treated because of inadequate financial resources, facilities, and expertise to manage these cases. Treatment efforts historically were directed elsewhere. For example, in Mexico the probability of a newborn dying before reaching age five (under-5 mortality rate) dropped from 49 to 17 per 1,000 per live births between 1990 and 2000, largely because of better control of communicable diseases and access to primary care and basic ancillary diagnostics. Now childhood cancer is a leading cause of disease-related deaths among children 4–14 years old (1). Other countries have had similar changes in the epidemiology of childhood diseases. The shifting mortality profile is not surprising given that tactics to reduce the mortality of children with communicable diseases differ greatly from those to reduce pediatric cancer mortality.

Until recently, policy makers in LMIC have ignored pediatric cancer control, and governments have not financed anticancer drugs or procedures. Because LMIC governments were not addressing pediatric cancer care, some concerned citizens took the lead. Pediatricians with or without subspecialty training collaborate with local support groups (grassroots foundations), typically led by parents of children who died from cancer, to offer services for cancer-stricken children. In this model, pediatric cancer care is very irregular and generally concentrated in large urban areas with relatively high economic resources. Despite these heroic efforts that have benefited children treated at selected institutions, most children from impoverished, rural areas likely experience one of the following outcomes: they die without diagnosis or treatment; their parents abandon treatment because they cannot afford its direct or indirect costs; toxic death results from inadequate supportive care; or disease relapses because of irregular treatment.

To reduce childhood cancer mortality in LMIC, public funding must be available and play a prominent role. Pediatric cancer survival rates have been correlated to governmental

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expenditures on health. Typically, in countries where the annual per capita contribution of government to health expenditures is less than US\$200, survival rates of pediatric oncology are dismal (2). Nationwide, it is unlikely that grassroots foundations alone can support an effective pediatric cancer program for all. In the past several years, some governments have made commitments to provide resources to pediatric oncology. Brazil and Mexico are examples of two countries with universal health coverage, including treatment for pediatric cancer.

In this issue of *Pediatric Blood & Cancer*, Pérez-Cuevas et al. from the Division of Social Protection and Health, Mexico report the effects on pediatric oncology outcomes of the Fund for Protection against Catastrophic Expenditures (FPGC), which is part of the System of Social Protection for Health (SSPH), or *Seguro Popular*. Introduced in 2003, the SSPH provides access to comprehensive health services for more than 50 million Mexicans without the insurance that employed workers have. The program was implemented in a stepwise fashion and reached universal coverage in 2012 (3). The conceptual basis and main principles of the *Seguro Popular* have been widely discussed (a Google scholar search revealed more than 30,000 entries). Such assessment should lead to ongoing adjustments to improve the quality of the program. In 2006, FPGC began funding the treatment of childhood leukemia and in 2008 extended funding to all cancer types. By 2009, 47 hospitals of the Ministry of Health were accredited by the FPGC for the treatment of pediatric cancer.

Pérez-Cuevas et al. analyzed 3,821 patients with newly diagnosed malignancies managed in those 47 hospitals between 2006 and 2009. The expected number of pediatric cancer cases in uninsured Mexican children is about 3,000 per year; hence the study sample represents about 25% of the expected number of children with cancer during the study period. The authors note that the proportion of eligible cancer cases funded by FPGC increased from 3.3% in 2006 to 55.3% in 2009. This expansion is a major achievement because families of uninsured children with cancer did not have to incur indirect treatment expenses. However, as the authors note, there was no evidence that more children were served after FPGC funding began. It is possible that early in the implementation there was a cost shifting from grassroots foundations or out-of-pocket payers to the government without an actual increase in the number of children served. Such a start is predictable because creating hospital infrastructure to accommodate more patients and train specialized health care workers to provide cancer care can take years. Another important study observation is that FPGC funding served only about half of the expected number of uninsured children with cancer, but the study does not address what happened to the other half.

Particularly concerning is the situation in the south-southeast region, which has the highest expected number of children with cancer, but where less than 40% were registered in the program. Dramatic inequality has been noted in survival of children according to geographic region. The 3-year-survival rate of leukemia is 64.6% (95% CI 55.6%–72.2%) in the northwest region compared with 21.3% (95% CI 6.8–41%) in the south-southeast region. Taken together, these data show that in south-southwest cities a fewer-than-expected number of children with cancer are treated, and when admitted to local institutions, they experience poor outcome. Interestingly, cities in the south-southeast region have the lowest human developmental indexes (Chiapas, 0.646) of all geographic regions (Federal District, 0.830).

This fact suggests that the benefits of the FPGC program are not equally effective and distributed and may not have made a strong impact in less developed areas. Such is also the case in Brazil where the *Sistema Unificado de Saude* (SUS) after 20 years of existence has failed to correct the inequality in pediatric oncology care among regions (4).

In summary, effective pediatric cancer care in Mexico remains a major challenge. Fortunately, there are immense strengths and societal capacity to expand access to care and improve survival of children with cancer and other complex diseases. To do so, leadership and innovation are necessary to articulate a national pediatric oncology plan that recognizes the relevance and preserves the identity of stakeholders and integrates resources and offerings from social security institutes, Ministry of Health, private insurers, and nongovernmental organizations. True universality and efficiency of the coverage system will come when every Mexican child with cancer, irrespective of their socioeconomic and geographic circumstances, has access to high quality care.

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