

## ORIGINAL ARTICLE

# Setting priorities for pediatric research: an exercise for the research agenda of the *Hospital Infantil de Mexico Federico Gomez*

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## Abstract

**Background.** There is a clear understanding of the need to establish the principles that should underlie health research to meet the goals of health care systems. The aim of this study was to conduct an exercise of priority setting for health research and to analyze the congruence between the perceived priorities and the primary causes of hospital care at *Hospital Infantil de Mexico Federico Gomez* (HIMFG).

**Methods.** A cross-sectional survey was conducted with investigators affiliated with the HIMFG through a semi-structured and self-applied questionnaire. A technique of priority setting developed by the World Health Organization was used for the exercise. Concurrently, the analysis included the ongoing research projects at HIMFG and their relative position according to the list of the main causes of mortality, hospital discharges, ambulatory consultations, number of published scientific papers and funding.

**Results.** Of 104 invited researchers, 55 responded to the questionnaire; 43.7% belonged to the National System of Investigators (SNI). Most research studies were within the biomedical area followed by clinical trials. The top research priorities were infectious and parasitic diseases. The main causes of hospital care were chronic conditions such as cancer and congenital malformations. We observed moderate congruence between health research priorities and the epidemiology of the hospital.

**Conclusion.** It is possible to carry out institutional priority settings for health research. The priorities set by the investigators were partially in accordance with the actual provision of care; however, further activities to gain the commitment of researchers to participate and to include other interested parties are necessary to strengthen this exercise.

**Key words:** health research, priority settings, healthcare settings.

## Introduction

Regarding the international and domestic context, there is a clear understanding of the need to establish the principles that should underpin health research to meet the goals of health care

systems, which are to promote, improve or maintain the health of the population. Health research approaches public health concerns; therefore, it is goal oriented and with policy relevance.

In practice, setting health research priorities is complex. The priorities depend on particular situations involving social and economic processes in which the main drivers are the complex health needs of the population, available resources and political will. Theoretically, a health need is the capacity to benefit from a defined intervention and

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the concept of complex health needs to include the breadth (more than one need) and depth of need.<sup>1</sup> This is a social construct that provides the framework to understand the multiple and interlocking needs that cross health and social issues such as poverty, vulnerability or disability.<sup>2</sup>

The circumstances are very similar in most world health care systems. Resources are finite, whereas health needs are not, thus priority setting is a necessary activity. This is a basic tool for the strategic planning process. There are several reasons behind priority setting: to ensure that available resources are used in the best manner possible, to identify the necessary financial and human resources and to strengthen the links among research, policies, programs and practice.<sup>3</sup>

The *Hospital Infantil de Mexico Federico Gomez* (HIMFG) is a tertiary care public hospital with a highly regarded tradition of pediatric research in Mexico. The hospital is affiliated with the National Institutes of Health of the Ministry of Health (MoH). The HIMFG research policy goal is to promote the advancement of pediatric research activities based on rigorous scientific grounds and congruent with the ever-changing complex health needs of children and adolescents that this hospital cares for. The 2007-2013 National Health Plan of the MoH promotes the advancement of the knowledge and the human capital through strengthening research and teaching activities. Thus, from this perspective HIMFG research policies must be aligned with the MoH policies; nevertheless, given the resource-constrained conditions of public health care systems in Mexico it is appropriate to analyze in-depth whether the research activities are congruent with the main health problems that the HIMFG addresses.

The objective of this study was to carry out a comprehensive survey with researchers affiliated with this hospital to identify and prioritize pediatric research problems. The information from this exercise would provide the necessary elements to redefine a sound research agenda congruent with the main health problems of children and adoles-

cents. Simultaneously, the information from this exercise would contribute to the priority setting for health research at regional and national levels.

## Methods

This cross-sectional study was conducted using a method that the World Health Organization has proposed to prioritize research problems.<sup>4</sup> The sampling frame was comprised by all researchers registered at HIMFG. A letter of invitation was sent to each investigator explaining the objectives of the study along with a printed questionnaire to be answered.

