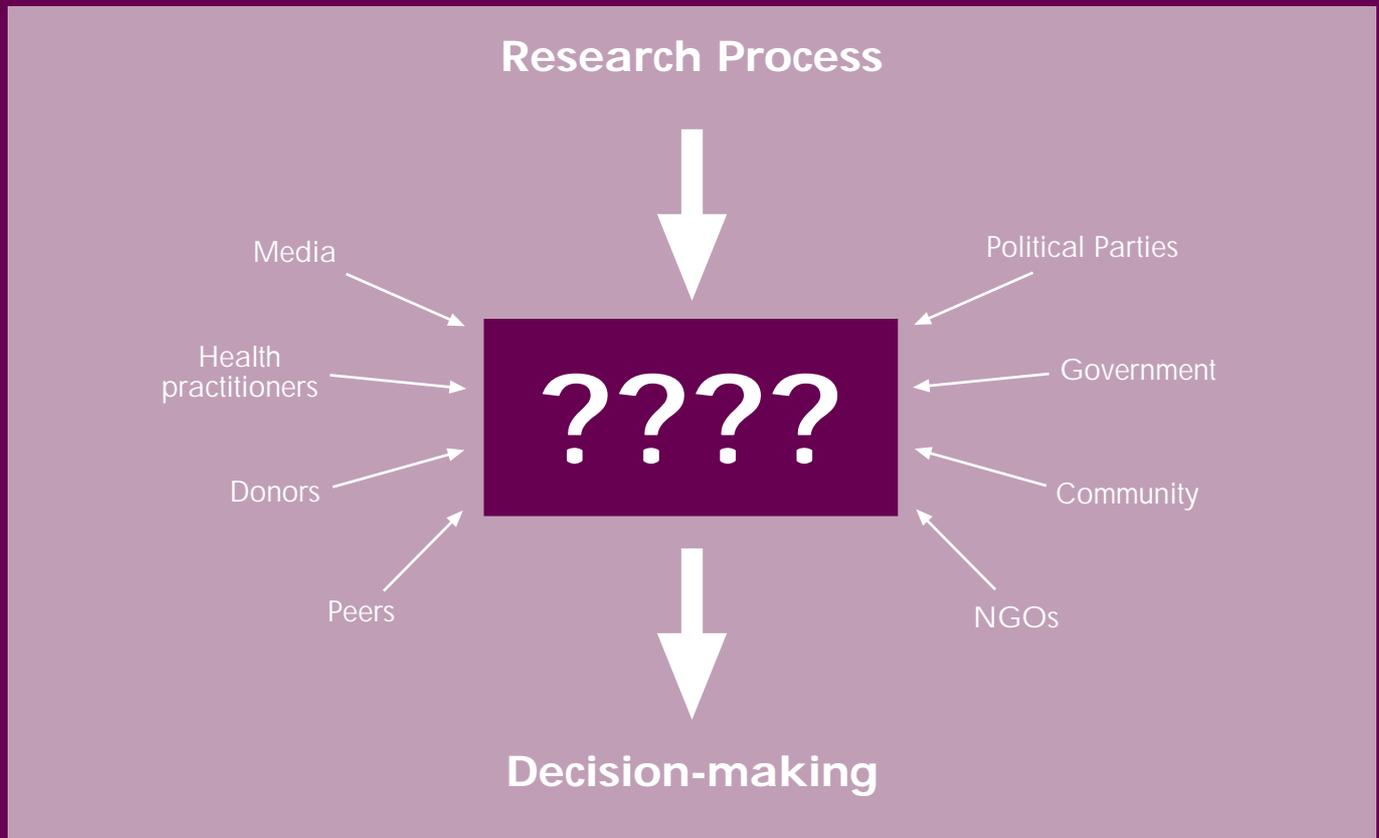


Lessons in Research to Action and Policy

Case studies from
seven countries



A COHRED issues paper

COHRED Working Group on
Research to Action and Policy



This issues paper is part of a COHRED effort to develop ENHR implementation skills at country level. It was prepared by the Working Group on Research to Action and Policy.

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Introduction

Research to Action and Policy: The Need for a New Concept

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Health research can have an impact on many different aspects of health development and at many different levels. It can create better understanding about the determinants of health, play a crucial role in the development and use of health technologies, and inform decision-making of various kinds which result in actions at an individual level or in health policies and programs at the population level. Researchers often adhere to the idea that the results of relevant and scientifically rigorous research will eventually find their way onto the desks and into the meeting rooms of policymakers and program planners. This is seldom the case and a problem that has itself generated a great deal of research. How can the link between research and action be strengthened?

This question guided the work of the Council on Health Research for Development (COHRED) Working Group on Research to Action and Policy. Formed in 1998, the Working Group strove to better understand how to improve the linkage between research and action, and in particular, research and policy. It was hoped that such an understanding would identify capacity development needs to help countries in their efforts to make research an effective tool for health development. Case studies were carried out in five countries: Brazil, Burkina Faso, Indonesia, South Africa, and Uruguay. A combination of document analysis, interviews with researchers and decision-makers, and, in several cases, the case study authors' personal experience in the research-policy process, were employed to document the use of research around a health problem or development effort. The case studies from Pakistan and Lithuania have not been conducted within the framework of the working group, but, as they cover similar issues, have been added to this publication as valuable additional examples and lessons.

The Brazilian case study looked at governmental action to establish Hib and hepatitis B vaccine production capability in the country and the role of national research in this effort. The Burkina Faso case study examined the reasons why a long-standing research program advocating a "shared care" approach to improving the health of children has not been adopted by decision-makers. Similarly, the case study from Indonesia identified factors that constrained or supported the use of research in improving government policy with respect to a social safety net in the health sector. The Pakistan case study reported on the role that research has played in child health policy and programs in Pakistan – specifically, control of diarrheal disease (CDD), acute respiratory infection (ARI), and iodine deficiency disorders (IDD). The South African case study asked why, with the abundance of research studies being made available for policy development, so few of the results have contributed to policy, despite a seemingly receptive new political environment. The Lithuanian case study focused on the use of research to identify and reduce health inequities, and the translation of these research results into health policies. Lastly, the case study from Uruguay provides an historical overview of the relationship between research and action surrounding control programs for two diseases of national priority, Chagas disease and Foot and Mouth disease in animals. Each case, presented as a separate chapter of this report, offers valuable lessons about strengthening the link between research and policy.

1. Conceptual framework for an holistic approach to strengthening the research-policy link

Previous attempts at improving the research-to-policy linkage have focused on the supply-side or research generation. But experience has taught that efforts must be directed at both the research generation and decision-making processes. A conceptual framework for an holistic approach to strengthening the linkage between research and policy, based on interactive learning through equal partnership, is presented in Figure 1. Identified are five components of the interface between research and policy: the process, the stakeholders, the mediators who help to link the two processes, the research products, and the larger context within which the decision-making and research processes take place. Lessons learned from the country case studies provide illustrations of the components of the framework.

The Process: This encompasses the two inter-related processes of research generation and decision-making. It is important to pay attention to the process of how research is planned and executed, and also to the process whereby decisions are made. There are many steps in both processes that need to be linked, not just the initial steps of defining research questions and policy priorities and the later steps of disseminating results and implementing policies and programs. Linking the two processes may not mean simply inviting policymakers to participate in research planning. It may be equally useful for researchers to participate in the policy and program development process from which crucial research questions can be distilled.

Lessons learned

Neither researchers nor decision-makers should expect a one-way, linear, or one-for-one relationship between research and policy. There are several aspects to this lesson:

- Decisions are not necessarily made based on a single study. The Uruguayan case study provides an example of how cumulative results of a number of research studies led to the development and refinement of Chagas disease and Foot and Mouth disease control programs. On the other hand, a single research study can have multiple policy implications – possibly for sectors other than health.
- Research that is not immediately used or is rejected by a particular group of intended users may get picked up at a later point if the findings are still of relevance. Researchers should also be looking for new opportunities to make research results known or to be discussed by potential users.
- No matter how relevant, timely, or scientifically rigorous its results, a research study still may not lead to action.

Research created as a condition to external loans for development can pose a unique set of difficulties. In most instances, the loan condition provides for greater visibility of the research findings. On the other hand, it may create friction and resistance to adoption of research results by national decision-makers, depending on how the research projects were managed. Again, careful attention to the various stages of research planning and management is essential, especially when sensitivity among potential research users is anticipated.

Action research at the community level is another way in which research can lead to action and have a significant impact on the health of the people in the

participating community or group. Yet, such outcomes may be difficult to duplicate on a wider scale because most research projects require tremendous investments of time and human energy, which are difficult to generate or sustain on a broad basis.

The Stakeholders: Stakeholders include the various groups of people who are concerned or affected by the issues being addressed by the process. Research will have a greater likelihood of being used in decision-making if the intended users are identified and become involved at various stages in the processes of research planning, management, and dissemination. All stakeholders need to be properly identified and involved. The results of research studies need to be communicated effectively to each group, bearing in mind their different roles, perceptions, and orientation to the issues.

Lessons learned

Supply-driven research, in particular that led by external research teams, may be perceived as being imposed on decision-makers. This was the case with the researcher-recommended *shared care* approach described in the Burkina Faso study. Although the research was of high quality and conducted by researchers with strong reputations, decision-makers asked themselves if “*these ideas had been parachuted from Heidelberg.*” Researchers may have been more successful in putting shared care on the agenda if greater ownership of the strategy could have been encouraged by more actively involving decision-makers in the early stages of the research process. Instead, efforts focused on disseminating results when the studies were complete.

The case of child health research in South Africa shows a similar pattern: studies are based on the interests of the researchers, and, although addressing priority issues, study results may still be waiting to be used. Interaction with potential research users from the earliest stages of the research process may help to increase the chances of research results being used.

Even when potential users have participated in formulating research questions or identifying priority concerns, the research-policy link may suffer. In the Burkina Faso case, several concerns about the feasibility of implementing *shared care* were identified for further research work, but the lack of continued involvement of the potential users and key stakeholders contributed to the failure to adopt the approach.

While there is a need to improve researchers’ capacity, it is of equal, if not greater, importance to increase the receptivity of potential users to research. The success of research leading to action rests partly with good research results and good researchers. However, the potential users of research should also be carefully identified and efforts targeted at strengthening the demand for research. This may involve the policy formulation units or the policy advisors of key decision-makers, and not necessarily the decision-makers themselves. The media, who play a key role in communicating between researchers, decision-makers, and the public at large, is another important target group. Journalists and editors need to be more receptive to research work and knowledgeable about research results.

The Products: The products refer to the research studies themselves and how they are linked to the decision-making process. In most cases, researchers are concerned about the quality of research, seeing it as the determining factor in whether or not it is used. The nature of the issues being addressed and the nature of the studies themselves, however, can also play a crucial role. Studies providing factual findings are viewed and used differently from those providing concrete recommendations and especially from studies trying to address the issue of how to solve a particular problem. In fact, it may be helpful to think of research products not only as final reports at the end of research projects, but as a series of different outputs within an ongoing integrated program which combines research and action. Sometimes several studies carried out within a program lead to a single decision. In turn, experience with decisions and actions can lead to the next series of studies.

Lessons learned

Too often the emphasis has been on forging links with users once the results have been obtained, and not earlier on in the process. A great deal of effort has gone into presenting research in an interesting and understandable manner. In fact, training courses and materials have been developed to help researchers become effective communicators. The use of media to help disseminate research findings and recommendations has also received much attention. While improving the research dissemination process is important, this strategy alone is not sufficient to guarantee use of research for action. Besides the format in which information is transmitted, the Burkina Faso case study showed that there is a need to ensure that the receiver is the appropriate person and is able to process the information. Therefore, time constraints for the reception of information have to be taken into account, as well as the fluctuation of key functions on the side of researchers and receivers of information.

Research aimed at shaping policy should differentiate carefully between the research findings and the researchers' recommendations. A failure to accept the recommendations should not be taken as an indicator that there is fault with the research itself. Instead, researchers should involve all those who may shape the eventual policy or course of action, in formulating recommendations based on study findings. Often researchers attempt to do this on their own, believing that they are more neutral to the situation and will not bias the recommendations.

The Mediators: Mediators are perhaps the most crucial component of the framework. They are individuals or institutions who play an active role in fostering linkages between the research and policy processes, while making sure that all relevant stakeholders are involved. They could be organisations supporting research work. They could be researchers themselves. They could also be academic or civic groups that support evidence-based decision-making. National research coordinating bodies, such as the ENHR mechanism promoted by COHRED, can also play a mediating role to better foster research to policy linkages. International agencies too have an important contribution to make as intermediaries in linking knowledge and action.

Lessons learned

The influence of persons and institutions with the right attitudes, connections, and capabilities is crucial. The Uruguayan case study pointed to the role that certain committed scientists played, by virtue of their position or contacts within the Ministry of Health in influencing the development of the two disease control programs. Similarly, the recruitment of two leading scientists with entrepreneurial skills as well as technical and scientific proficiency led to the successful mobilisation of various stakeholders to bring together the requirements of the immunisation policy and vaccine research and development activity. The Brazilian case study also highlighted the important role played by institutions with the right mandate in the promotion and adoption of relevant research studies.

The Context: Context refers to the environment surrounding the research and decision-making processes. International organisations and existing funding structures have a significant impact on research linkage to policy, as does the socioeconomic and political situation of the country. The prevailing nature of the decision-making process and the values and perceptions of the research community are important aspects of the environment that should also be taken into account.

Lessons learned

The sociopolitical environment can contribute both positively and negatively to the effective use of research for action. Overall societal values and practices, for example, must be supportive of transparent, knowledge-based decision-making for research to find use among decision-makers. In contrast, the political circumstances within a country may not just be at odds with the notion of dialogue between researchers and decision-makers, but may result in the suppression of research and researchers by governmental powers. The Uruguayan case study example demonstrates the devastating impact that ten years of military dictatorship had on research capacity and utilisation. The South African case illustrates how (despite problems) the “new” political environment brought attention to, and fostered better use of, research for the development of general child health policies and specific policies related to certain programs.

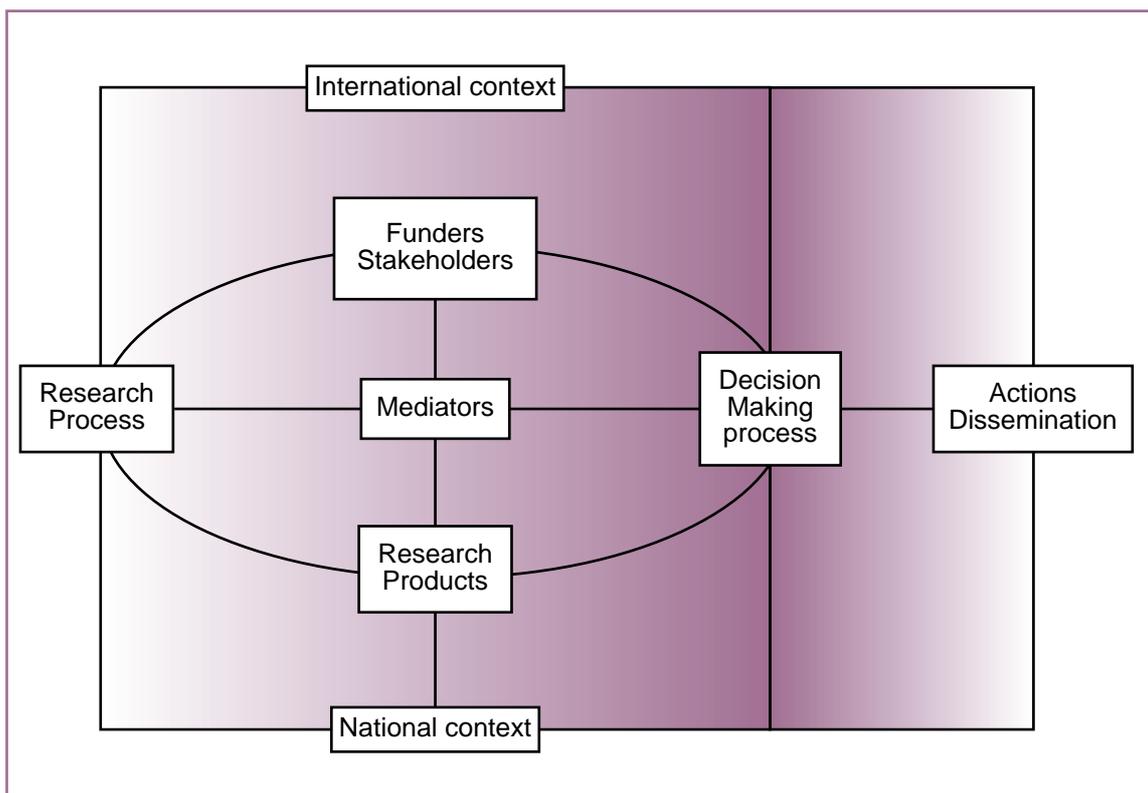
In the case of research for technology development in developing countries, the starting point for research may be on technology transfer from international partners. Nonetheless, the existence of an endogenous research and development base is an essential pre-condition for absorbing the results of research conducted in more developed countries. The two vaccine development examples from Brazil demonstrate how a dynamic interaction between setting up a domestic R&D base and the ability to select and absorb knowledge generated internationally, was a short cut to accelerating the introduction of new vaccines into national programs.

The Brazilian case also demonstrates how, from a research investment point of view, research for technology development in developing countries is as important as epidemiological and operational types of research, for example, into disease prevalence, vaccine coverage, and evaluating the potency of different formulations. The state may play a critical role in developing countries' entrance into research and production of high technology products. In Brazil's experience with vaccines, the lack of interest from the private sector in carrying out R&D activities finally forced direct entry by the State, in response to a crisis in supply of essential immunobiologicals for the State's immunisation programs.

2. Entry points for strengthening the research to policy and action link

Better linkage of research to action requires commitment and concern of various stakeholders. It is not the responsibility of researchers alone. Although discrete yet parallel processes, efforts need to be focused on both decision-making and research generation, linking the two at multiple stages. Such efforts need to begin with the initial step of research priority setting and continue through to dissemination of the research results. There are five critical entry points for strengthening the research to policy and action link.

Figure 1: Conceptual Framework for an Holistic Approach to Strengthening Research to Policy and Action: The Interactive Learning of Equal Partners



Researchers: There is a need to foster new skills and ways of thinking among researchers. In order for them to engage fruitfully in both the research and policy processes they must understand how resource allocation decisions are made and how policy is developed, implemented, and monitored. They also need to be good communicators – not only toward the end of the research process when research results have already been obtained. Researchers must engage the various stakeholders in dialogue throughout the parallel research and policy processes. They need to be able to extract the crucial messages to be used in formulating useful research questions or synthesising relevant recommendations. Some researchers might adopt the role of research manager working to ensure an efficient dynamic between the two processes. They should also be mindful of the changing context and opportunities that may arise to create new research studies or disseminate the results of existing studies.

Training for more effective communication of research findings is one of the many skills that researchers need to acquire. They also need to be trained as process facilitators. Such facilitators must possess a systems perspective and have skills in synthesis as much as in the traditional research skill of analysis. These facilitators also require managerial skills including stakeholder analysis to understand respective viewpoints and potential influence in relation to the issue at hand. What is more, good process facilitators have to be able to convince various groups of people to work together, by providing an enabling environment and logistical support.

Mediating Mechanism: Researchers, research users, and research funders tend to work in isolation from one another and adhere to their own mandates. Within the new framework for strengthening the research to policy link, interaction among all the stakeholders needs to be intensive and to take place at multiple, overlapping stages of the research and decision-making processes. An effective mediator is needed to encourage the various stakeholders to work together. Research funding agencies might be expected to adopt such a role to ensure proper use of research results. In many countries, the national research coordinating mechanism (or ENHR mechanism) may act as a mediator to better link research to action by proactively stimulating interaction between the two processes. A coordinating mechanism with funding authority may find such a role easier to do compared to one with no funding authority.

Research managers: Conventional research managers are entrusted to manage multi-centre projects or large studies. Their primary responsibilities are to ensure that projects are completed as proposed, within the allotted timeframe and resources. Research managers who work to ensure better linkages between research and action have different responsibilities. They must make sure that research work has the best chance of being utilised by potential users, by identifying and involving the various stakeholders. They require skills such as: facilitating the process of multi-stakeholder priority setting, building coalitions around specific problems, seizing opportunities to identify relevant research questions or to ensure that available research is used, and nurturing future leadership for national health research and development. Their work should be assessed according to the relevance of research questions/projects formulated, extent of involvement of key stakeholders, sense of ownership of key research users and researchers, effectiveness of research dissemination, and the relationship between subsequent actions and available research studies.

Political leaders: National governments have an important role to play in improving the infrastructure for social communication, both technical and human. Governments set the political climate for listening and responding to the concerns of the people, conducting the affairs of government in an open and transparent fashion, and asking for evidence to support decision-making. Political leaders must also understand that investing in science and technology, for both short- and longer-term purposes, is an investment in enhancing the well-being of the people.

