

HEALTH RESEARCH PROFILE

CHILE

BACKGROUND

Chile has established a tradition of government-sponsored basic and biomedical research¹, and produces high numbers of associated publications². The country also has a very strong tradition of intellectual training and excellent universities. However, it has not developed a similar tradition for producing research evidence for health sector policy-making.

During the second half of the 20th Century, and particularly in the 1990's, Chile's economy grew substantially. Many of the health problems common to developing countries were dramatically reduced, and today, Chile has low infectious disease and infant mortality rates. However, the country's strong health and development indicators hide major inequities, including a more than 11-fold difference among municipalities in household income, and standardised mortality rates which vary 5-fold across municipalities³. UNDP has pointed out the coexistence of significant social and economic achievements and advances, with the prevalence of low confidence among citizens in the systems of education, health, social security and work. Despite of the high level of human development of the country, UNDP has also clearly shown the unequal distribution in the index of objective human security across different regions of the country⁴.

In recent months the Government of Chile has turned explicitly toward improving equity in health by increasing access to health care services for people with low incomes and high medical and social needs. This effort is occurring within a complex health sector where 70% of the population—those with fewer resources and higher risks--receives health services in the public system, while (approx.) 30%--those with higher-incomes, and generally lower-risks—obtain their care from private HMO-like entities. A recent MOH study has shown that two-thirds of all physician hours in Chile are devoted to the 30 percent of the population receiving health care in the private sector. This realities require that the country try to make structural and organisational changes in the health sector. Detailed information is needed to identify the highest health priorities and effective strategies for addressing them, and, very importantly, to sustain political decisions.

The process of strengthening essential national health research (ENHR) in Chile implies an intentional channelling of resources toward policy-oriented research as distinct from basic and biomedical research. Lamentably, the success of basic and biomedical research in Chile, often oriented toward international audiences, has obscured for many people the paucity of research aimed at informing health policy in Chile itself. It is crucial that essential national health research be institutionalised in order direct resources and researchers to this area.

¹ Back on 1967, Chile created the National Commission for Science and Technology (CONICYT). CONICYT supports most of scientific research in Chile.

² CONICYT. Statistical Bulletin. 1999.

³ Perfil de Equidad en en Salud en Chile: Informe Preliminar. Junio 2000. PAHO/WHO-Santiago.

⁴ UNDP, Desarrollo Humano en Chile. Las Paradojas de la Modernización. 1998.

Having identified a problematic shortage of ENH research in Chile and an absence of policies which would stimulate it, the Chilean MOH (under a new government installed in March, 2000) has begun addressing the problem. It is developing a national research policy directed toward expanding national capacity in the area of policy-oriented research

I. RESEARCH ON HEALTH INEQUITIES

The largest database of state sponsored research projects is published by the National Commission for Scientific and Technological Research (CONICYT). This institution funds most of scientific research developed in Chile. A review of 2,030 research projects funded between 1990 and 2000 includes 331 projects that can be defined as priority oriented according to expert judgement from two independent sources. In this review we did not find projects specifically addressed to measure health inequities in access to health services, health status or distribution of health determinants.

II. RESEARCH FINDINGS AS A BASIS FOR CHANGES IN HEALTH POLICIES

Research findings arising from projects funded by CONICYT rarely if sometime result in health policy changes. The Ministry of Health “buys” specific research studies according to the needs of policy development as occurs in the following examples:

- During the last decades, the National Program of Food Supplements implemented by the Ministry of Health has contributed to overcome malnutrition in children but recent studies have shown an increase of obesity among the same age groups. The Ministry developed a study addressed to gather evidence to sustain changes in composition of food supplements for children. The study, developed by an independent group of researchers, also provided evidence to sustain a major policy change in terms of starting a new program of food supply for the elderly with the same resources.
- Measurement of Burden of Disease in the country represents another example of research developed by the Ministry to sustain national health policies. A group funded by the Ministry with resources coming from a loan of the World Bank developed this study in 1994. Results have been very important to have an actual picture of the most relevant health problems in the country and have been used as reference for investment decisions and attempts of structural change in the health system.
- A collaborative effort of the Ministry with the Centre for the Development of Vaccines at the University of Maryland, provided evidence on the cost benefit of including a new vaccine against invasive H. Influenzae infections in children. The vaccine was successfully included in the Immunisation Programs of the Ministry in 1996.

Resources used to develop studies “on demands” by the national health authorities are hard to measure, due to the lack of a special budget for such purposes inside of the Ministry of Health.

State funds addressed to fund scientific and technological research are allocated to different areas. Tables 1 and 2 show the distribution of research projects during the last ten years.