Criteria for priority setting were the following: potential impact of the subjects, potential to advance in the state of the art in the subjects, competitive advantage of the hospital (i.e., previous research experience in particular subjects), need to fill the gaps that the hospital has to carry out research on specific topics, creation of alliances and collaborations with research groups within and outside the HIMFG, improvement of the infrastructure, incentives for researchers to be engaged in a particular research topic, and the potential positive effect on hospital performance if the selected topics were included within the research agenda, including its economic implications.

Criteria to prioritize the research problems were the following: 1) relevance; 2) avoidance of duplicity; 3) feasibility; 4) political acceptability; 5) applicability; 6) urgent need to have the information available; 7) ethical approval.

1. Relevance—the interviewees should have chosen the subject after considering that this was a priority for the hospital. The questions to learn about the relevance were the following: What is the magnitude of the problem? Who are affected? How severe is the problem? For example, as a guide to answer these questions the interviewees were recommended to consider the health problems that affect a large number of people and the most severe

problems faced by officials and practitioners affiliated with the hospital.

2. Avoid duplicity—identify whether other investigators at the hospital have already addressed a specific subject or if the research has been done in similar settings. The recommendation was that if the subject has been previously investigated, the results should then be reviewed to learn if the most important questions remained unanswered. In that case, that would help to decide the best possible course of action: continuing or looking for a different subject.
3. Feasibility—this consists of taking into consideration the complexity of the project and the resources needed to work on it. The recommendation was to consider the local availability of personnel, time and financial resources. If the local resources were insufficient to accomplish the project, then it was pertinent to consider the possibility of obtaining external funds and technical assistance.
4. Political acceptability—explores the topics that the authorities considered relevant and were willing to support. In this case, it increases the possibility that the results would be used. However, it was clarified that, under certain circumstances, it is necessary to carry out studies aimed at demonstrating that certain policies need to be adjusted. This requires an extra effort to involve the authorities from the early stages of the study and to avoid potential confrontations.
5. Applicability of the results and recommendations—the starting point was the question: Is it probable that the recommendations would be applied? This would allow identifying that the results and recommendations do not depend only on the benefits for the authorities but on the availability of resources to implement such recommendations and on the support from the users and health personnel.
6. Urgency of the results—two questions helped to learn about the perceptions of the researchers

about the urgency: Are the results urgently required to make a decision? Which research studies must be completed first and which ones later?

7. Ethical acceptance—the ethical acceptance comes from the assumption that the possibility of causing harm to others while the research is being conducted always exists. Therefore, several questions tried to address the ethical aspects. Is it acceptable for the potential candidates to participate in the research study? Is it mandatory for the participants to provide informed consent? Are the conditions of the participants to be taken into account? For example, if during the study the participants require treatment, will this be provided? What would happen if the treatment interferes with the results of the study?

Each question had a scale to rank the research topics (Table 1). This scale allowed setting a score for each topic. The highest score was 21 points and the lowest 7 points.

To further contribute to the information for this study for the period 2006-2008, personnel of the HIMFG Research Directorate classified and analyzed the research studies that were being carried out at the HIMFG. The analysis included only those that were receiving funding. Then, it extracted the epidemiological information of the HIMFG, which included the main causes of ambulatory and hospital care and mortality statistics. Also, the articles published by HIMFG researchers during the last 5 years were included in the analysis.

The information was collected and analyzed using the statistical software SPSS (v. 17) and the program Excel 2007 (Microsoft). The analysis was carried out using descriptive statistics.

## Results

The survey was distributed to 104 researchers affiliated with the HIMFG of which 55 replied;

43.7% of those who replied were affiliated with the National System of Researchers, which is a federal program that recognizes and provides incentives to researchers from different disciplines throughout the country. Overall, the interviewees were conducting 173 research projects, which were distributed according to the following disciplines: biomedical research, clinical research and epidemiological studies (Table 2).

The analysis of the articles published in indexed scientific journals showed an average of 1.3

articles per year per researcher, followed by an average of 0.6 articles per year per researcher in non-indexed journals. This included grey literature reports. Regarding the participation of researchers in medical education activities, this included pediatric residents and master and doctoral students (Table 3).

The priority setting exercise showed that the predominant field of research was infectious and parasitic diseases followed by research on endocrine diseases, nutrition, metabolic disorders, cancer (mainly leukemia) and congenital malformations (Figure 1).