International research community: The international research community includes research funding agencies and international research institutes and individual researchers. Best use of research results starts with ensuring relevance to the potential users. This requires research that fits within national priorities rather than externally imposed agendas. New ideas or issues can be introduced through external research funders, but they need to be carefully discussed at the country level to ensure relevance and sense of ownership from the initial step of research planning. Formulation of global research agendas based on quantitative data may address problems of aggregate global importance, but may not necessarily reflect the extent of the health problem within a country and its relative ranking among national priorities. International research funding agencies might also choose to support the research mediating mechanism in addition to individual research projects. Supporting such a mechanism will help to strengthen the longer term capacity of countries to identify priority issues and ensure better use of final research products funded through either national or external sources. The international research community, as a whole, can encourage more research leading to action by providing additional channels for international dissemination and exchange of results or by providing assistance to developing country researchers to share study results with colleagues in other countries.

3. Conclusion

Making the best use of available research studies is a priority goal in most countries - developed or developing. Most efforts have adopted an overly simplistic conceptual framework which focuses on linking the final stage of the research process with the initial stages of the decision-making process. A more holistic approach is needed. Improving the research to policy and action link requires not only introducing new tools and techniques, but a paradigm shift among many of the key stakeholders, especially researchers and research funders. This new paradigm calls for a better balance between research supply and demand. It requires new skills and mechanisms to create this balance as well as new partnerships within countries and at the international level.

Chapter One

Vaccine Research, Development and Production in Brazil*

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1. Background

In the 1970s and 80s, modern biotechnology began coming into its own within the international scientific and technological community (Office of Technology Assessment/OTA, 1984), consolidating a new technological paradigm and accompanied by an extensive program of research.¹ As a result, innumerable opportunities opened up for innovation in health and for utilising the research results that had accumulated since Crick and Watson first discovered the double helix structure of DNA in 1953. Vaccines were one of the most promising areas. This movement spilled over into the Brazilian scientific community, which began to organise and articulate its research interests vis-à-vis funding agencies and the State.

Also reflecting an international movement (Children's Vaccine Initiative – CVI, 1993 and 1997), the 1970s saw the beginning of a move to extend national vaccination programs in Brazil. Brazil's health policy strategy for the vaccine field has subsequently proven to be one of the more successful among less-developed countries. Three decades ago, intervention by the State began to occur in a more systematic and planned manner as evidenced by the successful campaign to eradicate smallpox and the launch of vaccination programs like the National Plan to Control Poliomyelitis, as well as more local initiatives. In 1973, the State's role in immunisation policy took a quantum leap forward with creation of the National Immunisation Program (*Programa Nacional de Imunizações*, PNI) – an integral part of the WHO's Expanded Program of Immunisation and which sets out progressive vaccination strategies for the major immunisation-preventable diseases with high national or regional incidence (poliomyelitis, tuberculosis, measles, diphtheria, tetanus, whooping cough, rabies, yellow fever, and so on).

This entry by the State into vaccine policy was accompanied by increasing civil society participation in the national programs, involving the state and municipal governments, the armed forces, community representatives, and international organisations (primarily WHO/PAHO). National vaccination days have been declared since 1980. They are promoted by strong media mobilisation (television, radio, and the press) and with the participation of public figures and the community in general. A wide-ranging poliomyelitis vaccination campaign occurs on National vaccination days and is repeated later in the year. It targets the under-4 population, employing, since 1990, a multi-vaccination strategy to complement the basic scheme in place for the early years of life. Vaccine coverage has extended to around 90% of the target population for the set of vaccines provided, from around 20% when the PNI was set up (PNI, 1998). In addition to the basic vaccines for the child and adult population (DTP/

* This study was carried out for COHRED, and constitutes a line of research pursued by the Fiocruz.

1 On the concept of technological paradigm – inspired by Thomas Kuhn's idea of scientific paradigm – see Dosi (1984). The central notion is that technology, like science, evolves within certain cognitive realms apprehended by the notion of technological paradigm. Inside each paradigm there is always a positive heuristic which defines possible and probable R&D activities, as well as a negative heuristic that excludes problems and lines of research that lie outside its cognitive horizon.

DT, measles, BCG, poliomyelitis, and yellow fever), vaccination campaigns have come to include the vaccines against hepatitis B, Hib, the triple viral vaccine (measles, mumps and rubella), rubella (puerperal), and influenza (for persons over 60).

In spite of the favourable health policy and science and technology environment, the decisive factor in Brazil's entry into modern industrial production of vaccines and research and development (R&D) activities was the crisis in the supply of essential immunobiologicals, which jeopardised its entire immunisation strategy. Up until the end of the 1970s, Brazil's vaccination needs were met by imports and private production. In the early 1980s, when the demand for vaccines expanded acutely as a result of the success of the PNI, and a national health quality control system was set up, it became evident that production capacity was inadequate and locally produced vaccines were of poor quality. In response to the new health policy requisites, the private manufacturing laboratories stopped producing, which precipitated a crisis in the supply of sera and vaccines.

To meet this challenge, the Immunobiologicals Self-sufficiency Program (*Programa de Autosuficiência Nacional em Imunobiológicos*, PASNI) was formulated in 1986 with a view to encouraging national production by a group of public institutions (primarily the Oswaldo Cruz Foundation and the Butantan Institute) that had a more highly developed technology base and research tradition in the area. Between 1986 and 1998, the federal government channelled approximately US \$150 million to these producers to invest in production capacity and quality. Although the goals of self-sufficiency have not been attained, Brazil has established the largest vaccine production capability in South America and certainly one of the largest among the less-developed countries.²

At present, Brazil has the capacity to produce the following more traditional vaccines in routine use: DTP (diphtheria, tetanus and whooping cough), Human and Animal Rabies, Yellow Fever, Measles, BCG (tuberculosis), Poliomyelitis (packaging only). The technology involved is widely known and at present does not incorporate very substantive research results, except for certain process improvements (production in cell culture, new adjuvants, etc.). Of the vaccines manufactured using the new biotechnologies, the genetically-engineered hepatitis B vaccine went into production in 1999. The process of absorbing technology for the *Haemophilus influenzae* type b (Hib) conjugate vaccine is scheduled for completion in the near future. More recently still, moves have been made towards absorbing others technologies, such as the influenza vaccine technology.

In summary, Brazil has, over the last two and a half decades, set up a formidable mass immunisation and vaccine production structure that has had considerable impact on its population's health. Nonetheless, there are points to be criticised in this dimension of health policy, particularly the substantial lag in the introduction of new vaccines (like the hepatitis B and Hib vaccines) into health programs because of the high cost of imports and the specialisation of local production in immunobiologicals that incorporate a smaller research and development content. This situation of structural dependence and lack of technological and entrepreneurial capability may threaten the long-term survival of production ventures in Brazil.

2 For further details on how vaccine production has evolved in Brazil, see Gadelha (1990) and Gadelha & Temporão (1997 and 1999), whose studies provide the basic figures available on the subject.

2. Objectives, methodology and theoretical perspective

This chapter examines the links between research and health policy in view of Brazil's experience in vaccine research, development, production and utilisation by the health system. Studying the vaccine field in a country such as Brazil is particularly illustrative of the factors that condition the utilisation of health research results in underdeveloped contexts. The vaccine field includes a strong research component and, at the same time, constitutes one of the most important modalities of government action in the health field. It is thus one of the most relevant fields for studying the relationship between research and policy. What is more, Brazil's experience over recent decades offers a relatively successful example of a less-developed country managing to engage in vaccine production and progressively making headway in incorporating research results into its health policies.

A systematic review of the literature was undertaken in regard to current theory around the introduction of innovations into the economic system as well as the factors that condition the interaction between research, production, and health policy in the vaccine field in Brazil. In addition, a field survey was conducted (following a qualitative, semi-structured interview format) among some of the leading agents in the fields of health science and technology and health policy.

In terms of theoretical perspectives on the introduction of innovations, a need was found for a more thorough examination of the relationship between research and policy when this involves industrially-used products and processes. Recent work on the relationship between health research and health policy (WHO, 1996; Gerhardus, 1999; Trostle et al, 1999; Bronfman, 1999) has emphasised how the logic of scientific knowledge generation relates to the logic of policy. Generally speaking, science figures as an activity that furnishes knowledge that may, or may not, be applied in new practices in public policy implementation, depending on the interest of the actors, the relevance of the research to strategic areas of national policy, the actions of the stakeholders, the exchange of information, and the interaction between researchers and policymakers.

This is only part of the story, however. A substantive and fundamentally important portion of health research can only be applied by way of an intervening activity – that is, the development and production of goods and services. This is the case with vaccines and other health products that incorporate high-level technologies (drugs, diagnostic reagents, new equipment, and materials).

As private enterprise occupies a central place in capitalist production, the relationship between research activities and health policies comes to depend, in these cases, on the way the research activity is incorporated into business strategies and how able government is to induce businesses and the scientific community to undertake strategic health research. Two mediations have to be taken into consideration. In material terms, between the research activities and absorption of the latter by health policies, one has to consider the activities of technological development and industrial production. Ignoring this dimension leads to laboratory research whose results will be left on the “scientific shelf”, with no industrial use or impact on national health policies. In economic terms, between the scientific community and the policy makers stands the productive agent, whose strategies condition application of the results of research activities.

That said, it is felt that the frame of reference usually employed with respect to the relationship between research and policy can be enhanced by introducing the economic logic of capital, particularly when the application of scientific knowledge depends on innovations – expressed

in new, publicly available products and processes – being generated within the economic system. In capitalism, innovations constitute privately appropriated assets and are the main weapon in business competition, as well as being an essential element in national development processes, as shown long ago by Marx (1983; 1997) and Schumpeter (1985).

3. The research to policy and action link

The discontinuity between vaccine research, production and policy

Biomedical research is a field where Brazilian research holds comparative advantages (Albuquerque, 1996) and which has enjoyed government support for vaccine development; a production base has been set up that is unique in South America; there is intense social mobilisation; and the supporting factors (a quality control network and intense international relationships, for example) are favourable. Nonetheless, the field survey carried out at the main scientific institutions engaged in biomedical production and research in Brazil (Oswaldo Cruz Foundation and the Butantan Institute) and the policy agencies for the field (agencies of the Ministries of Health and of Science and Technology), indicated that the relationship between vaccine research and health policy is a precarious one. In fact, the scientific and health policy universes are isolated from one another and do not have close, organic links.

The survey identified a tendency for projects to be driven by researcher curiosity and legitimated through means intrinsic to the scientific community, in particular scientific publication. Even in a field like vaccines, with high social impact, research is far more responsive to the internal logic and rewards of academia. It is less directed to developing product and process technologies, which are the way research results can most effectively be utilised by health policy.

The Scientific and Technological Development Support Program (*Programa de Apoio ao Desenvolvimento Científico e Tecnológico*), funded by the World Bank and the Brazilian government (each contributing 50% of the funds involved), is a striking example in this regard. The second stage of its Biotechnology Sub-program (1991/1997) involved funding for 158 research projects in all fields (health, agro-industry and energy), 14 of which (9%) were related to vaccine research, evidencing the priority given to this field. Despite high scientific productivity, defined in terms of publications, none of the projects has resulted to date in products and processes actually utilised (or even with prospects of being utilised in the next few years) in industrial production activities and, thus, by health policy. It is probable that in the third stage of this program (which began in 1998) the same situation will hold, given that no specific focus on research into vaccines of strategic importance in terms of public need was identified in the call for projects of the Biotechnology Sub-program.

The gap between research and production is also evident in the health policy field. An initial discovery of the survey was a total, and surprising, absence of priorities, strategies, and funding for vaccine development in the ambit of the Ministry of Health, since the PNI was set up in 1973. The vigour of the immunisation-related health policy never found expression in terms of stimulus for research and development for new or better vaccines, with no significant source of funding for basic and applied research in the field, despite the considerable funds involved in the vaccination programs (some US \$130 million in 1999). Ministry of Health support for studies and research has been restricted to activities connected with short-term operational measures such as: conducting inquiries into vaccine coverage, evaluating the potency of different formulations and the corresponding level of serological response, surveys

of adverse events, evaluation of the cold chain, and studies of health workers' training in syringe handling (PNI, 1998).

Thus, from a science and technology point of view, there has been tremendous fragmentation and dispersion of efforts, which led to a lack of strategic focus, an accentuated academic slant, and insufficient emphasis on industrial absorption of research results. On the health policy side, research and development activities have been almost ignored as essential components of national vaccine strategy. At the root of this divorce between the technical and scientific base and the requirements of health policy is inadequate entrepreneurial capability and structures for vaccine-related technological development.

Examples of successful linkages between vaccine-related research and policy

Of the new vaccines, hepatitis B (HB) and *Haemophilus influenzae* type b (Hib) have come to be used increasingly in national vaccination programs. The hepatitis B vaccine is the only one in the world produced industrially using genetic engineering techniques, while the Hib vaccine is produced using advanced chemical conjugation and bioengineering processes for fermentation, purification, and characterisation of macro-molecules (Homma et al, 1998). In Brazil, these vaccines are now produced locally. The country has mastered the entire technology cycle of hepatitis B vaccine production and is in the process of absorbing basic Hib vaccine production technology. This being the case, these two vaccines figure as the two most successful examples (at least potentially, in the instance of Hib) of the utilisation of research results by national production and by health policy.

I. Hepatitis B vaccine development by the Butantan Institute

The Butantan Institute, a public organisation connected with the São Paulo State government, was responsible for the development and production of hepatitis B vaccine in Brazil. From the second half of the 1980s onwards, encouraged by the National Program for Self-sufficiency in Immunobiologicals, the institute underwent a thorough process of modernisation. The production and technological development area was individuated and organised along a format different from that of the more basic research activities. An effort was also made to attract a group of highly-skilled researchers to the Institute to work specifically in technological development, as part of a more general plan for capacity-building in research and development activities in health biotechnology.

As a result of this strategy, Brazil's main health-related biotechnology centre was set up. Today it employs 40 researchers, 25 of whom hold doctorates, for the central purpose of developing products and processes, thus linking research activities with those of industrial production. As basic lines of R&D, the centre initially gave priority to serum and vaccine development, and more recently has engaged in research and development in biopharmaceuticals incorporating leading edge technology.

Two sets of determinants were central to Butantan's involvement in HB research and development. On the one hand, the HB vaccine was one of the first health products developed on the basis of genetic recombinant technology, thus representing a natural interest for scientists whose aim was to pursue research directed at generating new products. On the other hand, by the late 1980s, viral hepatitis had become a prominent public health problem in Brazil, giving rise to a series of national health policy measures (PNI, 1998). Development of a control policy gave impetus to the selection of the hepatitis B vaccine as a point of entry

into advanced biotechnology research. Economic factors also had considerable influence and the hepatitis B vaccination policy advanced as importation costs soared. In 1995, for example, HB purchases accounted for 73% of Brazil's spending on vaccine imports.

The R&D process began in 1993 with the hiring of an independent researcher from the former Soviet Union, who was to be entitled to a fixed share of the value of future sales. A Biotechnology Centre working group, created specifically for developing the product, was coupled to the basic know-how contributed by this researcher. Laboratory trials were concluded in 1996 and followed by the scale-up, a stage which – it should be stressed – involves a significant research and development effort. Field studies in humans were then begun in 1998, and the following year the Butantan Institute was able to offer the Ministry of Health 5 million doses, with plans to raise the supply to 10 million doses by the year 2000.

The process by which support was obtained for this project is also revealing. Under the leadership of a researcher, internationally recognised in the biomedical field and with solid connections within the fields of health policy and science and technology policy, and who plays an outstanding role in the Institute to this day, Butantan managed to forge a network of alliances in both the health and scientific areas. Of the laboratories that formed part of PASNI, Butantan was the only one that managed to raise substantial funding for R&D activities. Moreover, it was intensely active among those responsible for the national immunisation policy, to ensure government commitment to purchasing the vaccine the moment it had been successfully developed. In the science and technology domain, and also as a result of its leaders' activities, Butantan managed to raise funding from government agencies at the federal (FINEP and CNPq) and state (FAPESP) levels to finance vaccine development activities at the Biotechnology Centre.

In short, two factors were crucial to the project's success: the presence of a scientific leader who bridged the scientific and policy worlds and could mobilise the stakeholders in each, as well as the creation of a technological development structure capable of serving as the material link between research, production, and transmissible disease control policy.

The overall philosophy that guides the Institute's activities – and explains this success – includes the clear perception that research in the technology field can only become workable in terms of industrial production and utilisation by health policy if, from the outset, it is coupled with an entrepreneurial structure for technological development. Only when there is close interaction between research, development, and production is a concrete link established between academic activities and health policy.

II. Prospects for development of the *Haemophilus influenzae* type b vaccine by Fiocruz

Packaging of Hib vaccine in Brazil began in 1999, and the whole technology cycle is expected to be mastered by the year 2003. The institution responsible for this initiative is the Oswaldo Cruz Foundation (Fiocruz), through Bio-Manguinhos, its technical unit responsible for producing immunobiologicals. The Foundation is a complex public organisation connected to the Ministry of Health and which, like the Butantan Institute, originated at the start of the century to provide technical and scientific support for combating infectious and parasitic diseases.

Decisive landmarks in production activities at Fiocruz include: (i) the creation, in the second half of the 1970s, of Bio-Manguinhos as a separate unit (in terms of research activities) for producing vaccines and diagnostic reagents; and (ii) the investments allocated by PASNI, which made it possible not only to modernise overall infrastructure and to improve production

quality, but to install the largest final vaccine processing plant in South America and one of the 10 largest in the world, according to information provided in the interviews. In this process, it proved essential to hire a leader with practical know-how in the field of private industry and who, at the same time, identified the research and technological development base as a critical factor in the activity remaining dynamic over the long term.

From the end of the 1980s, Fiocruz began to prioritise vaccine technology development activities, although these were modest compared with those of the Butantan Institute. Mobilisation by certain international organisations (particularly PAHO, WHO and the CVI) played a major role in creating an awareness of the importance of technological development in meeting new health policy needs. Responding to this demand, Bio-Manguinhos began to structure a department specifically directed at product and process development and at absorbing research results. At present, it employs 15 researchers, three of whom hold doctorates.

Planning associated with the decision to embark on the process of absorbing and researching the Hib technology hinged essentially on two types of conditioning factors. Firstly, from the health policy point of view, international organizations are increasingly recommending that less-developed countries use the Hib vaccine in their immunization policies, because of its high impact on health conditions. In Brazil, in particular, contagion by *Haemophilus influenzae type b* is the most frequent cause of meningitis in childhood, incidence of which is high (around 0.5% of the child population), as is the impact on child mortality, in addition to which meningitis is responsible for nervous system complications. On the basis of these indicators, and despite the high cost (around US\$ 2.5 a dose), Hib was introduced in 1998 into routine child vaccination in Brazil. Secondly, from the science and technology standpoint, the decision to absorb technology from an international partner can be seen as a strategic “short-cut”, both in an endogenous R&D effort and to leveraging Fiocruz’s future capacity to generate and absorb new technologies.

Two elements in the success of this process were: the choice of an international partner able and willing to transfer the technology and the Ministry of Health intervening to guarantee future purchases, given the size of the Brazilian market. Fiocruz can thus be said to have shown skill in articulating health policy with an agreement for the transfer of leading edge technology.

The relationship between research and policy illustrated by this example is the inverse of that portrayed in the linear model where basic research leads to technological development and production which results finally in product and process utilisation by health policy and the population. An assessment of the immediate needs of the policy for control of transmissible diseases determined decisions on production and technology absorption, which, at a later stage, leveraged vaccine research activities conducted in Brazil. Indeed, the process of technology acquisition itself began with the final activities (formulation, packaging, and lyophilization) and ended with the transfer of the more complex know-how that called for a greater research contribution (conjugation, fermentation of bacteria, and purification).

As a general rule, Fiocruz gave greater weight than the Butantan Institute to large scale, industrial production activities. Even though it incorporated lower technological and research content at the initial stage, the absorption of international technology was seen as one way of using the opportunities that presented themselves at the time, and of achieving competitiveness in the long term by progressively strengthening internal research capacity.