Table 1
Research Projects supported by CONICYT
1990-2000

Area of Research	N°	%
Basic and Applied Science	9,322	84.0
Bio-Medical Research	1,778	16.0
Total	11,100	100.0

Table 2
Bio- Medical Research Projects funded by CONICYT
(1990-2000)

Bio-Medical Research Projects	N°	%
Basic Sciences of Medicine	1,028	57.8
Clinical Sciences	480	27.0
Public Health	249	14.0
Health Management	21	1.2
Total	1,778	100.0

It can be seen that Public Health projects are scarce and that research in health management issues is almost negligible. This last category includes those projects dealing with major policy issues requiring evidence to sustain decisions. As there are no specific or explicit criteria for judging relevance of the research question, there is no way to classify research projects in accordance with their importance for decision-makers.

III.HEALTH RESEARCH MANAGEMENT

Redundancy and fragmentation are not taken in account by the health research management system. Researchers apply for funding as individuals that are part of a group with different roles in the project. If the referee is aware of similar or complementary research efforts developed by other groups, he can use this data to judge originality of the research question or methodology. He can also make recommendations to improve the project by linking it with similar work being done elsewhere.

Fragmentation is faced only by considering previous work of researchers applying for funding as part of the items for referee's evaluation. Anyhow, in a very important health research centers such as the Bio-medical Sciences Institute at the University of Chile, a recent evaluation has shown that almost all of the faculties involved in research projects are in charge of a different and "original" research line⁵.

IV. THE RESEARCH AGENDA

There is no such thing as an explicit national health research agenda in Chile. The research community establishes research priorities. In general, Universities or research centers do not question the relevance of a research project when asked for support. As these centers can charge an overhead for each of the projects developed by their faculties, incentives are set towards maximization of these profits in opposition to the idea of patronizing those research efforts that are part of the institutional priorities. The CV of the investigators is the most important item included in the guidelines for referees judging research projects applying for funding. Researchers with a solid background in the field of their specialization as measured by publications in international journals represent the most important force that drives the “implicit” research agenda of the country.

International agencies are also influential in the agenda by offering resources to researchers willing to develop efforts in their areas of political priority. Chile is especially attractive in this regard because of the quality of the research being done in the country as judged by the number of publications per 100.000 inhabitants (table 3).

Table 3
Research articles in international journals per 100.000 inhabitants

Year	Argentina	Brazil	Chile	Mexico
	Number of publications per 100,000 inhabitants			
1993	6.28	2.96	9.09	2.48
1994	6.83	3.12	8.77	2.76
1995	10.35	3.49	9.67	3.16
1996	8.72	3.81	10.19	3.51
1997	9.64	4.17	10.56	3.75

Despite of the quality of research developed in the country, Chile is a country that is far from being considered included in the priorities of international agencies devoted to technical cooperation with developing countries. Research funded by these agencies is limited and lacks of relevance when compared with national funding sources.

The pharmaceutical companies fund specific projects to test new drugs in the Chilean hospitals. Hospitals belonging to the National System of Health Services (state health system) do not have strong policies to decide in regard to the support or authorization of such research and only in recent years have initiated efforts addressed to structure ethical committees in each of the centers.

V. NATIONAL RESEARCH POLICY

Even though there is no explicit health research policy in the country, recent progress have been observed in the Ministry of Health. The Ministry has established a Commission for Research and Technology whose purpose is to support the Minister in promoting research projects directed toward high priority health issues. This effort is now crystallising with the convoking of a working roundtable of representatives from the Faculties of Medicine who will consider the bases of an essential national health research policy. The efforts of this group will be integrated with a proposal presented to the Awards in Essential National Health Research of the Rockefeller Foundation. The Ministry also has (since 1997) a Unit for Evaluation of Health Technology, which is linked to the International Network of Health Technology Agencies (INHATA) and the International Society of Technology Assessment in Health Care (ISTAHC), and will participate in this project as well.

At present, there is also a vague political definition of the goal and mission of CONICYT that can be considered a preliminary base for a national research policy in the health areas. This is because the law that created such institution in 1967 states that the state funds allocated to develop scientific research must contribute to improve “the quality of life of the population”.

VI. RESOURCES FOR HEALTH RESEARCH

Table 4 shows the distribution of research expenditures and the evolution of such funding in the last years.

Table 4
Health research funds for different institutions
Chile, 1987-1997
(In millions of US dollars)

Institution	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Health services	0.0	0.0	0.0	0.97	1.00	0.49	1.21	1.40	1.52	1.95	2.82
Universities	0.22	0.64	1.03	1.21	2.02	2.70	3.56	3.94	4.80	4.80	5.93
I.S.P ⁶	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	1.15
FONDEF ⁷	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0.78
Total (Health)	0.22	0.64	1.03	2.18	3.02	3.19	4.77	5.34	6.32	6.75	10.68
Total (Research)	55.27	63.77	82.45	112.47	152.62	214.87	276.37	338.73	398.89	453.26	496.68
Health research as % of National Research Expenditures	0.40	1.00	1.25	1.93	1.97	1.48	1.72	1.57	1.58	1.48	2.15

As it can be seen from the table, state research funding has increased sharply in the last ten years in 1997, reached the figure of US\$ 34.02 per inhabitant (0.67 % of the IGP). Chile's expenditure in research and development (as % of IGP) was larger than the same figure for Brazil (0.60), Argentina (0.31), Mexico (0.35) and Venezuela (0.47) in 1995. Per capita expenditures for the same countries are shown in table 5.