The analysis of the relative position of the main causes of ambulatory care, hospital discharges and mortality compared with the articles published on funded projects and results of the survey showed moderate congruency. Congenital malformations, deformities and chromosomal anomalies were the main causes of mortality, ranked second place

**Table 1. Ordinal scale to evaluate research priorities**

Relevant	1 = Not relevant 2 = Relevant 3 = Very relevant
Avoid duplicity	1 = Sufficient information already available 2 = Some information available but major issues not covered 3 = No sound information available on which to base problem-solving
Feasibility	1 = Resources are not available 2 = It is feasible 3 = It is very feasible
Political acceptability	1 = Decision-makers do not accept the topic 2 = The topic is somewhat acceptable 3 = The topic is fully accepted
Applicability	1 = There is no chance that the recommendations will be implemented 2 = There exists a fair possibility that the recommendations will be implemented 3 = The recommendations will be fully implemented
Urgency	1 = Information not urgently needed 2 = Information may be used right away but a delay of some months would be acceptable 3 = Data very urgently needed for decision-making
Ethical acceptability	1 = Major ethical problems 2 = Minor ethical problems 3 = No ethical problems

**Table 2. General characteristics**

Variables	n = 55 (%)
Researcher category at HIMFG (A is the lowest and F the highest)	
A	23.6
B	25.5
C	16.4
D	10.9
E	1.8
F	3.6
No response	12.7
Affiliated with the National System of Researchers (candidate is the lowest and emeritus the highest)	
Candidate	27.3
Level I	10.9
Level II	5.5
Level III	---
Emeritus	---
Not affiliated	56.4
Lines of research n = 173 projects (%)	
Biomedical research	70.1
Clinical research	23.0
Epidemiology, health services, health economics	6.9

among the priorities and sixth place in scientific publications. Cancers such as leukemia and lymphoma ranked second place in hospital mortality and were the third priority. Neonatal complications and respiratory tract diseases ranked third and fourth places and infectious and parasitic diseases ranked fifth among all mortality causes. However, the latter were ranked as the first priority and the first place in the number of publications and funded research projects (Table 4).

### Discussion

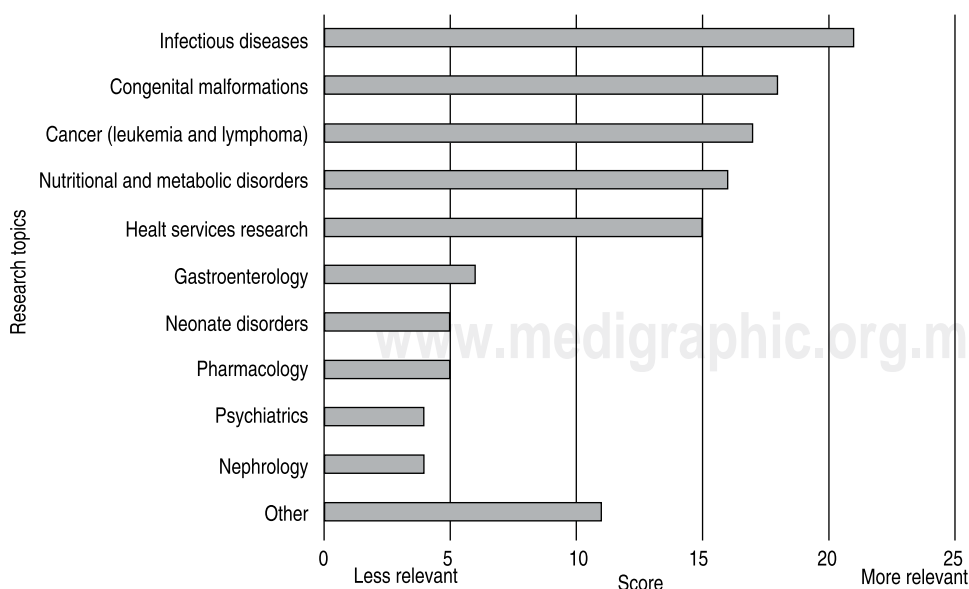
The main results of this institutional priority setting exercise showed that approximately half of

the researchers affiliated with HIMFG were willing to participate in the survey. Biomedical research was predominant, followed by clinical research. Dissemination of research results through publications in peer-reviewed scientific journals and grey literature represented, on average, one article per researcher per year. From the perspective of the researchers, the central priority was research on infectious and parasitic diseases, which in turn showed moderate congruence with the main causes of hospital discharge and mortality.