Key Lessons Learned

Key lessons derived from these two examples of successful linkages between research and policy in the field of vaccine development and production are:

1. The application of research results depends on prior structuring of an entrepreneurial technological development capability. This base enables a link to be forged between the worlds of science and of production, thus concretely allowing health policy to make use of research. The results of research initiatives that are isolated from a technological development and production structure, tend to be confined to scientific publications and are not put to use in vaccination programs.
2. The signals emitted by the policy environment and up-to-date epidemiological data should guide the focus of research efforts into new health products and processes to ensure relevant industrial application of results. To this end, policymakers must contemplate, simultaneously, the march of science and technology, progress within the industrial base, and current and future health policy demands. The dichotomy between health policy and science and technology policy has to be overcome in order to enable the public to make wider use of product and process research.
3. The state has a critical role to play in developing countries' entrance into research and production of high technology products. In Brazil's experience with vaccines, the lack of interest from the private sector in carrying out R&D activities finally forced direct entry by the State, in response to a crisis in supply of essential immunobiologicals for immunisation programs that had been expanding at a growing rate since the 1970s.
4. The existence of an endogenous research and development base can prove to be an essential pre-condition for absorbing the results of research conducted in more developed countries. The two case examples demonstrate how a dynamic interaction between setting up a domestic R&D base and the ability to select and absorb knowledge generated internationally, was a short cut to accelerating the introduction of new vaccines into national programs.
5. Leaders of health product research and development programs can play a significant role in ensuring that research results are utilised. This was particularly evident in the relationship that the leaders in the two case examples managed to establish with health and science and technology policy actors. By mobilising the various stakeholders, it was possible to bring together the requirements of the immunisation policy and vaccine research and development activity. Leaders of health product research and development programs thus require not only technical and scientific proficiency but also entrepreneurial skills.
6. Often, the linear model of research-to-policy is inverted. In the case of developing countries, the point of departure is frequently the introduction of a new product into health policy, which induces a strategy to set up a local production base. Only later are research activities of any density carried out. Health research policy should thus be coupled to a policy for the production of high technology products in the field.

Key Lessons Learned continued...

7. The dispersion and fragmentation of research efforts connected with product and process development tend to lead to a low rate of research result utilisation. Selecting strategic foci connected with the national health context – as was the case with the two vaccines considered – is an appropriate means of ensuring that research activities have an impact and generate knowledge that can be applied to a considerable range of products.
8. In developing countries of Brazil's territorial and economic size, the existence of a local health products research base proves essential for two fundamental reasons. The first is that the impact of health product research and production on quality of life will be greater the more these activities relate to local epidemiological needs. Secondly, the development process itself, and thus overall health conditions, is closely bound up with strengthening endogenous capability for research and innovation (Dosi, 1984; Freeman, 1995; Schumpeter, 1985). There is no developed country without an advanced S&T base in high technology sectors.

4. References

- Albuquerque, E (1996) "Sistema nacional de inovação no Brasil: uma análise introdutória a partir de dados disponíveis sobre a ciência e a tecnologia". *Revista de Economia Política*, v.16, n.3.
- Bronfman, M (1999) "Como construir y abordar la relacion entre investigation y políticas. Cuestiones de método" (preliminary unpublished version).
- Children's Vaccine Initiative, CVI (1993) *The Children's Vaccine Initiative: Achieving the Vision*. National Academy Press: Washington, D.C.
- Children's Vaccine Initiative, CVI (1997) *Managing Opportunity and Change: A Vision of Vaccination for the 21st Century*. The CVI Strategic Plan, CVI: Geneva.
- Dosi, G (1984) *Technical Change and Industrial Transformation*. London, MacMillan.
- Freeman, C (1995) "The national system of innovation in historical perspective". *Cambridge Journal of Economics* 19.
- Gadelha, CAG (1990) *Biotecnologia em Saúde: Um Estudo da Mudança Tecnológica na Indústria Farmacêutica e das Perspectivas de seu Desenvolvimento no Brasil*. Masters thesis. Economics Institute, University of Campinas. Campinas, mimeo.
- Gadelha, CAG, Temporão, JG (1997) "Produção Farmacêutica e de Imunobiológicos no Brasil: a Necessidade de um Novo Padrão de Intervenção Estatal". In: *Saúde e Democracia: A Luta do CEBES*. Lemos Editora: São Paulo.
- Gadelha, CAG & Temporão, JG (1999) *A Indústria de Vacinas no Brasil: Desafios e Perspectivas*. BNDES publication.

- Gerhardus, A. (1999) - "Research to policy: outline of a framework for analysis". Department of Tropical Hygiene and Public Health. University of Heidelberg.
- Homma, A, di Fabio, JL, y Quadros, C (1998) "Los Laboratorios Públicos Productores de Vacunas: El Nuevo Paradigma". *Rev. Panam. Salud Publica* 4 (4).
- Marx, K (1983) *O Capital: Crítica da Economia Política*. São Paulo: Abril Cultural (Collection: "Os Economistas").
- Marx, K (1997) *Manifesto do Partido Comunista*. In: Reis Filho, D. A. - O Manifesto Comunista 150 Anos Depois. São Paulo: Fundação Perseu Abramo.
- Office of Technology Assessment/OTA (1984) *Commercial Biotechnology. An International Analysis*. Washington DC: US Government Printing Office.
- Programa de Apoio ao Desenvolvimento Científico e Tecnológico/Subprograma Biotecnologia (fases 1, 2 e 3). BIRD/CNPq/FINEP/CAPES/STI.
- Programa Nacional de Imunizações, PNI (1998) PNI, *Programa Nacional de Imunizações: 25 anos*. Ministério da Saúde, FNS: Brasília/DF.
- Schumpeter, J (1985) *Capitalismo, Socialismo e Democracia*. Rio de Janeiro: Zahar.
- Trostle J, Bronfman M, Langer A (1999) *Health Policy and Planning* 14 (2), 103-114.
- World Health Organization (1996) *Investing in Health Research and Development*. Report of the Ad Hoc Committee on Health Research Relating to Future Intervention Options. Geneva (Document TDR/Gen/96.1).

Chapter Two

The Use of Research for Decision-Making in the Health Sector: The Case of “Shared Care” in Burkina Faso

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1. Introduction

In rural Burkina Faso, child morbidity and mortality are extremely high (Nougara 1996), the quality and the utilisation of the existing services are low (Nougara *et al.* 1989), while costs for treatment are out-of-reach especially for the most vulnerable groups (Sauerborn *et al.* 1994). Following a series of studies on health services, care-giving at the household level, and inter-household distribution of disease, *shared care* was proposed by a group of researchers from the Ministry of Health (MOH) in the late 1980s. The *shared care* approach was based on the idea that mothers and health workers could jointly assume and complement each other in informed recognition, care-taking and treatment-seeking for childhood illnesses. The researchers saw themselves as advocates for a *shared care* strategy and actively sought to communicate with the officials from the MOH. However convincing intuitively, the concept has not been implemented until the present day. This chapter presents the results of a study undertaken to elucidate the factors constraining the implementation of *shared care*.

2. Background

Burkina Faso is a landlocked country situated in West Africa with a population of about 11 millions inhabitants. The GNP is on US\$230 /year per capita, and the majority of the population lives and works in the rural areas. The life expectancy at birth lies at 52.2 years and maternal mortality rate is 566 per 100 000 live births.

The mortality rate of children under five years of age is 219 per 1000. Although these statistics show the need for an effective health care system aimed at improving child health, there are numerous indications that particularly the children at-risk do not receive adequate treatment (see 4.1).

In the 1980s, following the Alma Ata declaration, village health workers (VHWs) played an important role within the Primary Health Care (PHC) approach in Burkina Faso, as in most developing countries worldwide. The central government acknowledged and assumed an extensive responsibility for the population’s health care. The so-called “commando” approach was visible, for example, in the immunisation campaigns as well as in the widespread slogan “for every village, a primary health care post (PSP)”. The Bamako Initiative in the mid-eighties led to the official introduction of fees for the users of health services. In the 1990s health sector reform issues including decentralisation, quality of care, and health financing dominated the agenda.

Currently, the decision-making process in the health sector varies according to the range and the content of the topics under decision. New policies that go beyond short-term problem-solving are usually discussed between the MOH and national and international partners. After a decision has been taken at this level, the project is formulated for approval by the government. Minor decisions are taken by the MOH alone. As a general strategy, the MOH since 1990 set up a list of priority programs and intervention to guide its actions (Traore 2000).

The concept of *shared care* envisaged improved contact and collaboration between health centre staff and mothers. Mothers were to be trained through health centre staff to diagnose and treat episodes of childhood illness and to identify situations when a referral to the professional health services was needed. This included a re-definition of the role of health centre staff, as they would have to accept lay-persons as partners in the treatment of the children. Training was to be stratified for women who were already leaders in specific women’s groups, mothers in general and mothers of at-risk households. The ideas underlying this approach date back to 1985, yet continue to be discussed today. In order to understand the dynamics of this process, it is necessary to reflect on the contents of the research done, the viewpoints and interests of the different stakeholders involved and their interactions.

3. Methods

Document analysis was carried out in order to identify the major stakeholders in *shared care* and to better understand the *shared care* agenda as proposed by the researchers. We compiled and reviewed the following documents:

- Published articles and monographs resulting from collaborative research conducted by the University of Heidelberg and the MOH, Burkina Faso
- Research proposals on *shared care* submitted by the University of Heidelberg researchers
- Minutes and reports of meetings and workshops conducted during 1988 and 1999 regarding *shared care*.

Semi-structured interviews were conducted with decision-makers and researchers in order to get a better sense of the environmental context at the time *shared care* was proposed, to determine the stakeholders’ relative involvement and influence in the process and to determine to what extent research results played a role in the decision-making around *shared care*.

Focus group discussions (FGD) were conducted with target groups, including health centre (CSPS) staff, women’s groups and mothers. Since these groups had previously not been included in the discussions around *shared care*, the focus groups had the purpose of finding out to what extent these groups were aware of the ideas of *shared care*, and whether they felt the ideas were practicable.

4. Research, policy, and the linkage

Research underlying the recommendations

The researchers’ rationale for proposing *shared care* as a strategy to improve childhood morbidity and mortality was based on the findings from a number of studies.

Childhood illnesses and deaths are not spread regularly throughout the families, but are often concentrated in at-risk households (Sauerborn, Adams and Hien 1996). Such illnesses are

perceived to be more severe than adult illnesses, however, professional biomedical care is preferentially allocated to adults, while children are treated at home (Sauerborn, Berman and Nougara 1996). Mothers are the primary care-givers in the case of childhood illnesses. They are the first persons to make the diagnosis and often confuse illness entities with symptoms (Pagnoni et al. 1997). In the majority of childhood illnesses, mothers use traditional methods to treat the child (Sauerborn and Nougara 1992). Village health workers, who were put into place as a link between the population and the health services, are not used (Sauerborn, Nougara and Diesfeld 1989). Health services remain inaccessible for children, especially during the rainy season. This is due to cost, both economic and in time, that mothers have to expend if they seek health care outside the household. When mothers do seek health care at the CSPS, communication between mothers and the health personnel is poor (Sauerborn, Nougara and Diesfeld 1989).

5. Shared Care: The process

In 1985 the MOH commissioned a study on the primary health services utilisation and the quality of care which was conducted in Solenzo, Banwa Province, Burkina Faso, by researchers from the Department of Tropical Hygiene and Public Health, Heidelberg University, Germany (DTH&PH). In the years to follow, local researchers were involved in the process, however, the University of Heidelberg generally maintained a leading position in this process. The results of the research conducted in Solenzo were discussed at a workshop in 1988, organised jointly by the MOH and the University of Heidelberg. In 1991, the MOH chose the health districts of Nouna and Tougan, in Kossi and Sourou Provinces respectively, as project zones for research contributing to the identification of major causes of morbidity and mortality and the strengthening of district health services. A principal focus of interest continued to be how to provide low-cost, but effective care to children under five. Two years later, a proposal submitted by researchers at the DTH&PH construed *shared care* as a combined action-research and intervention trial.

In the years after 1993, several studies about the quality of care and perceptions of childhood illnesses were conducted which indirectly contributed to a better understanding of child health in the project area. During 1997, the interface conference held in Ouagadougou offered researchers another opportunity to reflect on the feasibility of *shared care*.

6. Research dissemination and communication

The researchers, who saw themselves as advocates for the recommendations of their results, followed a twofold strategy for the “marketing” of their results: Results of the research conducted in Solenzo were disseminated in the form of written reports and oral presentations to MOH officials and district physicians through meetings. MOH officials mentioned that some of the reports were not read. They appreciated the interface meetings, and regarded them as appropriate for information transfer. However, because of the high turnover in positions within the ministries, it was claimed that participants at the meetings were often not necessarily the ones to take the decisions later. Some of the local researchers were themselves decision-makers, either working at the provincial or district health levels.

Results were not disseminated to the target groups, that is, the groups who were intended to implement and directly benefit from the research.

7. The decision-making process: Perspectives of the stakeholders³ involved

For the researchers from Heidelberg, the concept of *shared care* was a logical consequence, following the results of their studies as presented above. They used meetings with representatives of the MOH to promote it as a locally adequate mechanism to reduce childhood mortality and morbidity.

Policymakers of the MOH-DEP (Direction des Etudes et de la Planification) attending the interface meetings knew the content, conclusions and recommendations regarding *shared care* when they were interviewed by us. However, there was general agreement that the issue of *shared care* had been put on the agenda by the researchers. One interviewee commented: “*We asked ourselves whether these ideas had been parachuted from Heidelberg*”. Decision-makers perceived the research results as an adequate description of the situation (mothers as primary caregivers, poor access to health system, etc) and they did not question the validity of the results. However, the research results failed to trigger action from MOH officials. Interviewees felt that a clearly defined strategy for how to proceed in the field was lacking. They also commented on the lack of mechanisms for the monitoring and evaluation of the intervention.

Strikingly absent was any sense of *institutional* ownership by the MOH of either the research underlying the *shared care* concept or the proposal for the intervention study, despite the fact that some of the decision-makers had been involved with the research in previous years.

It is important to note that the degree of involvement by the MOH-DEP was interpreted differently by the researchers and by the MOH-DEP. Researchers commented that the MOH-DEP had been included in all the discussions and that researchers had always pursued an active transfer of research results. In contrast, the DEP representatives attributed a different weight to their presence in those meetings. In interviews, many of them had problems to remember more than rough structures of *shared care*. In addition they stated that the lack of staff at that time resulted in the participation of persons who were not necessarily the most relevant for the implementation of *shared care*.

Asked about the role of HSR as an instrument to support decision-making, interviewees responded that for the MOH, research and its application only became priorities during the late 1980’s. Some observed that although research projects should ideally influence health systems and policymaking, the lack of continuity in research teams and the high turnover among decision-makers often meant that: “*we are never able to finish what we start*”.

In sum, policymakers did not provide any active support for implementation of the concept. This becomes understandable if the context is considered (see also above): In part *shared care* was competing with the recently VHW-approach and did not necessarily fit into any of the major programs launched internationally.

3 A stakeholder, adopting a definition from Freeman (1984), is any group or individual who can affect, or is affected by, the policy-making process.

The *Provincial staff* was included in the discussions but did not play a major role in the decision-making process.

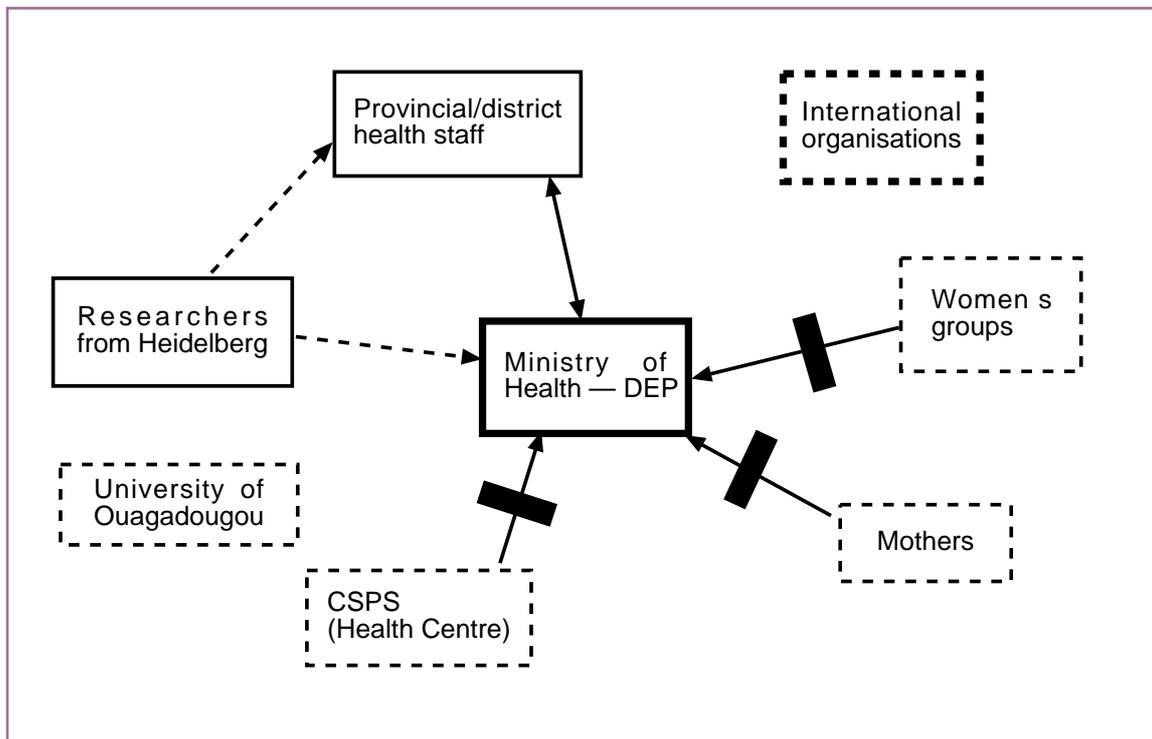
The *Health Centre staff* (CSPS), the women groups, and the mothers were not included in the decision-making process. This led to different assumptions about their ability and willingness to execute the program. Regarding the role of the CSPS, there was a striking contrast between the view of the researchers on the one hand and the MOH-DEP and the CSPS on the other hand. On the basis of their study (Sauerborn, Nougara and Diesfeld 1993), the researchers concluded that the CSPS staff would have the spare time needed to train and supervise women groups and mothers. In contrast one of the interviewed decision-makers mentioned that the CSPS staff was already overloaded with work. This coincided with the perspective of the CSPS staff when they were interviewed. In addition they suggested combining the implementation of the concept with a system of incentives for the health staff (Sanou 1998). It was also not clear if the health staff would accept mothers as partners at a professional level.

Women groups and *mothers* were assigned a key role in the concept. However they were not involved in the design of the intervention study. Health staff and MOH-DEP questioned the ability of mothers to perform the tasks assigned to them. In the focus group discussions conducted in 1999, women groups and mothers showed great interest in the concept of *shared care* as an adequate mechanism to improve childhood health at low cost. Mothers felt that they could perform this task technically if proper training and supervision will be provided.

It was acknowledged that it might imply an additional workload but mothers thought it would be bearable. Other potential constraints were related to gender (would husbands agree to their wives performing medical tasks?) and cultural factors (would mothers accept that other women treat their children?). When explicitly asked, women groups and mothers acknowledged the problems but stated that they could be resolved and would not jeopardise the implementation of *shared care*.

International organisations have not been actively involved in the promotion of *shared care*. A direct involvement was not even desirable. The idea of the intervention study was to perform it under “real-life” conditions, which implied to do it without external funding. The absence of a potential incentive, i.e. funding of a “project *shared care*” is important to note and it would be interesting to compare the outcome in settings where comparable schemes have been accompanied by funding. Figure 2 provides an overview of the relationships between the various stakeholders.

Figure 2: Stakeholders involved in the decision-making of *shared care*



The flow of **research results** is indicated by the **dotted arrows**. The **solid arrows** signify the direction of **influence**. The **blocked arrows** signify that there is the potential to block an initiative, though no active influence was exercised. The stakeholders' relative power is reflected by the thickness of the frames. The dotted frames indicate that these stakeholders have not been involved in the process.

8. Conclusions

This case study demonstrates that even when research results are well known and largely trusted as valid by decision-makers, they may not be acted upon. Several important factors inhibited the implementation of the research recommendations:

1. When launched, *shared care* was not compatible with the “community health worker” approach dominant at the time. In the 1990s, a set of specific health reform issues became prominent on the national agenda, however, none of them was linked to the concept of *shared care*.
2. The stakeholder analysis revealed that the researchers were able to inform the most powerful stakeholder, the MOH-DEP. However, the interrelationships between the MOH-DEP and other stakeholders might have been underestimated. To maintain a good relationship with the health centre staff is vital for the MOH so that an initiative which might be received with hostility bears incalculable risks for the MOH. Therefore it would have been necessary for the researchers to suggest a mechanism which considered the point of view of the health centre staff.

