Bridging the Childhood Cancer Mortality Gap Between Economically Developed and Low-income Countries

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t has been said that, “...an attempt to reduce the gap in mortality from cancer in childhood between developed and less developed countries should become an integral part of the care and research activity of a haematological-oncological department of a developed country and not simply an exercise in solidarity”.

We in Monza accepted that challenge. This is the story of that endeavor as it developed over more than 2 decades in Nicaragua—and beyond.

That Central American Republic has a population of 5.5 million people. It is one of the poorest countries in Central America. The gross national income per capita is US$420, to be compared with US$3950 for Costa Rica, a neighboring nation. Four of 5 Nicaraguans earn less than US$1/day. One of 3 is illiterate. The infant mortality rate is 32/1000 new borns.

The program started more than 20 years ago with a call for help. It came from Dr Fernando Silva, poet and Director of La Mascota Hospital in Managua, which is the only pediatric institution in the country. Dr G. Tognoni, an Italian pharmacologist, at that time working in Nicaragua, transferred to Monza the following message from Dr Silva: “When a child is diagnosed with cancer or leukemia in this country, a little black cross is put next to the name. We do not have the resources to give adequate treatment.” Monza responded, and what came to be known as the La Mascota Project evolved with the following aims:

1. To establish a bilateral agreement between the 2 entities, management responsibility to reside in Managua under the Direction of Dr Fulgencio Baez, the Director of the Pediatric Cancer Unit of the La Mascota Hospital.
2. To activate a long-term twinning agreement; that is, Managua and Monza would become twin facilities designed to train health professionals, build needed laboratory and outpatient and inpatient facilities, fashion feasible and effective therapy protocols, and launch clinical research. Progress of these programs was to be monitored by independent referees.
3. To activate a pediatric cancer unit in that context.

4. To improve the survival expectancy of children with cancer offering the best feasible therapy free of charge.
5. To recruit financial support from different sources to insure independence, flexibility and viability of the project.
6. To enlist international support and cooperation to further these goals.
7. To move from Pediatric Oncology to other specialties; as an example we can mention Pediatric Nephrology. Since 1997, a twinning program has been activated between La Mascota and the Pediatric Clinic “De Marchi,” of the University of Milan, with excellent results. Kidney transplantation has been initiated recently.

After a few years, Franco Cavalli (Bellinzona, Switzerland) and the AMCA (a Swiss association of Medical Help to Central America) decided to join the program.

Much has been accomplished by the La Mascota Project with the financial support of many countries and philanthropic entities. US$3,500,000 has been gathered over the 22-year period; the annual investment from Italy and Switzerland alone comes to US$200,000. The tangible results have been noteworthy. An oncology team has been built. It includes 8 pediatric oncologists (trained mostly in Monza for about 1 y each), 1 pediatric cancer surgeon, 17 nurses, and 4 other laboratory and service personnel. All the pediatric oncologists and the cancer surgeon are still active in the program. In addition, and emphasizing the holistic approach taken at La Mascota, the team includes 2 psychologists and 1 social worker who provide noteworthy support. The importance of their involvement is reflected in the patient drop-out rate. By this is meant the proportion of patients for whom treatment is refused and/or abandoned. That rate was 35% 20 years ago; it is now about 10%. Structural facilities have steadily improved. By 1991, a 10-bed hematology ward was inaugurated. Ten beds for oncology were added the next year, a play room 12 months later, an 18-room residence for families of children undergoing therapy was in place by 1995, and more inpatient beds, a day surgery unit, and new outpatient clinic had been added by 2007.

Much progress has been made. Between 1990 and 2008, 2667 children with cancer have been treated at La Mascota. The overall survival rate has steadily and rapidly increased. It was at the 10% level in the 1980s, before La Mascota Project activation; it had risen to 60% 20 years thereafter and continues to rise. Thus, the survival gap has narrowed more in Nicaragua than comparable countries in the region—and has done so in a relatively short time (Fig 1).

The progress made with limited resources has been documented and published for Wilms tumor—a 5-year event-free survival of 80%—and 53% event-free survival at 4 years for non-Hodgkin lymphoma.
The Wilms tumor result was achieved without radiation therapy, an important landmark for many countries around the world where that modality is not available at all.

The success of these endeavors in Nicaragua and the region has been advanced by the establishment of the Monza International School of Pediatric Hematology/Oncology (MISPHO). Since the beginning of MISPHO, the St. Jude Children’s Research Hospital has made a great contribution to this initiative. Courses that teach the lessons of La Mascota, with the participation of 2 to 3 pediatricians from 15 countries (Bolivia, Colombia, Costa Rica, Cuba, Ecuador, El Salvador, Guatemala, Honduras, Nicaragua, Panama, Paraguay, Peru, Dominican Republic, Uruguay, Venezuela), have been mounted almost every year since 1996.

These have been held not only in Italy and Nicaragua, but also in other Central and South American nations (such as Colombia, Honduras, and Costa Rica), and with the participation of international experts. This unprecedented cooperation and exchange of experience has welded together the Association of Pediatric Hematology/Oncology of Central America which, in Spanish, leads to the acronym AHOPCA. Among the AHOPCA results, schools of pediatric hematology-oncology and nursing have been established, in Guatemala and El Salvador, respectively. Moreover, since 2005 the Pediatric Oncology Group of Ontario of Canada has made a commitment to take a leading role in the training of data managers and nurse educators.8,9 Included in these courses of instruction are leading role in the training of data managers and nurse educators. Moreover, feasible treatment regimens have been developed by AHOPCA for all the common malignant diseases of childhood.

Much has been learned by all members of the La Mascota, MISPHO and AHOPCA teams over the last 20 years. Even more can be done in the realm of education. Young doctors and students from Monza can spend time in these affiliated centers to see, examine, and treat children in less affluent surroundings. They can thus hone their skills and gain a wider experience in general pediatric oncology.

The most important lesson for all those who are concerned with the welfare of children is this: there is more to be done than hope and wishful thinking. Dreams for the underprivileged can become realities when approached with dedication, enthusiasm, and adequate funds gathered from varied and multiple committed international sources.

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REFERENCES