The low response rate of the researchers showed the need to further their participation in exercises aimed at learning their opinions and

**Table 3. Scientific productivity and participation in educational activities in the last 5 years**

Scientific productivity	n	Average per year per researcher	Minimum	Maximum
Publications in indexed scientific journals	49	1.33	1	81
Publications in non- indexed scientific journals	34	0.66	1	12
Research reports (grey literature)	19	1.6	2	76
Book chapters	30	0.7	1	15
Published books	13	0.43	1	6
<i>Participation in educational activities</i>				
Mentoring pediatric residents	31	1.1	1	22
Mentoring master students	18	0.8	1	11
Mentoring doctoral students	7	0.5	1	8



**Figure 1.** Priority topics for pediatric research at HIMFG.

**Table 4. Relative position of the main themes for research according to the epidemiological information, scientific publications, and funded projects**

Research themes	Hospital	Ambulatory	Scientific	Research projects	Priority setting	
	Mortality 2007	discharges 2007	care 2007	articles 2006-2008	with external funding* 2006-2008	survey 2008
Congenital malformations, deformities and chromosomal anomalies	1	2	1	6	4	2
Tumors, leukemia and lymphomas	2	1	5	4	2	3
Neonatal disorders	3	—	—	5	8	6
Diseases of the respiratory system	4	6	2	2	5	12
Infectious and parasitic diseases	5	—	—	1	1	1
Endocrine, nutritional and metabolic disorders	—	—	4	3	3	4
Diseases of the gastrointestinal system	8	4	3	7	7	6
Neurological diseases	10	9	8	7	6	13
Epidemiology, health services research and health economics	—	—	—	6	9	5

\*Research projects receiving federal funds for the period 2006-2008.

views about research priorities. Although this was not an expected result from the study, it is possible to assume that the interviewees were unfamiliar with the exercise and should have received further information about the value of their contribution and to understand that they are constituents of the research activities being conducted at the hospital. It has been reported that there is little knowledge about the way in which the stakeholders should participate and what their functions and responsibilities are. The current consensus is that setting priorities is as important as conducting research itself.<sup>5</sup>

To set priorities, all constituents should be familiar with the process and be aware about the potential decisions that would come from the results, which in turn will be focused at using, in the best possible way, the scarce resources that will be concentrated in a specific number of priorities. In a resource-constrained environment, identifying needs, setting priorities and allocating resources for research is always complex, but it is even harder if those who are involved do not participate. This finding should encourage activities designed at bridging the gap between research-

ers and decision-makers to define priorities and potential allocation of resources.

The predominance of biomedical research at HIMFG and its focus on infectious and parasitic diseases is a clear indication of the momentum (magnitude and direction) of the epidemiological conditions that just few years ago were prevalent among the patients receiving care at this institution and can be considered as a competitive advantage of the hospital. However, this scenario is changing progressively due to the epidemiological transition and polarization that is happening in Mexico.<sup>6</sup> Most children currently survive infectious diseases and attain an age high enough to develop a chronic condition. Yet a high proportion of children who are suffering from infectious diseases are still receiving medical care.

At HIMFG, leukemia and lymphoma are the top causes of hospital discharge, whereas congenital malformations including chromosomal anomalies are the second cause. Currently, among Mexican children aged 5-18 years, cancer is the second leading cause of death. This increase has been observed since 1975. Acute lymphoblastic leu-



kemia is the most frequent, followed by central nervous system tumors.<sup>7</sup> To date, research on pediatric cancer is steadily growing at HIMFG. The hospital is a member of the Children's Oncology Group, an association that carries out international multicenter pediatric cancer research.<sup>8</sup> This membership would fuel the hospital to reinforce its capacity-building effort to carry out pediatric research in the field of chronic diseases through investing in human capital and infrastructure.