3. The attitudes of women’s groups and mothers towards *shared care* were not systematically ascertained nor used to full advantage in the recommendations. The focus group discussions indicated that mothers might welcome the *shared care* concept. In order to support their argument, researchers could have used this knowledge. Although the political influence of mothers and women’s groups is low, without their active support, *shared care* cannot be successfully implemented.
4. Ownership of the research agenda was perceived as being monopolised by the researchers associated with the DTH&PH, although it appeared to be a joint project. MOH-DEP members described themselves as rather passive, receiving results and suggestions for future work. Questions related to implementation did not receive sufficient attention, or if they were considered, the researchers’ perspective dominated. The most notable example is the divergent perceptions regarding the workload of health centre staff.. Whereas researchers, referring to their studies, stated that the staff would have the spare time to do the training of the mothers, the staff itself and the MOH-DEP felt that additional personal and/or incentives would be needed in order to cope with this new task. Leaving this problem unsolved contributed to a sceptical attitude towards *shared care*.
5. Stakeholders were sceptical as to whether the research results were adequate to support the recommendations. For example, decision-makers saw a gap between the research result “mothers are the primary (medical) caregivers of their children” and the proposed intervention “train mothers how to give medication to their children”. Specifically, the MOH-DEP questioned the ability of mothers to provide the correct dosage and would have liked to see more evidence before initiating the intervention study. As described above, decision-makers also missed evidence-based suggestions regarding the conditions under which the health centre staff would be in the position to perform the training for women’s groups and mothers. None of the interviewees expressed a need for specific research. It seemed to be a one-way process in which researchers communicated results without obtaining more than a general feedback.
6. Research results were effectively communicated to the MOH-DEP and partially to the provincial and district levels. Most of these interviewees were aware of the *shared care* concept. However, knowledge seemed to be limited mainly to results and recommendations. Only those who had been personally involved in the research knew more than the most basic key concepts. Apparently there were no independent discussions of the concept within the MOH-DEP. It became clear that decision-makers did not have the time to read extensive reports. The joint workshops between researchers and decision-makers were a more successful strategy of transmitting information. However, as unique events, they lacked sustainability; after the workshops the process did not continue on the decision-makers side. Another disadvantage was the fact that it was not always possible for the most relevant decision-makers to attend the workshops.

In summary, the researchers managed to disseminate their results. Decision-makers were aware of them, thanks mainly to the joint workshops. However, the process of research for policy was halted at this stage: results and recommendations were not discussed and were not “translated” into an intervention study.

The case of *shared care* is an example for a research (and researcher) driven policy development. As in these cases the decision-makers have no interest *per se* in the adaptation of the policy (in contrast to a policy launched by the decision-makers themselves or even by the context) the possibilities for implementation are limited. Chances can be increased if the following recommendations are taken into account.⁴

9. Recommendations

1. A stakeholder analysis should be conducted as early in the research process as possible. This enables the researcher to include the most important viewpoints and supports a design which is likely to produce results that are relevant to the stakeholders.
2. Ownership by the stakeholders should be encouraged. If they have been assigned an active part during the various stages of the research process, it is more likely that research will be relevant, leading to recommendations that can be operationalised and are perceived as a product of joint ownership, facilitating implementation.
3. Context plays an important role. However, it is only rarely possible to modify the context significantly. A more viable alternative is to embed the policy in the existing context. *Shared care* could be presented as an interesting approach within the frame of decentralisation, cost control, and enhancement of the quality of care.
4. Communication has to be two-sided. Researchers have to transmit their findings and stakeholders should express their needs. At the same time, communication has to be meaningful: It is not sufficient just to transmit information to a “decision maker”, but it has to be ensured that the receiver is the appropriate person and is able to process the information. Therefore time constraints for the reception of information have to be taken into account, as well as the fluctuation of key functions on either side. The health research unit within the MOH should have the potential to enable a sustainable exchange of information, to become an institutional memory and a veritable “broker of information”.

10. References

- Freeman RF (1984). *Strategic Management. A Stakeholder Approach*. Boston: Pitman.
- Nougara A (1996), Morbidité perçue et vécue par la population. *Bulletin d'épidémiologie et information socio-sanitaire*. Ministère de la Santé, de l'Action Sociale et de la Famille, Burkina Faso.
- Nougara A, Sauerborn R, Oepen C, and Diesfeld H-J (1989) Assessment of MCH-services offered by professional and community health workers in Burkina Faso. *Journal of Tropical Pediatrics* 35 (1): 2-9.
- Pagnoni F, Convelbo N, Tiendrebeogo J et al. (1997) A community-based programme to provide prompt and adequate treatment of presumptive malaria in children. *Transactions of the Royal Society of Hygiene and Public Health* 91: 512-517.
- Sanou A (1998) Memorandum sur les soins partagés. Internal report.

4 For a broader discussion of possibilities to enhance the use of research see also Sauerborn et al. 1999: “Strategies to enhance the use of health systems research for health sector reform.”

- Sauerborn R, Nitayarumphong S, and Gerhardus A (1999) Strategies to enhance the use of health systems research for health sector reform. *Tropical Medicine and International Health*. Vol 4 (12): 827-835.
- Sauerborn R, Adams A, and Hien M (1996) Household strategies to cope with the economic costs of illness. *Social Science and Medicine* 43(3): 291-301.
- Sauerborn R, Nougara A, and Diesfeld H-J (1989) Low utilisation of community health workers – results from a household interview survey in Burkina Faso. *Social Science and Medicine* 29: 1163-74.
- Sauerborn R, Nougara A, Hien M, and Diesfeld H-J (1996) Seasonal variations of household costs of illness in Burkina Faso. *Social Science and Medicine* 43 (3): 281-290.
- Sauerborn R, Berman P, and Nougara A (1996) Age bias, but no gender bias in the intra-household resource allocation for health care in rural Burkina Faso. *Health Transition Review*. 6 (2): 131-45.
- Sauerborn R, Nougara A, and Latimer E (1994) The elasticity of demand for health care in Burkina Faso: difference across age and income groups. *Health Policy and Planning* 9 (2): 185-192.
- Sauerborn R and Nougara A (1992) Traditional medicine is practiced by mothers rather than by traditional healers-a study in Solenzo. *Curare* 15: 97.
- Sauerborn R, Nougara A, and Diesfeld H-J (1989) Low utilisation of community health workers – results from a household interview survey in Burkina Faso. *Social Science and Medicine* 29: 1163-74.
- Traore C (2000) The decision making process on the issue of cost recovery in Burkina Faso and the use of health system research. Ouagadougou. Unpublished report.

Chapter Three

The Social Safety Network in the Health Sector (SSN-HS): Is Health Research Used to Improve the SSN-HS Policies in Indonesia?

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1. Background

The incidence of poverty in Indonesia, measured against the official poverty line, decreased from approximately 40 percent in 1976 to 11.3 percent in 1996. This is a remarkable decrease given that the population increased from 120 million to 195 million over the same period. The percentage of poor in rural areas also decreased from about 13.8 percent in 1993 to 12.2 percent in 1996; and the percentage of poor in urban areas decreased more rapidly, from 13.5 percent to 9.8 percent. However, sharp price accelerations since November 1997 have increased the incidence of poverty. High inflation rates, devalued currency, and increased unemployment and underemployment have again substantially increased the number of people living below the poverty line, and those already below it are relatively worse off than before. The impact of the crisis has been particularly severe in urban areas where the increasing number of un- and under-employed do not have the opportunity to revert to subsistence agriculture as a means of support.

Indonesia has achieved significant progress in improving the health of its population over the last two decades but health indicators still lag behind neighbouring countries. The infant mortality rate (IMR) declined from an estimated 145 infant deaths per thousand live births in 1970 to 52 in 1995; over roughly the same period, the under-five mortality rate declined from about 217 to 75. Not only is the IMR high, it also differs substantially between regions, between urban and rural areas, and between income groups reflecting the socio-economic gap between the poor and the rich.

The general improvement in health indicators since 1970 results from the policy followed by the Ministry of Health (MOH) of providing access to modern health services (through a network of health centres) and through the implementation of major public health programs (immunisation, communicable diseases programs, health education etc). The MOH has adopted a basic community health model, providing accessible, low-cost ambulatory care at the village or sub-district level (through health centres), supported by acute medical care at the district level (through district hospitals). The health policy was, and is, centrally determined with limited consideration of the wide regional variation in types of health problems, or social, environmental, or cultural factors.

Historically, greater emphasis was placed on providing health centres in rural areas, implicitly assuming that urban populations would receive adequate care from urban-based hospitals and the growing numbers of private medical practitioners. The current economic downturn has reduced the availability and accessibility of health services most acutely in urban areas as the costs of hospital outpatient and private care have escalated. There is growing concern that as public health services become less affordable (or their quality deteriorates), the poor

will not seek treatment despite recognised need, will turn in larger numbers to traditional healers (whose methods and techniques are unregulated and vary in safety and effectiveness), or will resort to self treatment.

Due to the critical problems mentioned above, the National Development Planning Agency, the Ministry of Health and several donor agencies such as the Asian Development Bank, the World Bank and IMF have agreed to launch the Social Safety Net for the Health Sector (SSN-HS) Program. This strategy aims at reaching the vulnerable groups and maintaining the delivery of essential health services to the poor. It involves measures to bypass ordinary bureaucratic systems to ensure direct and expeditious support to health service providers and their beneficiaries. The strategy also presents opportunities to accelerate reforms in the health and nutrition sectors.

Maintaining access to, and quality of, health services requires a well-focused and targeted project support supplemented by a program of systematic policy reforms. The Government has therefore adopted a comprehensive set of policy measures to help alleviate the impact of the crisis on the most vulnerable groups while laying the foundation for longer term, sustainable health sector reform. The policy reform concentrates on six broad areas:

- Maintaining access for the poor and improving equity (regional and socio-cultural)
- Mobilising additional resources
- Maintaining quality of essential health and nutrition services
- Enhancing decentralisation, participation and transparency
- Introducing organisational change in the Ministry of Health
- Reform in health care financing

The SSN-HS has entered the second year of implementation. There have been some critics to the application of this program, especially related to its impact on equity and on quality of health services. It was felt that there was a need to analyse both the research projects which support and improve the SSN-HS program, and the constraints to utilising the recommendations of that research to improve the implementation of the program. The *general objectives* of this study were therefore to describe the process of development of the SSN-HS programs and to analyse factors influencing the use of research in improving the programs.

2. Methods

The case study was carried out by:

- Reviewing literature and documents;
- Conducting four regional workshops in Jakarta, Yogyakarta, Medan and Mataram. During the regional workshops the lessons learned and constraints experienced with the implementation of SSN-HS were discussed. Other issues discussed included: research conducted on SSN-HS, dissemination of these research results, communication about research, the impact of research on SSN-HS programs and policies, and recommendations to improve utilisation. The participants in the regional workshops were researchers, university staff, decision makers and administrators at provincial level, district health officers, NGOs and professional organisations

- Conducting in-depth interviews with 20 high ranking decision makers from the Ministry of Health as well as from health related ministries, and 12 well-established researchers
- Conducting small group discussions to sharpen and focus the information resulting from a literature and document review, regional workshop and in depth interviews
- Carrying-out several health policy expert group meetings to extract the results of small group discussions and to develop the policy paper regarding the improvement of SSN-HS
- Conducting a national workshop in order to obtain agreement on, and commitment to, the results of this study.

3. Results

Studies reviewing the impact of the SSN-HS program

The institution which is almost wholly responsible for carrying out research related to the SSN-HS program is the National Institute for Health Research and Development (NIHRD). The NIHRD is coordinating a major study of the SSN-HS, in collaboration with Indonesia's five major universities. It is a two year longitudinal study carried out in 5 provinces (Yogyakarta, Central Java, East Java, West Nusa, and Tenggara South Sulawesi). The study began in October 1998 and will end in September 2000. This study was designed to answer at least four questions:

1. Does the SSN-HS program really reach the poor communities?
2. Has access to health services and the performance of health providers improved?
3. How do providers perceive the application of the SSN-HS?
4. Does SSN-HS improve the health and nutrition status of the poor communities?

Another large study of the SSN-HS is currently being undertaken by the British Council. This cross-sectional survey of providers is looking at achievements of the SSN-HS. This study was launched in October 1999.

At least 20 further small-scale studies related to the application of SSN-HS programs have been identified. In general, the studies are being carried out by Universities, professional institutions, and non-governmental organisations, and are usually cross sectional surveys with a small sample size (of one province or district).

This chapter will focus on the longitudinal study which is being coordinated by NIHRD, some results of this study, its main recommendations, and the way in which the researchers tried to influence policy making.

Longitudinal study of the SSN-HS program

The study population for the longitudinal study was defined by taking a random sample from villages and households in the five districts – thus creating a household sample of over twenty-two thousand poor families. Also included in the study were all midwives from village maternity clinics, all health centre medical doctors, all hospital directors and all chairmen of crisis centres from the five districts.

In order to improve the scientific validity of the study, a scientific advocacy group was established by NIHRD at the national level. The latter consists of senior scientists from the University of Indonesia, the Bureau of Planning of the Ministry of Health, WHO, the National Board of Planning, the National Board of Statistics, the Institute of Indonesian Science and Research, the NIHRD and the Directorate General of Community Health Development of the Ministry of Health. The members of this scientific group were involved actively in the different steps of the study, particularly in sampling and questionnaire designing, monitoring of data collection, analysis of data and report writing.

Data collection took place in 5 rounds. Results from round two were available at the time of this case study, some of which are presented below:

- The number of pregnant women and children under-five being given food supplements has increased from 1998 to 1999
- Trends in morbidity of under fives and pregnant women showed:
 - An increase in cases of pneumonia and fever
 - A decrease in the number of people presenting with diarrhoea and measles
 - A decrease in rates of malnutrition amongst under fives and pregnant women
- Roughly 77% of doctors surveyed agree that the SSN-HS program has been effective in:
 - Improving their health centre's operational budget
 - Increasing the spirit of work among health care providers
 - Improving the access of poor communities to health services.

The remaining 23% surveyed indicated that the benefits of the SSN-HS program are outweighed by the additional workload it creates, disruption to the greater health system, creating community dependency, and decreased time for undertaking private practice.

- Approximately 20% of the poor communities (a population of around 10 million) are still not covered by the SSN-HS programs.

Based on these results the researchers formulated several recommendations. The most important recommendations are listed below:

- Given the reduction in certain health problems in poor communities, and the increase in the number of people with access to the program, it is recommended that the SSN-HS be implemented for a second year. Efforts should be made to integrate the program into the larger health system as a sustainable intervention, not just as an intervention in times of crisis
- A complaint mechanism related to the implementation of SSN-HS needs to be developed and available in the second year of SSN-HS programs
- Specific interventions aimed at under fives and pregnant mothers who are identified as suffering from severe malnutrition need to be introduced
- Introduce a reward system (incentives and disincentives) to improve health and health-related providers performances

- Community-based activities such as Village Integrated Health Post and others should be empowered and revitalised
- Guidance for administrative and technical implementation of SSN-HS programs should be more appropriate, simple and easy to operationalise.

4. Follow up activities

The researchers then used several existing channels to present the results (and proposed recommendations) in order to obtain political commitment, and inform the general public of the findings.

Director General (DG) meetings

The DG or Director General Meeting is carried out once a week and is chaired by the Minister of Health or the Secretary of the Ministry of Health. This forum creates an important opportunity to communicate and to disseminate research results. However, as time given is limited, it is important to develop a policy paper of 2-3 pages and send it a week before the meeting to all participants. Most of the DCs usually provide some comments or suggestions to improve the likelihood that research results will be accepted as a policy or a change of a policy. The purpose is to disseminate the study results to the decision makers and to obtain political commitment among the stakeholders for policy decisions.

Presentation to the Ministry of Health, other related health Ministries, donor agencies, professional organisations, senior scientists and NGOs

After revising the results based on the inputs from all of the DGs, a presentation of the longitudinal study on SSN-HS was given to the providers from Ministry of Health, health related ministries, donor agencies, professional organisations, senior scientists and NGOs. The objective of this presentation was to disseminate the study results to the implementers of SSN-HS and to obtain a political commitment from them.

Presentation to the President, representative of parliament and coordinating Minister of Social Welfare

After having integrated comments obtained from the meetings mentioned above, the research team of SSN-HS made another presentation to the President, representative of parliament, coordinating Minister of Social Welfare and several Ministers under the coordinating Minister of Social Welfare. The objective was to provide general feedback to the highest decision makers and to obtain their highest commitment to the policy changes of SSN-HS.

Presentation to the Governor, District Administrator, and other related health providers at the Province and District levels

This presentation was carried out after each round of data collection and analysis. The presentations were conducted by each university team with the assistance of NIHRD in each of the five provinces involved in the study. The purpose of this presentation is to provide feedback for program improvements and a local commitment to the improvement of SSN-HS.

Scientific journal

All five universities involved in the study published a total of 15 articles in MEDIKA, an Indonesian scientific health and medical journal.

Newspaper

The researchers have published a number of popular essays in the national and local newspapers. The objective is to advocate for the SSN-HS program, creating awareness amongst the general public that it is not only a program for managing crises, but is a sustainable intervention requiring community support and participation.

Policy changes in the SSN-HS program

The recommendations given by the researchers have partly been translated into policy. The following table provides an overview of the recommendations and how they have been translated into policy.

Recommendations	Policy changes
The SSN-HS programs should continue for the second year as a rescue program with an effort to make the programs sustainable after the crisis.	The program continues - but its sustainability is uncertain.
A complaint mechanism related to the implementation of SSN-HS needs to be developed and available in the second year of SSN-HS programs.	There is a policy to develop a complaint centre in each village.
Specific intervention should be given to the under fives and pregnant mothers who have suffered from severe malnutrition	Additional interventions: <ul style="list-style-type: none"> • Supplementary 'food plus' • Special care for severe malnutrition patients
Reward system (incentive and disincentive) should be developed in order to improve the working performance of the health and health related providers.	This recommendation is currently being considered by the Government.
Community based activities such as Village Integrated Health Post and others should be empowered and revitalised	Revitalisation of Integrated Village Health Post
Guidance for administrative and technical implementation of SSN-HS programs should be more appropriate and simple.	Improvement of guidance (qualitative and quantitative)

5. The linkage between research and policy making: Lessons learned and recommendations for improvement

Political commitment of stakeholders at all levels

There is a lack of commitment from stakeholders at national, provincial and district levels to set priorities and plan effective health research, which could be attributed in part, to a lack of understanding amongst stakeholders, of the value of research. Communication between researchers and stakeholders during research implementation is often superficial. This can be attributed to the limited opportunities for these two groups to meet and discuss their needs/concerns. The authors suggest that the formation of a “communication forum” involving researchers and policy/decision-makers from all levels may facilitate greater communication/dialogue between the two groups. An increasing awareness of the role of research/researchers may improve the political commitment of stakeholders.

Networking for health research needs to be established

Pride of research institutions, NGO's or universities may have an impact on the coordination and partnership for research. Each research institute has its own priorities and interests. This may lead to similar research projects being conducted in different geographical areas. Health research networking is necessary to coordinate health research activities based on a common research agenda. A committed and powerful health research institute may take up the responsibility for the coordination of efforts, with health research institutions, NGO's agencies and universities as members.

Strengthening existing communication forums

Researchers have a responsibility not only to publish their research findings, but to also disseminate the findings to the general public. Communication skills amongst researchers, particularly in writing or effectively presenting research findings in the media, are still in short supply. Suitable mechanisms for disseminating research findings leading directly to implementation, need to be considered. Existing communication forums may be adapted to facilitate the communication and dissemination of research results. This forum may be utilised as a monitoring mechanism of health research implementation and utilisation of the results.

Weakness in health research planning

Most research designs do not include planning for dissemination of research findings nor do they address the question of validity of the results for other geographical areas or population groups. Very often research is considered completed after the research report is submitted and findings are presented to the funders. Recommendations resulting from such presentations are rarely followed up.. These problems are not only caused by improper research planning, but also due to limited funding. In health research planning strategies, the communication, dissemination, utilisation and replication aspects of research projects need to be included. These activities should be clearly stated in the research design and budgeted for. Stakeholders and funding agencies should support these activities.

Training of researchers in communication, dissemination and transformation of research results to policy options

It is important that research findings are peer reviewed, published and distributed as quickly as is practicable. The information should be directed to stakeholders for policy decisions, to scientists for additional scientific knowledge and to the general public who are likely to be affected by health research results. Communication skills of researchers need to be developed. Workshops for scientific writing, policy paper writing, media writing style, and publicity skills need to be conducted periodically. International health research agencies and other donor agency support is needed.