Table 5
Per capita expenditure in research and development
Selected countries. 1993-1997
(US\$ Dollars for the same year)

Year	Argentina	Brazil	Chile	Mexico	Venezuela
1993	26.8	17.9	20.8	16.4	14.9
1994	25.5	19.4	24.1	17.7	9.2
1995	26.6	26.2	30.1	19.1	17.2
1996	32.5	25.8	31.7	18.1	15.5
1997	32.5	20.6	33.8	19.1	16.1

Health participation in such funding has also increased in 1997, mainly because of the starting of a new fund (FONDEF). Research alliances between investigators working in industrial and productive areas and researchers involved in health research (management, environmental health, etc.) have been successful in obtaining funding from this source. The new government has promised to duplicate the research budget by the end of the six years mandate. It can also be seen from the table that Universities develop twice as much

⁶ National Institute of Public Health. It is the national lab for referral and the institution in charge of register and certification of drugs.

⁷ National Fund for Productive Development. A fund for research and technology addressed to productive improvement.

research projects in the health field than Health Services. It is possible that research projects developed by these last institutions be more closely related to health priorities but they respond mainly to the initiative of groups of health officers interested in particular research questions rather than to the institutional priorities or initiatives of the Ministry of Health.

VII. QUALITY ASSURANCE OF RESEARCH

Quality of research in Chile can be judged through the number of publications as it was shown in table 3 or through the proportion of approval of those proposals presented for funding. Table 5 describes this issue for the different fields of the area of medical sciences in the period 1990-1999.

Table 5
Applications and approvals. Research proposal in Medical Sciences
CONICYT 1990-1999

Field	N° of applications	N° of approvals	% of Approval
Public Health	254	69	27.2
Nutrition, Endoc.	180	71	39.4
Ob. & Gyn.	116	45	38.8
Psicosomatic Med.	113	39	34.5
Inmunology	108	42	38.9
Cardiology	107	45	42.1
Infectious Diseases	102	36	35.3
Gastroenterology	98	52	53.1
Pediatrics	82	24	29.3
Other Clinical	80	19	23.8
Neurology	64	21	32.8
Nephrology	57	27	47.4
Dentistry	57	9	15.8
Respiratory Dis.	56	28	50.0
Phisiopathology	55	25	45.5
Pharmacology	46	9	19.6
Anatomy	39	17	43.6
Surgery	36	4	11.1
Rheumatology	32	20	62.5
Nuclear Med.	29	7	24.1
Ophtalmology	21	7	33.3
Internal Medicine	17	4	23.5
Otorinology	12	1	8.3
Physioterapy	6	1	16.7
Forensic Med.	1	1	100
TOTAL	1768	623	35.2

As it can be seen, Public Health projects are far from reaching the average rate of approval for research projects presented during this period in the field of medical sciences. In regard to health priorities, this last group of projects is more linked to relevant health questions. Clinical medicine research projects have larger rates of approval, a fact that is possibly influenced by the number of researchers-referees existing in the field and for the largest tradition of application to CONICYT.

Quality of research is also assured by the rules of CONICYT. These rules establish the commitment of researchers to publish at least one article in international journals as the result of the project. Reports of advance are mandatory and a pre-requisite for continuing funding.

VIII. STATUS OF RESEARCHERS

Inside of the Chilean Universities, researchers with CONICYT funding for research represent the highest ranking of faculties. To conduct this kind of research is a requisite to be appointed as full professor. It is hard to demonstrate the influence of “top-ranked” researchers in CONICYT decisions, but it is incontestable that after 30 years of development of the same alternative for research funding, loops of researchers have been created. These loops obtain most of the funds inside of each of the categories and the names of the same researchers are repeated in different roles in different research projects in the same year.

IX. POLICY EFFORTS IN REGARD TO HEALTH PRIORITIES

As it was previously mentioned, recent efforts at the Ministry of Health points to the goal of developing a National Policy for Essential National Health Research. Health priorities in terms of disease burden were measured and gaps in terms of evaluation of interventions addressed to these priorities can be defined. A national agenda for essential health research should be developed as the result of the work of a commission appointed by the Ministry with such purpose.

X. POLICY EFFORTS IN REGARD TO FUNDING OF ESSENTIAL HEALTH RESEARCH

Conversation between the ministry of Health and CONICYT has started recently. The goal of the Ministry is to be able to create a new Fund (such as FONDEF) inside CONICYT. This fund should be addressed to research projects specifically focused to the research agenda mentioned above. Rules for the application to this fund should be different in order to act as an incentive for developing a critical mass of researchers able to produce evidence to sustain relevant health policy decisions. The new fund can be created with the new resources of expansion of the national research budget.