Dissemination of the research results through scientific papers and grey literature was moderate. Publishing one paper per researcher per year would be considered as the baseline figure to implement strategies aimed at promoting and increasing scientific productivity. The study did not address the quality or citations of published papers, only the number of publications per researcher. The current contribution of Mexico to the global scientific production is only 0.33%. This comprises only articles published in peer-reviewed scientific journals. In our context there is little information about the publication of research reports, grey literature or other type of publications such as executive summaries aimed at disseminating or translating research results for decision-makers or for the public. Encouraging this activity would be another way of closing the gap between the decision-making process and research activities.

This study followed a bottom-up approach to set institutional priorities for pediatric health research that eventually could contribute to a regional or national priority setting process in pediatrics. HIMFG is a tertiary care referral center that receives pediatric patients from different parts of the country and as such is a key player in the field of pediatric care and pediatric research in the Mexican health sector. From our perspective, this type of exercise could contribute to set priorities with a district or regional perspective. Nationwide priority setting exercises have been previously carried out in Mexico with their aim to

contribute to the design of sound health research policies and programs.<sup>9-11</sup> However, little is known about its impact. There is still the need to gain the acceptance of both researchers and decision-makers to participate in similar exercises. Further research is also necessary to investigate whether carrying out this activity contributes to improving the decision-making process.

There are several weaknesses in this study that should be addressed. We may mention that the exercise was carried out only with researchers affiliated with the HIMFG. The exercise did not include decision-makers. It is well known that selecting and analyzing research problems must include all constituents (decision-makers, practitioners, researchers and patients). It is very probable that including the participation of other constituencies would complement and enhance the results. The low rate of response of the researchers is another weakness. The non-response biases in which individuals chosen for the sample are unwilling or unable to participate may lead to an overestimation of the results. However, the combination of three different sources: interviews to researchers, analysis of actual lines of research and the main causes of outpatient and inpatient hospital care including mortality provide complementary information for our analysis and may be helpful in overcoming the flaws.

We may conclude that it is possible to carry out institutional priority settings for health research. Results show that the priorities established by the investigators are in accordance with the actual provision of care; however, further activities to increase the commitment of the researchers to participate and to include other constituencies are necessary to further strengthen this exercise.

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## References

1. Panchansky R, Thomas JW. The concept of access: definition and relationship to consumer satisfaction. *Med Care* 1981;19:127-140.
2. Rosengard A, Laing L, Ridley J, Hunter S. A literature review on multiple and complex needs. Scottish Executive Social Research. University of Edinburgh, Scotland; 2007.
3. The Collaborative Training Program. Health Research for Policy, Action and Practice. Training Modules. The Collaborative Training Program for Health Research for Policy, Action and Practice, Version 1; 2002.
4. Varkevisser C, Pathmanathan I, Brownlee A. Designing and Conducting Health Systems Research Projects. Volume I: Proposal Development and Fieldwork. World Health Organization/International Development Research Centre; 2003.
5. Nuyens Y. Setting priorities for health research: lessons from low and middle-income countries. *Bull WHO* 2007;85:319-321.
6. Bobadilla JL, Frenk J, Lozano R, Frejka T, Stern C. The epidemiologic transition and health priorities. In: Jamison D, Mosley H, Measham A. Bobadilla JL, eds. *Disease Control Priorities in Developing Countries*. New York: Oxford Medical Publications; 1993.
7. Rivera-Luna R. *Oncología Pediátrica*. México, DF: Editorial Intersistemas; 2002.
8. Medina-Sanson A. The new face of pediatric oncology in Mexico. *CCR Connections* 2009;3:26-27.
9. Martínez-Palomo A. *Investigación en Salud. Informe de la Comisión de Investigación para el Desarrollo*. Mexico: El Colegio Nacional; 1991.
10. Bangkok Declaration on Health Research for Development. Proceedings from the International Conference on Health Research for Development. Bangkok: October 10-13, 2000.
11. Consorcio de Investigación para el desarrollo de los Sistemas Estatales de Salud: Atención a la Salud para Grupos Vulnerables. Resumen ejecutivo. Instituto Nacional de Salud Pública, México; 2007.