6. References

- Ahmed I (1999) "Literature Review Indonesia's Crisis and Recovery: The Myths and Reality." International Labor Organization, Jakarta.
- Ahmed I (1999) "Additional Insight on Indonesia's Unemployment Crisis" from papers presented at the *Mini Workshop on Food and Nutrition* on May 10-12, 1999, International Labor Organization, Jakarta.
- Ananta A (1998) *Indonesia after Soeharto: An Economic and Demographic Perspective*. Center for International Studies on Population and Development, Jakarta, Indonesia.
- Anas S (1999) *Crisis Impact and Health Policy in the Coping Efforts in the Medan Municipality, North Sumatra Province*.
- Andyansyah A, Sato Y and Nakamura Y, et al. (1998) *Impact of the Economic Crisis to the Nutritional Status of Children under five in Central Java, Indonesia*. JICA and NIHRD, Jakarta.
- Basri F (1999) "Implications of the Economic Crisis for Economic Cooperation in the Asia Pacific Region" In *Economic Crisis in the Middle of the Globalization Wave*. CSIS Analysis 28/1, Jakarta.
- Beegle K, Frankenberg E, Thomas D, Suriastini W, Beard V (1999) "Indonesia's Economic Crisis and its Effects on Health and Family Planning." Paper prepared for the 1999 Population Association of America Meeting, March 25-27, 1999, New York.
- Bernstein RS (1998) *Activating Integrated Surveillance Activities During the Crisis: Collecting, Analyzing and Using Data for Decision Making*. Papers of a 2-day meeting on Health Sector Reform to Minimize the Impact of the Economic Crisis, Bandung.
- Bloem M, et al. (1999) "Urban Slums Worse off from Crisis than Rural Areas." Helen Keller International, in Collaboration with The Center for Health Research and Development, Jakarta.
- Bourgeois R (1999) "Impact of the crisis on Javanese Irrigated Rice Farmers." Papers of the Center for Agro-Socioeconomic Research (CASER) International Seminar on *Agricultural Sector during the Turbulence of Economic Crisis: Lessons and Future Directions*, Bogor.
- Bremen JC (1999) "Monetary Crisis in Rural Java: The exclusion of the Poor from the Social Safety Net Program". Paper presented at a seminar at Indonesian Institute of Sciences, Jakarta.
- Budiharto M (1998) "The Impact of Economic Crisis upon Drug Services at Several Cities in Indonesia." World Bank, Jakarta.

- Center for Health Information and Crisis Management and USAID Policy Project (1999) "Study Findings on Malnutrition Cases in 4 Provinces of Indonesia", Jakarta.
- Central Bureau of Statistics of West Nusa Tenggara (1997) "West Nusa Tenggara in Figures of 1996", Mataram.
- Central Bureau of Statistics of West Nusa Tenggara (1998) "West Nusa Tenggara in Figures of 1997", Mataram.
- Central Bureau of Statistics of West Nusa Tenggara (1999) "West Nusa Tenggara in Figures of 1998", Mataram.
- Central Bureau of Statistics (1996) *Indicator of People's Welfare 1995*, Jakarta.
- Central Bureau of Statistics (1998) "A Short Review: Development of People's Welfare" In *Indicator of People's Welfare 1997*, Jakarta.
- Central Bureau of Statistics (1998) *Indicator of People's Welfare 1997*, Jakarta
- Central Bureau of Statistics (1998) "The Development Level of Public Welfare: A Brief Review" In *Report on the Crisis Impact: A Survey at the Subdistrict Level throughout Indonesia*, Jakarta.
- Central Bureau of Statistics (1999) *Indicator of People's Welfare 1998*, Jakarta.
- Central Bureau of Statistics (1999) *Quality of Human Resources and Social Changes at the Village Level* (100 Village Survey), Series SSD No. 1-3, Jakarta.
- Central Bureau of Statistics (1999) "Brief Bulletin CBS", August Issue.
- Central Bureau of Statistics (1999) "Development of the People's Welfare". Reports of Survey on the Impact of Crisis at Sub-districts in Indonesia, 1998.
- Dachlan D and Thaha AR (1999) "A Study on the Validity of Determining Poor Families in the Implementation of the Social Safety Net Program in South Sulawesi", University of Hasanuddin, Center for Research on Food and Nutrition, Makassar.
- Daimon T (1999) "Mitigating the Social Impact of the Indonesia Crisis; Lessons from Implementing the Presidential Decree for Underdeveloped Villages."
- Daimon T (1999) "Mitigating the Social Impact of Indonesia Crisis: Lesson from IDT (Undeveloped Village) Experience (Mitigating the Social Impact of Indonesian Crisis: An Explanation and Description of IDT Program Experience)."
- Dasukki D (1999) "Longitudinal Surveillance in Safe Motherhood" University of Gadjah Mada, Yogyakarta.
- Department of Health, Office of Yogyakarta Province (1999) "A Report on the Impact of Crisis on Health", Yogyakarta.
- Department of Health, Office of Bantul District (1999) "A Report on the Impact of Crisis on Health", Bantul.
- Department of Health, Office of Kulon Progo District (1999) "A Report on the Impact of Crisis on Health", Wates.
- Department of Health, Office of Gunungkidul District (1999) "A Report on the Impact of Crisis on Health", Wonosari.

- Department of Health, Office of Sleman District (1999) "A Report on the Impact of Crisis on Health", Sleman.
- Department of Health, DKI Jakarta Provincial Bureau (1996) "DKI Jakarta Health Profile", Jakarta.
- Department of Health, DKI Jakarta Provincial Bureau (1997) "DKI Jakarta Health Profile", Jakarta.
- Department of Health, DKI Jakarta Provincial Bureau (1998) "DKI Jakarta Health Profile", Jakarta.
- Department of Health, Jakarta (1999) "The Impact of Crisis upon Health", Jakarta.
- Department of Health, Office of Deli Serdang District (1999) "Evaluation on the Crisis Impact for Health Policy Formulation in the Level II Region of the Deli Serdang Regency", Lubuk Pakam.
- Department of Health, Office of Langkat District (1999) "The Crisis Impact upon the Health Sector in the Level II Region of the Langkat Regency", Langkat.
- Department of Health, Office of West Nusa Tenggara Province (1999) "1998/1999 Evaluation Report on CDC Program", Mataram.
- Department of Health, Office of West Nusa Tenggara Province (1999) "Recapitulation of F/III/Nutrition and F/SKDN Reports", Mataram.
- Department of Health, Office of West Nusa Tenggara Province (1999) "Review on the Impact of Economic Crisis on Health", Mataram.
- Djohan E et. al. (1998) "Health Sector Social Safety Net: Health Crisis Management Policy in West and Central Java." Policy Paper No. 24, Indonesian Institute of Sciences, Jakarta.
- Djunaidi M et. al. (1999) "Study on Poor Family Determination Appropriateness in SPSBK Program Implementation in the Province of South Sulawesi." University of Hasanuddin, Center for Nutrition and Food Studies, Research Center, Makassar.
- DKI Jakarta Central Bureau of Statistics (1997) "DKI Jakarta Community Welfare Indicator", Jakarta.
- DKI Jakarta Central Bureau of Statistics (1998) "DKI Jakarta Community Welfare Indicator", Jakarta.
- Eniarti D et. al. (1998) "The Social Safety Net: Health Management Policy during the Crisis Period in West and Central Java." Policy Paper No. 24, Indonesian Institute of Sciences, Jakarta.
- Environment Bureau Supervisory Secretariat for West Nusa Tenggara Province (1996) "The Balance Sheet of Regional Environment Quality in 1996, the Province/District Level I West Nusa Tenggara, Book III p. 18, Mataram.
- Environment Bureau Supervisory Secretariat for West Nusa Tenggara Province (1998) "The Balance Sheet of Regional Environment Quality in 1998, the Province/District Level I West Nusa Tenggara, Book III p. 19, Mataram.
- Erison (1999) "Hubungan Pembinaan dengan Tingkat Penampilan Kerja Bidan Desa pada Wilayah Kerja Dinas Kesehatan Kabupaten Lima Puluh Kota Propinsi Sumatra Barat." Thesis, University of North Sumatra, Public Health Faculty, Medan.

- Erwidodo, Saliem HP, Ariani M, and Ariningsih E (1999) *Study on the Diversification of Main Food Groups in Indonesia*. Department of Agriculture, Center for Agrosocioeconomic Research, Agency for Agricultural Research and Development, Bogor.
- Frankenberg E et. al. (1998) "Health, Family Planning and Well Being in Indonesia During an Economic Crisis." Paper prepared for the Policy Project, intended to provide early evidence on key changes in the health and family planning sector in Indonesia between late 1997 and late 1998. Jakarta.
- Frankenberg E et al. (1998) *Health, Family Planning and Well-being in Indonesia during an Economic Crisis*. Final Report by RAND to the Policy Project, The Futures Group International, Jakarta.
- Frankenberg E. et al. (1999) "The Real Cost of Indonesia's Economic Crisis." Preliminary Findings from the Indonesian Family Life Survey. Prepared from data by the National Institute of Ageing, the National Institute of Child Health and Human Development, March 1999, Jakarta.
- Frankenberg E, Beegle K, Thomas D, Suriastini W. (1999) "The Real Cost of Indonesia's Economic Crisis: Preliminary Findings from the Indonesia Family Life Survey." Prepared for the *1999 Population Association of America Meetings* March 25-27. New York.
- Gani A. (1998) "Effects of the Economic Crisis on Health" from papers presented at the *4th Asia Pacific Social Science and Medicine Conference*, 7 - 11 December 1998, Yogyakarta, Indonesia.
- Gani A. (1998) "Proposed Health Sector Adjustment to Protect the Health Status of the Poor and Vulnerable" from papers presented at the workshop *Health Sector Reform to Minimize the Impact of the Economic Crisis*, Jakarta.
- Gani A. (1999) "Structural Changes which are Needed as a Result of the Global Budget Policy on for Funding Hospitals" from one-day seminar *Implementation Models for a Hospital Service Delivery Program for Poor People*, Jakarta.
- Hadju V, Thaha R, Djunaini M, Dahlan and Ramli (1999) *The Nutritional Status of Children under the age of five in Poor Families of South Sulawesi*, University of Hasanuddin, Food and Nutrition Research Center. Ujung Pandang.
- Hardjanto T. (1999) "The Crisis Impact on Kecamatan Level in the Province of West Nusa Tenggara", Central Bureau of Statistics.
- Hartanto F, et. al. (1999) "Rasionalisasi Penggunaan Obat dan Penelahaan Ketidacukupan Peresepan Alat Kontrasepsi Pada Masa Krisis di Nusa Tenggara Barat." Workshop *Dampak Krisis terhadap Kesehatan*, Mataram 9-12 August, 1999.
- Health Crisis Information and Control Center of the Aceh Special Region Province (1999) "Health Data Details of the Aceh Special Region", Banda Aceh.
- Helen Keller International (1999) "The Importance of Accurate Anthropometric Assessment and Defining the Lost Generation" *Indonesia Crisis Bulletin* (Year One, Issue Five), Jakarta.
- Helen Keller International (1999) "Role of High Dose Vitamin A Capsules in Preventing a Relapse of Vitamin A Deficiency Due to Indonesia's Current Crisis" *Indonesia Crisis Bulletin* (Year One, Issue Six), Jakarta.

- Helen Keller International (1998) "Alarming Rise of Iron Deficiency Anaemia may Herald 'Lost Generation'" *Indonesia Crisis Bulletin* (Year One, Issue Three), Jakarta.
- Helen Keller International (1998) "Have Thirty Years of Nutritional Improvement in Southeast Asia Disappeared in One Year of Crisis?" *Indonesia Crisis Bulletin* (Year One, Issue Four), Jakarta.
- Helen Keller International (1998) *Nutritional Surveillance in Indonesia: The Impact of the Safety Net Program on Nutrition and Health among Women and Children*, Jakarta.
- Hidayat A (1999) "Hubungan Kemampuan Manajerial Kepala Seksi dengan Tingkat Kepuasan Staf Seksi pada Dinas Kesehatan Propinsi Dati I Sumatra Utara." Thesis, University of North Sumatra, Public Health Faculty, Medan.
- Hidayat S (1999) "Social Safety Net Program" Paper Presented on *National Nutritional Day*, Jakarta.
- Husaini M, et. al. (1998) "Inputs for National Nutrition Program Restructuring." Paper at a Workshop on *Health Sector Reform to Minimize the Impact of Economic Crisis*, 14-15 July 1998, Bandung.
- Ibrahim H, et. al. (1999) "Dampak Krisis Ekonomi terhadap Obat dan Alat Kesehatan." 19-24 August 1999, Medan.
- Iftikhar A (1999) "Literary Review of Indonesia's Crisis and Recovery: The Myths and Reality." International Labor Organization Office, Jakarta.
- Irawan et. al. (1999) "Impact of the Economic Crisis on the Number of People." A Paper Presented at the Seminar *Agricultural Sector During the Turbulence of Economic Crisis: Lessons and Future Directions*. Agricultural Social Economic Research and Development Center, Bogor.
- Irwanto (1998) "Prediction of Monetary Crisis Influence and Drought upon Children and Teenagers Who Need Special Protection in Mental Physical Apprehension" In *Total Concern: The Impact of Monetary Crisis and El Nino upon Families, Mother and Child in Indonesia*. pp 99-124.
- Iskandar M (1998) "The Impact of Monetary Crisis and Drought on Women's Health and Nutrition from Mental and Physical Apprehension." In *Total Concern: The Impact of Monetary Crisis and El Nino upon Families, Mother and Child in Indonesia* pp 149-166.
- Ismail D (1999) "Longitudinal Surveillance in Child Survival." University of Gadjah Mada, Yogyakarta.
- Jahari A, et. al. (1999) "The Hidden Problem: The Nutritional Status of Under-fives in Indonesia during the Period of 1989 to 1998 (Based on Susenas)." *7th Food and Nutrition Workshop*, Jakarta 10-12 May 1999, Agency for Health Research and Development.
- Joedyaningsih, et al. (1999) *The Impact of Monetary Crisis on Malnutrition Status in South Sumatra Province*, Regional Office of South Sumatra.
- Kosen S, and Bloem MW (1999) "Crisis Surveillance Nutrition, Health, Economic Changes and Input for Policies." Presentation given by Litbangkes and HKI on Nutritional Surveillance in Central Java.

- Kuntoro H, et. al. (1998) "A Study on Poor Criteria through an Analysis of Women and Discrimination", University of Airlangga, Population and Development Research Center, Surabaya.
- Kuntoro H, et. al. (1996) "Poor Families within the Social Safety Net Program." University of Airlangga, Population and Development Research Center, Surabaya.
- Kuntoro H, et. al. (1998) "Study on Impoverished Criteria by Analysis on Cluster and Discriminant." University of Airlangga Research Foundation, Population and Development Research Center, Surabaya.
- Kusnanto H (1998) "Social Safety Net in National Perspective: In Proceeding Safety Net, Development, Concept and its Application." University of Gadjah Mada, Faculty of Public Health, Surabaya.
- Kusnanto H (1998) "Accurate Targeting of Poor Families within the Social Safety Net: Survey in Central and Southeast Java and Yogyakarta." Faculty of Public Health, University of Gadjah Mada, Yogyakarta.
- Mewa A, et. al. (1998) *Product Diversity, Product Distribution, and Relative Price*, Department of Agriculture, Center for Agro-socioeconomic Research Agency for Agricultural Research and Development, Bogor.
- Ministry of Health, Directorate of Community/Public Nutrition (1998) *Analisa Survey Konsumsi Gizi*, Jakarta.
- Ministry of Health, Directorate of Community/Public Nutrition (1998) *Laporan Pemantauan Kasus Gizi Buruk*, Jakarta.
- Ministry of Health, Directorate of Community/Public Nutrition (1999) *Laporan Analisis Pemantauan Status Gizi di Propinsi Jawa Barat dan Jawa Tengah*, Jakarta.
- Ministry of Health, Directorate of Nutrition (1998) "An Analysis of Below-Five-Year Old Children Nutrition Status in the Provinces of West and Central Java", 1998 Implementation Report PSG (Nutritional Status Monitoring).
- Ministry of Health, Food and Drug Administration (1998-1999) *The Relationship between use of LPLPO (Report Use vs. Request Sheet) with Stock Sufficiency and Rational Drug Use at the Community Health Center*, Jakarta.
- Ministry of Health, PPM and PLP section (1998) "A Surveillance System to Support the Health Crisis" in papers from the *National Meeting on Dealing with the Health Crisis through Consolidation of Monitoring and Implementation*, Jakarta.
- Ministry of Health, Secretary General (1999) *Report on the Implementation of Health Sector Social Safety Net in 1998/1999*, Jakarta.
- Munandar S (1998) "Long Term Impact of Draught in Childcare in Development of Human Resources from Mental and Physical Apprehension." In *Total Concern: The Impact of Monetary Crisis and El Nino upon Families, Mother and Child in Indonesia* pp. 125-132.
- National Development Planning Board (1998) *Materials from the Meeting on Implementing the Social Safety Net Program*, Jakarta.
- National Development Planning Board (1998) *Guidelines for Implementing the District Development Program*, Jakarta.

- National Development Planning Bureau (1998) *Implementation Guideline of Sub-district Program Development Assistance (PPK) Fiscal year 1998-1999*, Jakarta.
- National Family Planning Board, Bureau of Program Evaluation and Analysis (1999) *Monitoring Report Analysis of the Impact of the Crisis on Implementing the National Family Planning Program*, May 18, 1999, Jakarta.
- NFPCB, Regional Office Jakarta (1999) "The Impact of Crisis on National Family Planning Program in Jakarta." Paper presented at *Data Collection and on-site Workshop: Lessons Learned from Impact Crisis on Health*, 5 – 8 September 1999, Jakarta.
- Nikujuluw V, et al. (1999) "The Impact of Economic Crisis on Production and Export of fishery Sub-sector." In *An International Seminar on Agricultural Sector During the Turbulence of Economic Crisis: Lessons and Future Directions*, Ministry of Agriculture, Center for Agro-socioeconomic Research Agency for Agricultural Research and Development, Bogor.
- Papilaya A (1998) "Proposed Interventions for Hospitals During the Crisis" from papers presented at the workshop *Health Sector Reform to Minimize the Impact of the Economic Crisis*, July 14-15, 1998, Jakarta.
- Poerwani SK, et. al. (1998) "The Effect of the Monetary Crisis on the Effort of Health Services at Hospitals and Community Health Centers in East Java." April 1998, Center for Research and Development, Health Services Division, Surabaya.
- Poerwanto S, et. al. (1999) *Economic Crisis and JPSBK: Policy Implication*, Jakarta.
- Poppele J, et. al. (1999) Social Impacts of the Indonesian Crisis: New Data and Policy Implications. SMERU Draft Report, Jakarta.
- Puguh I (1999) "The Impact of the Crisis on Poverty and its Implication for Development Strategies." Presented at the *Mini Workshop on Food and Nutrition on May 10-12, 1999*, sponsored by International Labor Organization, Jakarta.
- Raharjo, et. al. (1998) "Social Safety Net from the National Perspective in the Safety Net Proceedings, its Development, Concept and Application." Indonesian Institute of Sciences, Jakarta.
- Raharso A. (1999) "Family Strategies to Face the Crisis: Findings from the Field" Seminar Paper on *Public's Empowerment and Social Safety Net* in Jakarta, 17 May 1999. Indonesian Social Science Institute, Population and Labor Research and Development Center, Jakarta.
- Ravallion M and Wodon Q (1998) "Evaluating a Targeted Social Program when Placement is Decentralized" Input Paper to The World Bank, Washington DC.
- Regional Office of Department of Health, Central Java Province (1999) *The Impact of Economic Crisis on Health*, Semarang.
- Regional Office of Department of Health, DKI Jakarta Province (1999) *Report on JPS-BK in DKI Jakarta*, Jakarta.
- Regional Office of Department of Health, DKI Province (1999) *The Impact of Economic Crisis on Health*, Jakarta.

- Regional Office of Department of Health, East Java Province (1999) *The Impact of Economic Crisis on Health*, Surabaya.
- Regional Office of Department of Health, East Kalimantan Province (1999) *A Report on the Impact of Crisis on Health*, Samarinda.
- Regional Office of Department of Health, Jambi Province (1999) *Report on the Monetary Crisis Impact upon Health in the Jambi Province*, Jambi.
- Regional Office of Department of Health, Lampung Province (1999) *The Impact of Economic Crisis on Health*, Bandar Lampung.
- Regional Office of Department of Health, North Sumatra Province (1999) *Regional Meeting on Evaluation of the Crisis Impact for Health Policy Formulation*, Medan.
- Regional Office of Department of Health, South Kalimantan Province (1999) *A Report on the Impact of Crisis on Health*, Banjarmasin.
- Regional Office of Department of Health, West Java Province (1999) *Monetary Crisis Impact upon Health in East Java Province*, Surabaya.
- Regional Office of Department of Health, West Kalimantan Province (1999) *Report on the Impact of Crisis on Health in the Province of West Kalimantan*, Pontianak.
- Regional Office of Department of Health, West Nusa Tenggara Province (1999) "Review Presentation on the Impact of Economic Crisis on Health in the Province of West Nusa Tenggara." Workshop on the Crisis Impact in Mataram on 9-12 August 1999, Mataram.
- Regional Office of Department of Health, West Sumatra Province (1999) *Coping with the Economic Crisis Impact upon Health Status (Lack of Protein Energy, Marasmus/Kwashiorkor) in the West Sumatra Province*, Padang.
- Regional Office of Department of Health, Yogyakarta Province (1999) *Report on the Impact of Crisis on Health of Each Kabupaten and City in the Province of D.I. Yogyakarta*, Yogyakarta.
- Rehears A (1999) *Family Strategy in Dealing with Crisis: Fact Finding*, Workshop on Social and Social Safety Net, 17 May 1999, Jakarta.
- Rusman R, et. al. (1998) *SKPG (Early Warning System for Food & Nutrition) to Overcome the Impact of Crisis in West Jakarta City*, Jakarta.
- Rusman R, et. al. (1998) "Health and Nutrition Status on Food." In *Total Concern: The Impact of Monetary Crisis and El Nino upon Community, Family, Mother and Children in Indonesia and Optional Intervention*, Jakarta.
- Sajogyo, et. al. (eds) (1998) *Economic Crisis Ad People's Economy at Nusa Tenggara Area*, Aditya Mdia, Yogyakarta.
- Sandjaja, et. al. (1998) *Laporan Akhir Studi Hubungan Status Gizi dengan Pola Konsumsi Makanan Keluarga, Karakteristik Keluarga dan Daerah*. Analisa Data Susenas, Jakarta.
- Santoso B, et. al. (1999) *Dampak Krisis Ekonomi terhadap Obat dan Alat Kesehatan*. Position Paper, Yogyakarta.
- Scientific Magazine, Medical School, USAKTI, Vol. 17 Special Edition, 1998.

- Seda F (1998) "Macro Economic Crisis and the Fate of Small Business", In Sajogyo and Mubyarto (eds) *Economic Crisis Ad People's Economy at Nusa Tenggara Area*, Jakarta.
- Sevenhuysen G (1999) *East Java Survey of Poor Families*, National Planning Board, JPS Team, Jakarta.
- Sibarani N (1999) "The Impact of the Economic Crisis on the Nutritional Status of Children under the Age of Five." Professorship Inauguration Oration at the Faculty of Agriculture, Bogor Agricultural Institute, June 12, 1999, Bogor.
- Simatupang P (1999) *Toward Sustainable Food Security, The Need for a New Paradigm*. Department of Agriculture, Center for Agro-socioeconomic Research, Agency for Agricultural Research and Development, Bogor.
- Singgih D (1999) *Crisis, Mass Riots and the Social System Balance in Indonesia*, Jakarta.
- Siregar A (1999) "Information Study on Health Service at the Level II Regional of Simalungun, Period of October 1998 – June 1999." Head of Health Service of the Level II Region of Simalungun, Simalungun.
- Siregar N (1999) *Monetary and Economic Impact upon the Consumer Buying Power in the Medan Municipality*, Medan.
- Siswanto A (1998) "Impact of the Economic Recession on the Death Rate and Increased Life Expectancy Rate of Indonesia." Paper presented at the seminar for the Union of Demographic Experts, April 15, 1998, Jakarta.
- Sjahrir (1999) *In and Out of Crisis*, Erlangga Offset, Jakarta.
- Soelaiman, et. al. (1999) *A Case Study of the Impact of Crisis upon Susceptible Society in Rural and Urban Areas*. Indonesian Institute of Sciences, 1998-1999, Jakarta.
- Soelaiman H (1999) "Mapping Profile of Street Children and their Parents in Several Municipalities" p. 63 in *Results from a Study on Street Children*, Jakarta.
- Soendoro T (1999) *Indonesia and the Monetary Crisis: Strategic Action for Minimizing the Health Impact*, National Development Planning Board, Jakarta.
- Soesilawati, et. al. (1999) "Challenges to Target Mapping in Health Sector Social Safety Net in Indonesia and Alternative Solution." National Institute of Health Research and Development and 5 Universities, Yogyakarta.
- Sondakh L (1998) "National Monetary Crisis and Local solution (I)." In Sajogyo and Mubyarto (eds) *Economic Crisis Ad People's Economy at Nusa Tenggara Area*, Jakarta.
- Sudiro (1999) *Community Health Center Service under the Social Safety Net Program*, University of Diponegoro, Faculty of Public Health, Center for Health Development and Instruction, Semarang.
- Sudiro (1999) *Poor Families within the Social Safety Net Program*, University of Diponegoro, Faculty of Public Health, Center for Health Development and Instruction, Semarang.
- Sumarno I and Ariani M (1999) "The Impact of the Economic Crisis on Food Consumption." from papers of the *7th Food and Nutrition Workshop*, May 10 to 12, 1999 Ed. Agency for Health Research and Development, Jakarta.

- Sumarto S, et. al. (1998) "The Social Impact of the Crisis in Indonesia: Results from a Nationwide Kecamatan Survey." Preliminary Draft, Jakarta.
- Surjadi C, et. al. (1999) "Study on the Impact of Economic Crisis on the Health of the Urban Slum Population in DKI Jakarta", Jakarta.
- Surjadi C, et. al. (1999) *The Impact of the Economic Crisis on the Urban Slums Population in Jakarta*, University of Atma Jaya, Center for Health Research, Jakarta.
- Sutoto, et. al. (1999) *Problem in JPSBK Service Management in Banyumas General Hospital*, Banyumas General Hospital, Banyumas.
- Suwandono A, et. al. (1999) *Longitudinal Research on the Social Safety Net Program in Central Java, Jogjakarta, East Java, South Sulawesi and West Nusa Tenggara: Summary of the Preliminary Results and Target Group*, Jakarta.
- Syarief H (1999) *JPS Program*, Paper Presented on the National Nutrition Day, 15 February 1999, Jakarta.
- Tambunan T (1998) *The Economic Crisis and Future of Reform*, Ed: Faculty of Economics Publishing Foundation, University of Indonesia, Jakarta, Indonesia.
- Tangendjaja B and Soedjana T (1999) "The Impact of the Economic Crisis on the Poultry Industry as a sub-sector of Indonesian Livestock: Challenges and Opportunities". Papers of the Center for Agro-Socioeconomic Research (CASER) International Seminar on *Agricultural Sector during the Turbulence of Economic Crisis: Lessons and Future Directions*, Bogor.
- Thaha A, et. al. (1999) "Experiences of a Community Health Center Doctor in Implementing the Social Safety Net Program: Case Studies from the Daya and Bajeng Community Health Center in South Sulawesi" from abstracts of study results on the *Impact of the Crisis on Health*, Jakarta.
- Thaha R, et. al. (1999) "Abstract of Study Result on the Crisis Impact upon JPS-BK Group Health: Physician Experience in the Program Implementation", Jakarta.
- Thomas D, et. al. (1999) "Household Budgets and Composition and the Crisis in Indonesia: Evidence from Longitudinal Household Survey Data." Prepared for the *1999 Population Association of American Meetings*, March 25-27, 1999, New York.
- Tjondronegoro S and Haryanto R (1999) "Proceedings from the seminar on Presenting Policy and Feedback on the Social Safety Net Program from Different Indonesian Sociology Association branches." Presented on ISI National Congress, Jakarta.
- United Nations Development Plan – National Bureau of Statistics (1998) *Crisis, Poverty, and Human Development in Indonesia*, Jakarta.
- United Nations Support Facility for Indonesian Recovery (1999) *The Social Implications of the Indonesian Economic Crisis: Perception and Policy*, Jakarta.
- University of Airlangga Research Foundation Research Team (1999) "Abstract of Longitudinal Study Result on the JPS-BK Implementation", Surabaya.
- University of Airlangga Research Team (1999) "Summary of Research Findings on Longitudinal Study of JPSBK Implementation, Province of East Java", Surabaya.

- University of Indonesia, Center for Research and Development and the Laboratory for Social Development, Faculty of Science and Politics (1999) "Pilot Project Penanganan Social Problems in Street Children Who Still Have Ties with their Families" pp 28-38. Results from a Study on Street Children.
- University of Indonesia, Faculty of Social Science and Politics (1999) "The Experiment in Handling the Social Problems of Street Children Who Still Have their Families: A Research on Street Children", pp 28-38.
- University of Mataram, Language and Cultural Study Center (1999) "Longitudinal Study, Evaluation of JPKS-BK Program Implementation in West Nusa Tenggara", Mataram.
- UNSFIR (1999) *The Social Implications of the Indonesian Economic Crisis: Perception & Policy*, Jakarta.
- Uphoff N (1999) "Rural Development Strategy for Indonesian Recovery: Reconciling Contradictions and Tensions." Papers of the Center for Agro-Socioeconomic Research (CASER) International Seminar on *Agricultural Sector during the Turbulence of Economic Crisis: Lessons and Future Directions*, Bogor.
- Utomo B (1998) "Impact of the Monetary Crisis and Drought on the Health and Nutritional Status of Children." pp 133-148 In *Total Concern: Impact of the Monetary Crisis and El Nino upon Families, Mothers and Children in Indonesia*, ed. Jakarta.
- Warr P (1999) *Indonesia's Crisis and the Agricultural Sector*, International Seminar on Agricultural Sector During the Turbulence of Economic Crisis: Lessons and Future Directions. Center for Social Economic and Agricultural Research, Bogor.
- Wasisto B (1998) "The Impact of Economic Crisis on Health." Paper presented at the Policy Workshop on *Health Sector Reform to Minimize Impact of the Economic Crisis*, Jakarta, 14-15 July 1998. Ministry of Health, Health and Research Development, Jakarta.
- Wasisto B (1998) "The Influence of the Economic Crisis on Health" from papers presented at the Policy Workshop *Health Sector Reform to Minimize the Impact of the Economic Crisis*, Jakarta.
- Wilopo S (1998) "Impact of Economic Recession in Reduced Mortality and Improved Life Expectancy in Indonesia." Paper at One Day Seminar of Demography Fans and Experts in Indonesia, 15 April 1998, Jakarta.
- Wiyoto S (1998) "LPKM in Purworejo and Belu." In cooperation with Ministry of Health and University of Gadjah Mada, Yogyakarta.
- Yusniwati, et. al. (1999) "Studi Demografis terhadap Penduduk yang Bermukim di Sekitar Wilayah Ekosistem Leuser Propinsi Sumatra Utara." University of North Sumatra, Public Health Study and Information Network Center, Medan.
- Zainuddin W (1999) *Implementation of Health Sector Social Safety Net in Puskesmas Sangkapura, Bawean, Gresik, East Java, Surabaya*.

Chapter Four

Research to Action for Reducing Health Inequalities: The Experience of Lithuania

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1. Introduction

The UNDP's Human Development Report of 1997 identified major inequities in Lithuanian society. The report found that the wealthiest sector of the population spent 19 times more on health care and seven times more on education than the poorest sector. Despite this, the Ministry of Health in Lithuania is yet to identify research on equity as a separate priority or national research program. However, a national situation analysis revealed that a number of major ongoing public health research projects had already systematically collected the necessary information for monitoring regional and socio-economic inequalities. All that was needed to complete the circle was a strategy for disseminating the results to intersectoral stakeholders and policy-makers. This chapter presents the results of a case study which looked at attempts to disseminate information on health inequalities to stakeholders at a number of levels, their reactions and the lessons learned from the various activities that were undertaken.

2. Background

Lithuania is situated on the South-east coast of the Baltic Sea. The country shares a border with Latvia, Belorussia, Poland and the Russian Federation (the Kaliningrad enclave). Its territory constitutes 65,300 km² and has a population of 3.7 million. Lithuania regained independence from the Soviet Union in 1990. Administratively, Lithuania is divided into 10 regions (with regional health administrations) and 56 municipalities (with municipal health administrations and community health councils).

The economy is largely based on industry and agriculture. In 1997, the country's real GDP was US\$4220 per capita (adjusted for PPP). Unemployment however, is estimated to be more than 10% and rising. The average total disposable income per household member per month was US\$92.50, 44.5% of which was expenditure for food. According to a household survey conducted in 1997, the wealthiest section of the population spent seven times more on education, and 19 times more on health care than the poorest sector (UNDP, 1997).

3. Research in the field of socio-economic inequalities in health

Researchers have long been aware of Lithuania's regional and social inequalities in health, despite being a small, relatively homogenous country. However, it was only in 1997, stimulated by pressure from WHO/EURO that a systematic effort to research health inequalities was initiated. As part of this drive, Lithuania joined a collaborative project stimulated by WHO/EURO known as "Inequities in health" (Grabauskas, 2000). The objectives of the WHO/EURO project were to support and promote research, methodological development and ongoing monitoring activities by national researchers, designed to bring about action which would ultimately reduce social inequalities in health and health care in Lithuania.

During the first phase of the project, an inventory of data sources was compiled. It included data sets from the National Health Information Center, Ministries of Education, Health, Social Welfare and Labor, combined with data sets from a number of existing research projects – including a number of health-behaviour monitoring projects, the National Household Survey, the Newborn Register, and the Accessibility of Health Care project.

A situational analysis was undertaken (co-funded by WHO/EURO and SIDA (the Swedish International Development Agency), which analysed existing inequalities using a wide range of social and health indicators (WHO et al, 1998). These included:

- Demographic
- Socioeconomic (e.g. household income by education, residency, occupation)
- Regional and social inequalities in mortality (e.g. urban/rural gradient, marital status)
- Impact of socioeconomic status on newborn health
- Health behaviour by social status
- Health care accessibility
- Nutrition.

4. The current research situation

Current research priorities of the Ministry of Health are focused on the areas of maternal and child health, health care reform management, environmental health and health policy development. Research on inequalities in health in Lithuania has not yet been identified as a separate priority or national research program. However, a number of major ongoing public health research projects collect the necessary information for monitoring regional and socio-economic inequalities. It was therefore considered inappropriate and inefficient (given current financial constraints on research in the country) for the government to simply launch a new research programme before analysing the impact, scope and effectiveness of the current monitoring initiatives.

The majority of the ongoing health inequality projects are financed by national sources, although a small number of projects are also partially supported by international research grants. Currently, research on inequalities in health is a priority within the European Union's (EU) public health program. Given Lithuania's status as an accession country there are good opportunities for additional funding through bilateral or multilateral international cooperation with EU institutions in the future.

Academically, health inequalities are becoming a major area of research activity. During the period 1990-2000 a PhD thesis (Bankauskaite, 1999), and a Habilitation thesis (Kalediene, 2000) dealing with health inequities have been completed, two further PhD theses are in progress, and over 30 national and international papers have been published.

5. The process of research dissemination

Results of the WHO/SIDA-funded situational analysis of research into health inequities were presented in a publication produced in both English and Lithuanian. The publication, *Equity in Health and Health Care in Lithuania: A situation analysis*, provided a summary of each

project's research results, and has been instrumental in increasing intersectoral cooperation and coordination. Dissemination of research results had begun prior to the release of the WHO/SIDA publication, however.

It was agreed by WHO and the group of local investigators that research results should be disseminated on the national, regional and municipal levels via specially arranged meetings, beginning with Parliament.

As a direct result of the dissemination of pre-existing data showing major health inequities throughout the country, the Lithuanian Health Program was adopted by Parliament on July 2, 1998. The Program has three main objectives (Ministry of Health, 1998):

- Reduction of mortality and increase in average life expectancy
- Equity in health and health care
- Improvement in quality of life

This includes a target on equity that states "By the year 2010, differences in health and health care between various socio-economic groups of population should be reduced by 25%". The stated strategy for achieving the target was that "By the year 2000 inequalities in health and health care between different socio-economic groups should be assessed and indicators for monitoring proposed". The Program document also recommended that national health policy formulation relating to health inequality must be revised: "By the year 2005 to supplement health policy by measures aimed at reduction of inequalities in health and health care". The strategy also indicated the main actions and prerequisites for reducing inequalities in health and health care. It stressed the importance of intersectoral collaboration and continued impact assessments of all legal acts on equity in health. The National Board of Health (NBH) was assigned responsibility for monitoring progress in this area.

The National Board of Health (NBH) is the highest level institution coordinating health policy and is accountable to Parliament. Members of the NBH represent municipal community health councils, public organisations protecting public health interests, and public health care specialists. In 1998, the NBH dedicated its Annual Report to the issue of health inequalities in Lithuania. The report provided an overview of current research around health inequalities, and some of the results of that research.

In a meeting held in Parliament in December 1998, both the WHO/SIDA situation analysis and the NBH Annual Report were officially presented to all members of Parliament, and regional and municipal policy makers. Participation was extremely high, and audience reactions demonstrated that the key messages on inequalities were appreciated and understood. A press conference following the meeting presented the key issues relating to health inequalities in Lithuania to representatives from major national and regional newspapers, TV and radio stations, ensuring wide media coverage of the Parliamentary meeting.

In addition, the NBH Annual Report and the WHO/SIDA situational analysis publications were sent to all regional and municipal authorities, including the Community Health Councils. Intersectoral partners of the Ministry of Health also received copies of the publications, including the Ministry of Labour and Social Affairs, the Ministry of Finance, and the Ministry of Education.

Following the release of the NBH's 1998 Annual Report, a Parliamentary *Resolution on the Principles of Lithuanian Health Policy* (January 5, 1999) proposed that it should focus upon ensuring equal rights of access to health for the people by increasing the active cooperation between the state, local self-governing institutions and non-governmental organisations (<http://www.lrs.lt/>). Specifically, a decrease in health inequalities should be sought amongst various sectors of the population, who are more prone to inequalities. These include:

- Between rural and urban populations
- Amongst sectors of the population with lower educational backgrounds, and income levels
- Between age groups

In collaboration with WHO/EURO, the Kaunas University of Medicine has initiated a continuous systematic dialogue on Health Policy Implementation in more defined areas, called "Health Policy Forums". The first Forum took place in 1999, and focused on reducing inequalities through joint intersectoral action. Participants included health politicians, public health professionals and researchers. Most intersectoral partners invited to the Forum failed to attend. To rectify this situation, further research dissemination activities aimed at other sectors were planned for the years 1999-2001, however due to budgetary constraints, these activities have been postponed until early in 2001. In the meantime, the NBH is undertaking discussions with potential funders of these activities.

A summary of research and dissemination activities related to inequalities in health in Lithuania are presented in Table 1.

Table 1: Summary of research on health inequalities and dissemination activities

Time period	Activities undertaken
Prior to 1990	<ul style="list-style-type: none"> • Research on health inequities available, but inequities not considered a problem
1990-1996	<ul style="list-style-type: none"> • Increasing amount of data on inequities; re-analysis of ongoing projects and initiating new projects
1996-1998	<ul style="list-style-type: none"> • Preparation of Lithuanian Health Program including section on equity, accessibility, acceptability and appropriateness
1997	<ul style="list-style-type: none"> • WHO/EURO project “Inequities in health” initiated
1998	<ul style="list-style-type: none"> • Lithuanian Health Program which includes specific objective and target on equity in health and health care adopted at the Parliament. • WHO/SIDA project published: “Equity in Health and Health Care In Lithuania. A situation analysis”.
	<ul style="list-style-type: none"> • First annual report of the National Board of Health tackling inequalities in health published and presented to Parliament.
1999	<ul style="list-style-type: none"> • Parliament Resolution on the Principles of Health Policy; equal access to health care and reduction of health differences between social groups. • First Health Policy Forum focusing on reducing inequities by joint intersectoral action taking Cardiovascular Health as an example. Low participation of partners for intersectoral action. • Project of the National Board of Health to present report to regional and municipal administrations fails due to severe economic recession. Negotiations with potential donors in order to renew started activities.
2000	<ul style="list-style-type: none"> • During his Annual Address to the Parliament (Vilnius, 20 April 2000), the President of the Republic of Lithuania stated that “It’s time to raise awareness that health problems due to difficult living conditions are increasing. Therefore, health care reform should go in line with social policy. Special attention should be paid to the most vulnerable layers of society” (http://www.president.lt/).

At the time of writing, the process of translating research into action has been hampered by a number of issues. The deteriorating economic situation - following the crisis in Russia - with growing unemployment and increasing income inequalities, financial difficulties in the social care sector, lack of intersectoral cooperation, and new elections to the Parliament (October 2000) at this point might only lead to isolated initiatives in the health sector.

6. Stakeholders and their perceptions/reactions

Intersectoral perceptions

It is impossible to measure the perceptions and reactions towards health inequalities of the major stakeholders outside the health sector at this point in time. Their low attendance

numbers at the First Forum on Health Policy Implementation indicated that a far more active approach to soliciting cooperation was required by the health sector. A first step might be a review of existing and planned programmes of the Ministries of Education, Health, Finance, Social Welfare and Labor, to identify areas of common interest, possible joint action and potential for additional research, if needed. Following that, potential interest should be solicited from the stakeholders on their involvement in preparing a joint action plan aimed at reducing inequalities which would include a timescale and quantitative targets. Further, corresponding changes should be made in each sector's policy formulation activities, involving regional and municipal administrations. Similarly, the interest of industry and trade organisations, community services, NGOs, and the mass media should be also explored. An assessment of all new and planned programmes within these sectors should be undertaken to evaluate their impact on health inequalities.

Perceptions within the health sector

Within the health sector, the perceptions and reactions of stakeholders varies at the national, regional and municipal level. At the national level, the Parliamentary Health Committee, the National Board of Health, the Ministry of Health, the National Public Health Institutions, and the academic community have all accepted the results of research. The formulation of a national health policy demonstrates this. National health policy is largely implemented via state health programmes (there are a total of 16 programmes, including the Programme for prevention of cardiovascular diseases; cancer; diseases due to external causes; tuberculosis; mental disorders, etc.). These programmes include components of primary, secondary and tertiary prevention.

However, within the set of criteria used for approving financial allocations for state programmes, equity is not included.

Four regions (from a total of 10) have formulated their health policy and programmes, yet none of these have an equity dimension included in the programmes. The remaining six regions have not yet formulated their health policy, therefore, it would be an appropriate moment to intervene.

At the municipal level, Community Health Councils (CHCs) have been created. CHCs are independent institutions under Municipal Councils, tasked with coordinating health activities. One third of CHC members are appointed by the municipality, whilst other members represent municipal enterprises, institutions and organisations, and NGOs working in the area of public health. According to the Health Law, CHCs are responsible for coordinating the preparation and implementation of programmes on health promotion, alcohol, tobacco and drugs control, public health protection, health strengthening and disease prevention, an assessment of priorities for the use of the municipality's health fund resources. The same law states that the municipality's health funds can be used exclusively for measures of primary prevention. Analysis of programmes financed by CHCs (1998-1999) indicates a relatively weak potential for programme planning, implementation of effective interventions, evaluation, and assessment of cost-effectiveness. The majority of programmes are outside the scope of primary prevention dealing with in-patient care, and the equity component is also missing.

A more targeted approach to coordination is clearly required. It has been recommended that a Task Force involving intersectoral partners be created as soon as possible while research dissemination activities are ongoing.

Lessons learned

Coordinated activities aimed at identifying health inequities in Lithuania only began in earnest in 1999, with the publication of the first national report. Therefore, a relatively short time period was available for moving the problem towards political action.

Successes

The major success in Lithuania was the identification of a solid, accessible database of research which provided information on inequalities in health and health care at the national level. Continued cooperation with WHO resulted in the accumulation of extensive research data thus contributing to the policy formulation and overall objectives of the country's development. This resulted in the preparation of the first report on inequalities in health and health care in Lithuania without the need for specifically designed research projects. The ongoing projects provide an opportunity to monitor regional and socio-economic inequalities in health and health care at a national level in future. These projects utilise the following indicators:

- Mortality indicators by region
- Urban-rural place of residence
- Socio-economical status
- Gender.

Other indicators which are essential for monitoring health inequalities (including inequalities in accessibility of health care) might be collected through targeted surveys.

Another success was sustainability of health policy, formulated using national research data. To a large extent this success was assured by representatives of academic community which were participating both in research and policy formulation managing to keep high research profile and having enough power to assure its translation into action.

Failures

The inability to involve all partners of intersectoral cooperation for comprehensive coordinated policy formulation might be considered as a failure. Frequent changes in government (ten in 10 years of independence) has not been conducive to the creation of long-standing committees involving intersectoral partners for more structured developments on the national level. Simultaneously, other major problems in health care reform (development of public health legislative basis and institutional reform, health care management and financing, pharmaceutical sector, etc.) are considered of higher priority for the current policy makers in Parliament and the Government.

7. Recommendations and conclusions

Attempts should be made to introduce health inequality issues into election programs of the major political parties, and aim at receiving their joint agreement on longstanding and continuous dialogue, irrespective of elections and changes in government.

In order to reduce the research-policy formulation-action gap, the academic community should increase its efforts to advertise research results, participate further in policy formulation, and be willing to constantly evaluate its implementation.

8. References

- Bankauskaite V (1999) Health inequities and their causes within two administrative regions [PhD Dissertation]. Kaunas University of Medicine (Kaunas), pp 138.
- Grabauskas V (2000) Health Research Profile Lithuania (case study). In: Copenhagen: WHO, 2000: 10.
- Kalediene R (2000) Demographic, social and territorial inequalities in health of Lithuanian population [Habilitation Thesis]. Kaunas University of Medicine (Kaunas), pp 82.
- Ministry of Health (1998) Lithuanian Health Program 1997-2010. Vilnius: Ministry of Health, Lithuania, 1998.
- National Board of Health (1998) Annual Report (In Lithuanian). Vilnius: Mediku ziniu leidykla.
- UNDP (1997) *Human Development Report 1997*. United Nations Development Programme, Geneva.
- WHO, the National Board of Health of Lithuania, and Kaunas University of Medicine (1998) *Equity in health and health care in Lithuania. A situation analysis*, Copenhagen: WHO.

Chapter Five

Research to Action and Policy: Combating Vitamin A Deficiencies in South Africa

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1. Introduction

Severe vitamin A deficiency has long been recognised as a leading cause of childhood blindness (WHO, 1976). There is also an extensive body of evidence that attests to the strong association between marginal vitamin A status and poor growth, an increase in the incidence and severity of infections, and excessive childhood mortality (Sommer A 1983, Fawzi W 1993, Glazio P 1993). In South Africa, there is a significant incidence of marginal vitamin A deficiency. This chapter presents the results of a case study which illustrates the extent of the problem, and the potential for intervention at different levels of health policy.

2. Methods

Recognising that good nutrition is a human right, and that nutrition is also an important mediator for promotion of human development, the framework adopted for this study locates integrated health and nutrition policy in the context of social development and human rights. Within this framework, policy actions are defined for different levels of intervention, including:

- Population-oriented promotion and prevention
- Management of sick children
- Delivery of health and nutrition services
- Health system
- Social and economic development
- Promotion and protection of human (including child) rights.

The overall aim of the study was to explore the potential for reducing the schism between research and policy by examining the gap between research and policy action at every level of the integrated policy framework as described above. Specific objectives of the study were to:

1. Describe the context in which vitamin A interventions and policies are being developed
2. Review national research on vitamin A interventions
3. Analyse vitamin A related policies
4. Assess the extent to which policy has been influenced by research-generated evidence
5. Generate a list of unresolved issues which require further investigation
6. Make recommendations for the improvement of the research-policy-action linkage.

Vitamin A research conducted in South Africa during the period 1985 – 1999 was identified by conducting a “Medline” search, reviewing bibliographies of research publications, contacting universities (departments of paediatrics, dietetics, community health, infectious diseases), research institutions, the South African Vitamin A Consultancy Group (SAVACG) and Schools of Public Health. Research identified was critically appraised and where necessary, researchers were contacted to provide further information.

Relevant nutrition policies were obtained from the national and provincial departments of health. Policies were reviewed focusing mainly on the process followed in developing the policy, factors that influenced policy development and the use of research in policy development.

Semi-structured key informant interviews were conducted with relevant role-players. The interviews focused mainly on the role of the organisation/individual with regard to vitamin A research and policy in SA, strategies used by the organisation/individuals, barriers to research-policy-action and mechanisms for improving the research-policy-action connection.

3. The research-policy context

Health under apartheid

In 1948, South Africa’s National Party passed legislation to entrench the apartheid ideology. This resulted in a set of laws and policies that systematically discriminated against those who were black, while entrenching social and economic advantage for those who were white. The key characteristics of this era were **fragmentation** and **inequity**, which were manifest in all aspects of the political and economic infrastructure, and for all sectors.

In the health sector, the consequences of apartheid policies were pervasive, resulting in an unwieldy management structure with different health departments, defined by “race” or population groups. Under these circumstances, management was chaotic, and health services were grossly inequitable.

From 1969, the major health research institute in the country was the government-funded Medical Research Council. Although the MRC had largely focused on laboratory and clinical research, from the early 80’s attention began to be directed towards public health research, and later a special program for health systems research was initiated (MRC, 1999). In 1992, at a time when a new political order was being negotiated, the National Trust for Health Systems Research and Development was established. Supported by government, as well as a number of international donors, one of its major aims is to develop capacity in health systems research, planning, development and evaluation. These two foci for health systems research, created in the final years of the apartheid order, have provided a site of interest in this area of research, and have promoted researcher efforts to link research to health service policy and action.

During the apartheid period the nutritional status of children was only documented in occasional surveys. Available data however does show the stark difference in nutritional status between the different population groups (e.g. the proportion of children with wasting according to the different population groups: White children 6.6%, Coloured 16.8%, Asian 11.4% and African 25.5%) (H Vorster, 1997).

Health sector transformation under the new government (1994-1999)

In 1994 South Africa held its first democratic elections. The new democracy gave way to a constitution in which respect for human rights was entrenched (SA Constitution, 1996), and to the adoption of a social and economic development plan aimed at redressing inequity.

Reconstructing development

In the restructuring of social and economic development, the health sector was given special attention, and nutrition was identified as a focus. Noting that meeting basic needs is a priority for the development of the nation, the reconstruction and development plan (RDP) makes a commitment to ensuring that every person gets their daily nutritional requirement (ANC, 1994).

To give effect to these commitments, the RDP commissioned a situation analysis of children in South Africa (RDP office, 1996). The research team identified the “virtual elimination of vitamin A deficiency by 2000” ([That] at least 80% of all children under 24 months of age in areas with vitamin A deficiency receive adequate vitamin A), as an important indicator in monitoring progress toward the goals for children. This very explicit goal from the RDP was laudable, but clearly not attainable within the time period of three years.

Restructuring the health sector

The intentions of the RDP were further elaborated on in the government’s White Paper for transformation of the health system (DOH, 1997). As part of South Africa’s commitment to the primary health care (PHC) philosophy,⁵ focus is placed on decentralisation and delivery through the district health system with consultation and participation by communities. An integrated package of essential services is made available to the entire population. A newly published set of norms of standards for the South African primary health care package (DOH, 2000) lists elimination of micro-nutrient deficiency disorders as a norm in the provision of services for integrated management of childhood illness. However, there are no complementary standards (such as drugs, skills, references and educational materials), and this offers an opportunity to research, implement and evaluate a package of essential nutrition interventions, including micro-nutrients.

The policy process in the new South Africa

South Africa’s new Constitution makes provision for 3 spheres of governance - national, provincial and local – each of which has legislative power and discrete responsibilities. In the health sector’s transformation plan, three levels of policy responsibility are identified: the *national* department provides leadership in the formulation of national health policy and legislation; the *provincial* health department promotes and monitors the health of the people in the province, while developing and supporting an effective provincial health system; and the *district* health system plans and manages all local health services for a defined population.

5 As enunciated in the Declaration of Alma Ata (1979)

4. Policies related to vitamin A interventions

Process of nutrition policy development

Prior to 1994 nutrition policies and programs were fragmented and failed to address the basic and underlying causes of malnutrition. Recognising that addressing malnutrition is a priority for human development, one of the Minister of Health's earliest appointments in the first days of South Africa's new democracy was that of a Nutrition Committee, charged in 1994, with the responsibility of developing an integrated nutrition strategy for the country (DOH, 1998). This strategy was adopted in the Department of Health's White Paper on the transformation of the health system in SA, and provides a framework for implementing the various policy components.

The integrated nutrition strategy was translated into the integrated nutrition program (INP) (DOH, 1998) for SA. Its aim is the improvement of the nutritional status of all South Africans, and one of its focus areas is micronutrient deficiencies.

Key issues that contributed to vitamin A being put on the agenda

In South Africa, there had been concern about the impact of vitamin A deficiency on child health for some years (Hussey G 1992a, 1992b, Labadarios D, 1994). However, prior to 1994, the health department under the former government had no existing policy on vitamin A. The South African Vitamin A Consultative Group was established in 1993 with the aim of assessing vitamin A deficiency in SA. In 1994 the SAVACG conducted the first ever national survey and documented the vitamin A status in children aged 6 – 72 months (SAVACG 1996). The survey was funded primarily by the DOH and UNICEF.

The survey found that 33% of young children had a vitamin A deficiency (VAD) (determined by serum vitamin A levels of < 20ug/dl). According to international criteria this study identifies SA as having a **serious** public health problem of vitamin A deficiency. The prevalence of vitamin A deficiency ranged from 18% in the Northern Cape to 43% in the Northern Province. The study found that children living in rural areas and whose mothers were poorly educated were more susceptible to marginal vitamin A deficiency.

Initiation of vitamin A policies

In 1997, the country's first national vitamin A policy (DOH Nutrition Directorate, 1997) was developed by the National Nutrition Directorate in the national Department of Health (Box 1). This was done in consultation with academic and research institutions, and UNICEF. The draft vitamin A supplementation policy was recently submitted to the new Minister of Health and was endorsed in July 2000.

Box 1: The national vitamin A policy

Aim

The aim of the policy is to prevent vitamin A deficiency (VAD) in the most vulnerable groups by supplementation with high dose vitamin A supplements.

Options

Other options mentioned include food fortification, food diversification and promotion of breast-feeding.

Target groups

The policy targets:

- mothers in the post-partum period
- all infants aged 9 months – 2 years
- high-risk infants and children i.e those with measles, severe protein energy malnutrition, diarrhea, respiratory disease and chicken pox.

Delivery route

For mothers: vitamin A is to be given at or within 4 weeks of delivery by the obstetric units.

Children aged 6 months to 5 years: at the time of contact with the primary health care services – according to a schedule.

Children at high-risk: at time of contact with the health service.

Monitoring and evaluation

Administration of high dose vitamin A supplements is to be recorded on the road-to-health chart and/or on the mother's delivery card.

Time period

To be introduced as an interim measure for a period of 3 years.

During this 3 year period other, more long term measures will be investigated.

At a provincial level however, there was general dissatisfaction with the supplementation policy remaining at draft status for such a length of time and most provinces, in the interim, either drafted or were in the process of drafting their own provincial supplementation policies. The provinces have encountered a number of challenges in attempting to implement the policy, including:

- Problems in acquiring the 100 000 IU capsule. The Northern Province pilot project is currently piercing a 200 000 IU capsule and giving half of the contents to children who require only 100 000 IU of vitamin A supplement
- The 100 000 IU capsule was not registered with the Medicines Control Council
- Many of the vitamin industries have been reluctant to apply for registration because of the cost implications and the uncertainty of a guaranteed market

- Problems experienced in terms of acquiring the 200 000 IU capsule. The company supplying the 200 000 IU capsule insisted on a minimum order of 1 million capsules. However the capsules supplied expired within 6 months of the policy being implemented, resulting in major wastage
- Supplementation was meant to be recorded on the road-to-health card, however there was initially no provision for this made on the card.

Food fortification policy: The role of research

Although there is currently no written food fortification policy, the Department of Health signaled its intention to formulate a policy by appointing a food fortification task team consisting of representatives from the food industry, research institutions, academic units, professional societies and other departments in 1997. In terms of food fortification there are several opportunities for research to accelerate implementation of the food fortification policy.

Policies governing clinical management of sick children

On the basis of extensive evidence of the extent to which vitamin A ameliorates the severity of manifestations of infections, in general, there are widespread recommendations for clinical practice guidelines for the management of children with respiratory infections to include therapeutic doses of vitamin A.

Thus the policies which govern the management of micro-nutrient deficiency have been broadly based on research evidence, but there is much research that needs to be undertaken to ensure their successful implementation, and to assess the impact of such interventions on the overall status of micro-nutrient deficiency and its sequelae.

5. Vitamin A-related research, 1985 - 1999

For the period under review, a total of 40 local studies were identified. Research reports or publications were available for 25 of these, abstracts for only 8 studies, and for 7 of the studies no written report or abstract was available. The 7 studies not reviewed were either being written up; submitted for publication, or were not available. An attempt was made to organise the studies *within the policy analysis framework adopted for the review* according to the following principles:

- Studies that establish vitamin A status as a basis for development of national policy
- Studies that focus on preventive and promotive strategies
- Studies that focus on vitamin A in the management of sick children
- Studies that focus on vitamin A as a component of the national nutrition program.

An analysis of the research showed that research questions were largely formulated on the basis of the researcher's experience, on hypotheses, or on findings in published literature. Research outputs were disseminated mainly through peer-reviewed publications. The type of research outputs, methods used to disseminate findings suggest that the majority of researchers see fellow researchers and clinicians as their primary target audience. Although most studies did include recommendations for action, only 4 of the studies provided information on how the recommendations could be implemented. Interestingly, these were the 4 studies in which decision-makers were actively involved in the research.

6. Other role-players

Industry

The vitamin A industry played an important facilitatory and funding role in the establishment of the SAVACG, which led to the first national vitamin A survey being conducted. One industry, Roche Pharmaceuticals, has a Vitamin Information Center and is actively involved in the dissemination of vitamin A research results. Support to researchers and research institutions is usually in the form of provision of vitamin A pre-mix, access to the industry laboratory and technology. The industry does attend and participate in conferences, professional meetings and in policy discussions.

The milling industry has expressed their commitment and support to the fortification program. However they are also concerned about the DOH's capacity to enforce a food fortification policy.

International agencies

Since 1994 there has been an increased international agency activity in South Africa.

UNICEF is one international agency that has played an important role in terms of vitamin A policy and research in South Africa (UNICEF, 1998). One of UNICEF's priority areas is the improvement of the micronutrient status of South African children. To this end UNICEF has worked closely with the DOH and other role-players in South Africa. Key strategies used by UNICEF include:

- *Support of consensus building activities*
- *Technical assistance*
- *Research support*
- *Exposure to international best practice.*

All of the above strategies have included the principle of building local capacity.

7. Conclusions and recommendations

The extent to which research influences policy

Research issues

The main constraints facing researchers include:

- **Time:** There is limited time and resources available to follow up on research recommendations
- **Performance appraisal:** The main criterion used in performance appraisal is research output in terms of publications. Only recently have some academic and research institutions incorporated other criteria into performance appraisal
- **Tendering system:** Researchers felt that the cheapest is often viewed as the best option
- **The Department of Health is viewed as having a poor infrastructure for quick response in terms of research support**

- System of submitting claim forms and then being re-imbursed for project activities is cumbersome, slow and can result in increased expenses for research institutions
- The Department of State Expenditure operates slowly and this can immobilize the research process
- The auditing process can be cumbersome
- Decision-makers appear to be afraid to be seen to be doing anything incorrect and subsequently spend an unnecessarily long time adhering to the administrative and bureaucratic processes.

Researchers also expressed disappointment and disillusionment regarding the fact that the vitamin A supplementation policy, drafted in 1997, had only been endorsed in 2000.

Other issues identified as impacting on the research-policy connection include:

- Research is just one factor in policy development. Often other factors have a stronger influence on action e.g. public demand
- Political pressure – decision-makers often have little time to pause to consider research results
- Hostile policy environment in which public demands for particular services are great and in which decision-makers face severe budgetary constraints.

Opportunities for dialogue between researchers and policy makers

The DOH has recently established a Nutrition Research Forum in an attempt to create a meeting place for researchers and policy makers in the nutrition field. Researchers also expressed the need for a forum in which research issues facing all researchers (not just nutrition researchers) could be discussed.

Policy-makers/decision-makers

Decision-makers commented that their involvement in research activities is a relatively new experience. The main constraints experienced by decision-makers include:

- A lack of understanding, by researchers and others, of the health systems and of policy process
- Research recommendations that are often unrealistic, include too few options, a long “shopping list” of recommendations that appears to further the interests of researchers, costs of recommendations seldom considered
- Research reports often look good but are difficult to read
- High staff turnover and change in staff positions impacts on planning and management of all programs
- Provincial decision-makers have been constrained because of the absence of a final national vitamin A supplementation policy.

The decision-makers themselves accepted that the DOH is a bureaucratic organisation, but the bureaucracy is seen as being necessary to protect both its managers, and against errors.

The DOH has recognised that it needs to identify its own research priorities and is in the process of addressing this.

Research to policy and action in an emerging democracy

The case-study presented in this chapter illustrates some of the unique features of an emerging democracy that impact upon the research-policy-action linkage.

In South Africa, the new Government placed great emphasis on consultation, transparency, and civil involvement in policy development. The development of the vitamin A related policies clearly followed a much more consultative process than previously. The opening of the Parliamentary Portfolio Committee to the public allows greater public involvement in decision making. However, lack of prior experience with the policy making process tends to result in less interaction or involvement in policy development. In order to increase the uptake of research results researchers need to be aware of and become skilled in interacting with the policy making process.

Staff movement into and within the health system has important training implications. It also means that research results may need to be presented more than once to a particular unit or department.

Newly elected governments are under pressure to perform. Research that demonstrates visible public benefit is thus more likely to be taken up. To increase research uptake by policy-makers however there also needs to be research capacity in terms of:

- Synthesising research results and presenting them in user friendly formats to policy makers.
- Ability to respond rapidly to concerns raised by key role players about particular policy issues.

In a period of radical government change as has been experienced in South Africa it is critical that managers are skilled in change management. Researchers and civil servants also need to be made more aware of the complexity of the change process.

The SA government has committed itself to major health reforms. The extent to which these reforms are successful, the context, and the factors that constrain and facilitate the reform process need to be documented, monitored and evaluated. Public health academics, researchers and independent NGOs are in a position to perform this function and to increase public awareness on the extent to which the government has been successful in bringing about change in the health sector.

Utilisation of research findings cannot be seen in isolation. Action is dependent of many other factors. In the South African context these include:

- Other reform processes such as the establishment of districts and the orientation towards primary health care
- The macro-economic policy – Growth, Employment and Reconstruction (GEAR), adopted by the new government. In terms of this policy the government is seeking to cut the budget deficit, whilst at the same time not increasing the tax burden. This has resulted in serious resource constraints in the health sector

- The formation of a single health ministry has resulted in redeployed health staff often feeling “demoted”
- Staff hostility toward the new heads of sections and divisions
- Limited experience in terms of policy research, policy analysis and management
- Lack of skilled public health and primary health care professionals
- Exodus of expertise both to the private sector and to other countries
- The public outcry against cuts in tertiary services
- Public expectation of the new government to make visible deliveries.

The first five years of the new democracy have been spent on the process of policy development. South Africa is now entering the stage of policy implementation and action. The challenge is for researchers, decision-makers, health service providers and other relevant role-players to support each other in moving from policy to action in the next few years.

Improving the research-policy-action linkage

The following recommendations are made with regard to improving the research-policy-action linkage.

1. Increasing opportunities for dialogue between policy and researchers by the:
 - Establishment of research-policy forums
 - Inclusion of policy-makers on research advisory boards
 - Inclusion of researchers in policy forming task groups
 - Inclusion of decision makers in the research process
2. Establishment of a research forum where issues facing researchers can be discussed e.g. performance appraisal, collaborative research.
3. Establishment of research advocacy bodies to promote uptake of research.
4. Addressing capacity development with regard to:
 - Policy research
 - Policy process
 - Research synthesis
 - Systematic reviews
 - Health systems research
 - Economic research
 - Research communication
 - Understanding and utilising research

- Understanding the political context
 - Policy communication.
5. Researchers need to improve attention toward formulation of recommendations. Recommendations need to be practical, feasible, and considerate of costs, skills and resources needed for their implementation. Inclusion of decision-makers in the research process could facilitate the formulation of useful recommendations.
 6. Improving research administrative support within the DOH.
 7. Increased incentives to undertake health systems, economic and policy research, promotion of research results, monitoring of the research-policy-action process, research communication strategies. This could be done through increased funding opportunities and greater chance of publication in peer-reviewed journals.
 8. Funding agencies requiring that proposals:
 - Demonstrate interaction with decision makers
 - Indicate target audiences for research results
 - Include a range of dissemination strategies.

Issues requiring further research

- Vitamin A deficiency among school children
- Reasons for vitamin A deficiency in areas with vitamin rich crops/foods
- Measurement of vitamin A in individuals
- Economic studies e.g. cost to supplement the “unreachable” cost effectiveness of fortification options
- Concerns of the fortification industry with regard to market trends, costs and illegal products
- Development of a monitoring framework for food fortification
- Issues relating to fortification legislation
- Implementation – barriers and facilitating factors
- The research-policy environment – barriers and facilitating factors
- Monitoring and evaluation of the extent to which nutrition commitments are being kept.

8. References

- African National Congress (1994) The reconstruction and development programme. A policy framework, Johannesburg.
- Constitution of the Republic of South Africa, 1996.
- Department of Health (1997) White Paper for the Transformation of the Health System in South Africa, Notice 667 of 1997.
- Department of Health, Nutrition Directorate (1997) Vitamin A supplementation. Draft policy document, Pretoria.
- Department of Health (1998) Integrated nutrition programme for South Africa. Broad guidelines for implementation, Pretoria.
- Department of Health (2000) National Norms and Standards for Primary Health Care. Pretoria.
- Fawzi WW, Chalmers TC, Herrera G, Mosteller F (1993) Vitamin A supplementation and child mortality. *JAMA*, 269: 8898-903.
- Glazio PP, Mackerras DEM (1993) Vitamin A supplementation in infectious disease: a meta-analysis. *BMJ*, 306: 366-370.
- Hussey GD (1992a) Public health significance of vitamin A deficiency and its control: Bellagio conference. *S Afr Med J*, 82: 135-136.
- Hussey G, Labadarios D (1992b) Vitamin A – beyond vision. *CME*, 10 (8): 1383-1392.
- Labadarios D (1994) Vitamin A - time for action. *South Afr Med J*, 84: editorial.
- MRC (1999) *Annual report 1998/1999: Health impact and transformation*, Medical Research Council, Cape Town.
- RDP office (1996) “Children, Poverty and Disparity Reduction”, Report commissioned by the RDP Office.
- Sommer A, Tarwarjo I, Hussaini G, Susanto D (1983) Increased mortality in children with vitamin A deficiency. *Lancet*, 2: 585-588.
- South African vitamin A Consultative Group (1996) Anthropometric, vitamin A, iron and immunisation coverage status in children aged 6-71 months in South Africa, 1994. *S Afr Med J*, 86: 354-357.
- Vorster H, Oosthuizen W, Jerling JC, Veldman FJ, Burger HM (1997) The nutritional status of South Africans. A review of the literature from 1975-1996. Health Systems Trust. Durban.
- WHO (1976) Vitamin A deficiency and xerophthalmia. WHO Tech Rep, 590: 1-88.

9. Other reading

- Hunter D and Pollit C (1992) Developments in health services research: perspectives from Britain and the United States. *Journal of Public Medicine*, 14(2): 164-1689.
- Rogers BL (1999) Public nutrition: research and training needs to advance the field. *Food and nutrition bulletin*, 20(3): 331-338.
- Health Systems Trust (1996) South African Health Review 1996, HST: Durban.
- Health Systems Trust (1997) South African Health Review 1997, HST: Durban.
- Health Systems Trust (1998) South African Health Review 1998, HST: Durban.
- Health Systems Trust (1999). South African Health Review 1999, HST: Durban.
- UNICEF (1990) First call for children. World declaration and plan of action from the World Summit for Children. Convention of the rights of the child. New York.
- Walt G (1994) *Health policy: an introduction to process and power*. London: Zed books.
- Walt G (1994) How far does research influence policy? *European Journal of public health*, 4: 233-235.
- Weiss CH (1991) Improving the linkage between social science and public policy. In: *Knowledge and policy: the uncertain connection*. Edited by Wagner P et al. pp 307-332. Cambridge University Press, Cambridge.

Chapter Six

Chagas Disease and Foot and Mouth Disease Eradication In Uruguay

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1. Background

With a population of 3 million, Uruguay is ranked number 32 in the world, according to the United Nations social development index (UN/UNDP, 1997). The index also indicates that the country has a 4.5 to 1 relationship between the income of the richest and poorest 20% of the population, and an illiteracy rate of 2.3% (PAHO, 1997). The population has almost completed the demographic and epidemiological transition (Omran, 1971), and is ageing quickly. In 1963, 8% of the population was above 64 years of age. By 1985, that figure had reached 15.7%. The two main causes of death are cardiovascular diseases (38.7%) and tumors (22.7%). General mortality has decreased constantly since 1910, although further rapid descent is not expected owing to the older population. Infant mortality fell from 11.07% in 1910 to the present 1.75%. This figure is mainly due to perinatal mortality, with a rate of 15.9 perinatal deaths per thousand live births. Socio-economic differences are evident in this indicator with public services reporting a 1.95% infant mortality rate, while the private sector reports only a 1.04% rate.

The country's economy is based on agricultural production. In spite of this, historically, there has been a major divide between the capital city, where half the population live, and the countryside, the generator of wealth, but also the place where living conditions and health indicators are the worst.

At a time when much is being said and written about a "new contract" between science and society (Gibbons, 1999) and the need to inject research findings into the policy process, it is important to look at how scientific knowledge has long tried to make its way to public knowledge and policymaking processes. The generation of scientific knowledge is a cumulative process – the sum of numerous contributions, their acceptance through a variety of processes and the interplay of researchers, informed users of research findings, and decision-makers. This chapter looks at the history of Uruguay's research activities related to Chagas disease and Foot and Mouth disease – two diseases that particularly affect the rural areas. The former afflicts the rural poor, while the latter affects the financial well-being of cattle ranch owners – traditionally a well-off sector of society – by seriously hindering the international beef trade.

These socio-economic facts proved to be of significant importance in the long-term policymaking processes that led to the control of both diseases. So too did the evolution of national scientific policy. The approach of both society and the State to science, and consequently, levels of research funding, have had their ups and downs through the century. In general terms, scientific knowledge flourished during times of economic well-being (from the beginning of the century to the 1950's), democratic government, and a predominance of

positivistic thought in the ruling classes. The darkest times, on the other hand, were during the military dictatorship (1973-1984), when the scientific structure was dismantled and the State alienated itself from its citizens. With the restoration of democracy, new funding was allocated to science, particularly basic sciences, many researchers returned from exile, and segments of the population whose health needs and concerns had formerly been ignored, finally received attention.

2. Methodology

Much of the information provided in this chapter is derived from an analysis of the authors' own experiences - two of whom were jointly responsible for the Chagas and Foot and Mouth disease control programs in Uruguay. In addition, a careful literature review was conducted, paying special attention to grey literature as well as the content of scientific journals and books. The group met on several occasions to agree on a common analytical framework and discuss draft reports as they were written. A special effort was made to identify different historical stages in the policymaking and research processes. An in-depth paper was written on each disease, which became the basis of the present summary and comparison.

3. Chagas Disease control

Four historical periods were identified with respect to research and policy around Chagas disease in Uruguay.

The pioneering phase (1923 to 1950)

Highlights of this period include:

- The generation of original knowledge contributing to the reconsideration of Chagas disease as a separate disease entity.
- The study of a health problem of the rural sector at a time when it reached its peak as a sanitary problem in the country.
- The importance given by Prof. Rodolfo Talice to research in his Department of Parasitology at the Universidad de la República.
- The existence of a well established network of clinicians in at least 12 of the 13 endemic districts.
- The subject's high public profile, as evidenced by newspaper articles in "El Día" in 1944, competing in importance with World War news.

Carlos Chagas first described *Trypanosoma cruzi* in 1909 (Chagas, 1909). In Uruguay, the newly-formed Chair and Department of Parasitology in the Medical School, began searching for the Chagas disease vector. The first evidence of the presence of *Trypanosoma cruzi* in Uruguay was published in 1923 (Gaminara, 1923). Dr. Rodolfo Talice furthered national knowledge on the subject, with clinical evidence of the disease and an exact description of its epidemiology. In 1940, along with Costa, Rial and Ossimani, he published what was to become a classic monograph (Talice et al., 1940) encompassing clinical, epidemiological, parasitologic and prophylactic aspects of the disease. This monograph, and the works of the Argentine researcher Mazza, allowed for a re-evaluation of the disease entity (Mazza, 1926; Errecart, 1945). Guerreiro and Machado in Brazil (Guerreiro & Machado, 1913) developed

the technique for complement fixation. Uruguayan researchers worked along this line from 1940 to 1950.

The core research group was based at the Parasitology Department of the Medical School at the Universidad de la República, in Montevideo, but extended to include a large network of clinicians in the endemic areas. The team in the Parasitology Department never exceeded more than ten people, working as full-time researchers/professors in a supportive research environment.

The early control phase (1950 to 1972)

Research production in this period was of less academic importance than in the previous period, although some contributions were useful for disease control in the rural areas. The most relevant paper of the time was Osimani, Verissimo & Baycee Carbonell's report on disease profilaxis with Gamexane, published in 1950 (Talice et al., 1952; Osimani, 1959). The technique had been previously described by Dias and Pellegrino (Dias et al., 1948). Although the Gamexane spraying experience was successful, it was not repeated until 1972, and only then at a limited number of sites.

Research was also conducted on the disease's clinical manifestations, such as chagasic cardiopathy, megacolon, and pathology. Operational research in this period was the basis for future control of Triatomineae in the country, validating research previously carried out in Brazil and Argentina, but under local conditions. Many of the researchers involved later became members of the control program.

The Parasitology Department was still the main research center in the field, but with a smaller number of members. Working conditions deteriorated as funding decreased, and by the end of this period, full-time positions had all but disappeared. The strong relationship with clinicians from endemic areas also dissolved, and given the economic deterioration and growing social unrest at the time, the disease also failed to attract political attention.

Implementation of the control program and the military dictatorship (1972 to 1983)

Uruguayan science suffered heavily under the military dictatorship from 1973 until 1984, - Chagas research included. The military government imprisoned or exiled numerous scientists, and the university budget was drastically reduced. As this was a time of rapid advances in biomedical and basic science all over the world, a large gap in knowledge was created which has not been fully reversed to this day.

In 1972, just prior to the coup d'état, a series of circumstances triggered the implementation of a control program in the Hygiene Division of the Ministry of Health:

- By 1958, *Aedes aegypti* had been effectively eradicated from Uruguay, leaving a vertical structure with experience in vector control and very few tasks to perform
- Solon Verissimo, the author of the first antitriatomineae fumigation in the country, and the person who had been in charge of other later focal treatments, returned to Uruguay after working abroad with PAHO for several years
- The success achieved in controlling other pathologies (rabies, TB, immunopreventable diseases) through sanitary campaigns and/or programs made it easier to obtain resources for new eradication programs

- A similar program in Argentina had been operating for over 12 years
- The presence of members of the Parasitology Department in key political positions within the Ministry of Health.

The program was created by a resolution in 1972. It was conceived as an intersectoral effort, since it included contributions from the Ministry of Health, the Pan American Health Organisation, the university through its Parasitology Department and local governments. It functioned as planned during 1972 in Artigas, the area of greatest endemicity. Two events changed this in 1973: the death of Dr. S. Verissimo and the coup d'état that subverted all health priorities and removed many national and local authorities. There followed ten years of extremely poor program performance in five out of the 13 endemic areas, including numerous technical errors. By 1982, the economic model sustained by the military regime collapsed, leading to unprecedented budget restrictions, and a consequent decrease in resources for research and health care.

Control phase (1983 to 1997)

In this phase, knowledge was generated by a new generation of researchers who had to fill the vacuum left by the dictatorship. Available resources in terms of equipment, materials, and funds were minimal. Research was mainly applied and operational, in epidemiology of vectoral transmission and eco-biology. There was strong interaction among members of the National Program for the Control of Chagas Disease and the Parasitology Department in the Medical School, as well as with research units in other university schools. Some of these new actors included the Entomology, Genetics and Parasitic Biology Departments of the School of Sciences, the Biochemistry Department in the Medical School, and the Quantic Chemistry Department in the School of Chemistry (all of them in the Universidad de la República). PAHO published numerous articles with original data from Uruguay. A special issue of the Uruguayan Medical Journal, dedicated to Chagas disease, was particularly relevant.

In 1983, the direction of the control program changed, and the agreement between the Ministry of Health and the Medical School came to an end. The former began carrying out its own laboratory work in the Parasitology Department of its renewed Public Health Laboratories. Different training activities were carried out with health personnel in endemic areas, and there was support from the Human Health Regional Program (Programa de Salud Humana, 1982) fostered by the Interamerican Development Bank (IDB) and the Universidad del Salvador in Argentina.

The main achievements during this time were:

- Renewed dissemination of information on the health problem among clinicians in the endemic area
- Sensitisation of authorities which led to Decree N° 193/85, mandating serological screening for Chagas in every blood donor throughout the country
- Setting up of laboratory capacity sufficient to support a program of seroepidemiologic surveys aimed at a situation diagnosis and serial assessment of the control measures.

In 1985, the National Seroprevalence Survey was carried out, supported by WHO's Special Programme in Research and Tropical Diseases, the World Bank, UNDP, and PAHO (Salvatella et al., 1989). Its results constituted the baseline for future follow-up surveys.

In 1985 and 1991, *Triatoma infestans* was eradicated in Artigas and Soriano (Salvatella, 1991). In 1991, the program, included among the priority health programs of the second democratic government, was relaunched. Positive circumstances surrounding the program's implementation were:

- A change in local PAHO policies, which opened the way for greater external cooperation
- The fact that the Minister of Health belonged to a party whose constituency was mainly based in rural areas
- The participation of one of the main researchers in the field in writing the health program for that same party, and his presence as head of the program at the Ministry of Health
- The Intergovernmental Initiative for the Southern Cone for the Elimination of *Triatoma infestans* and the Interruption of Transfusional Transmission of American Trypanosomiasis, launched in the III Meeting of Southern Cone Health Ministers, which took place in Brasilia in August 1991. This united the Chagas programs of Argentina, Bolivia, Brazil, Chile, Paraguay and Uruguay
- The renewed participation of Uruguay in the international research arena based on a greater number of publications and two large international meetings on Chagas Disease
- The submission of a Law Project in the House of Representatives (Annex 3), intended to create a decentralised organisation for the Chagas program by allocating autonomous funds to it. It was thought to be a tool for the complete eradication of the disease in the country. Although not passed in the end, it focused the country's attention on the subject.

By the early and mid 1990's, Uruguay reported (MSP, 1994) that the disease had been eradicated in Cerro Largo (1992), Rio Negro (1994), Paysandu (1995), Salto (1996) and Florida (1996). In the other areas, domiciliary infestation indexes reached minimal values, with the vector eliminated in large sections of Rivera, Tacuarembó, Durazno, Colonia and San José.

The program was subject to several international assessments. There have been three so far. In 1994, the Chagas program carried out a serological survey (Salvatella, 1999). Results showed that there was no more active transmission. Later partial surveys also showed results compatible with the descent or elimination of *Triatoma infestans* and an effective arrest of transmission. Based on these results, the II and III International Assessments of the Control Program (PAHO, 1997; PAHO, 1998) concluded Uruguay to have achieved the interruption of transmission of *T. cruzi*, both vectoral and transfusional.

Uruguay was the first country to reach this goal. The program director during the period 1983-1994 received the WHO/Arab Emirates Award for this reason during the 50th World Health Assembly in 1997 (WHO, 1997).

4. Foot and Mouth Disease

The history of Foot and Mouth Disease in Uruguay covers a period of 129 years – from the first documented diagnosis in the country by veterinarian, B. Duprat, in Montevideo, on June 8, 1870 (Magallanes, 1997) to the international recognition of the country's status as "Foot and Mouth Disease free with vaccine" in May 1993, and "Foot and Mouth Disease free without vaccine" in May 1996.

Uruguay achieved eradication of Foot and Mouth disease nearly 25 years after launching its control program. In 1961, government declared its willingness to fight the disease in Law 12.938. It was not until 1968, however, when the Foot and Mouth Direction (DILFA) was created in what was then the Department of Livestock and Agriculture, that the first organised actions began.

Before DILFA's creation, 12 000 to 16 000 foci were registered annually, reaching 30 000 in epidemic years (Ministerio de Ganadería , 1966). According to the 1961 General Agrarian Census, there were 86 314 rural estates.

Three historical periods may be identified during this long history: (i) the appearance of the disease in the country to 1966, when the Foot and Mouth Disease Direction was created in the Department of Livestock, (ii) disease control to 1989, and (iii) 1990 to the present time. Research and action have focused on three areas: diagnosis, vaccine production and control, and control and eradication program strategies.

Diagnosis

A pioneer in local research was Dr. Miguel Rubino who, by 1927, had already carried out studies on the viability of virus on beef, transmission mechanisms and prevention, and using bovine blood as the substrate for modified virus to be used in bovines. During the 1943-44 epidemic, government appointed an Honorary Commission which, based on Dr. Rubino's work, suggested the creation of an Institute equipped to carry out diagnosis, research activities, and vaccine production.

Vaccines produced at the time were used in dairy farms with excellent results. This experimental production was the basis for establishing the first commercial laboratories in the 1950's. Production reached 10 to 12 million doses annually by the end of the decade. Commercial vaccine production started in the country in 1956. Cattle farmers started using the vaccine individually (66% of the national bovine stock was estimated to be vaccinated in 1966) (Ministerio de Agricultura, 1978), which led to the development of an official system for the control of Foot and Mouth Disease vaccine by DILFA's lab.

The Veterinary School of the Universidad de la República also played an important role through the Center for Viral Type Determination in Foot and Mouth Disease, in its Department of Infectious Diseases. This center carried out diagnosis on samples sent from the field, using different techniques.

Vaccine production and control

Activities were initially concentrated at the Rubino Institute, until DILFA's offices and laboratories were ready in 1966. It was only then that an actual control plan was set up. At the outset, only four out of 10 laboratories produced vaccine that could be used in the campaign. DILFA's follow up of private labs was critical for the achievement of a good end-product.

Once the availability of enough vaccine of officially-controlled safety and efficacy was ensured, the first massive vaccine campaign was launched in August 1968. By April 1969, the program covered the whole country. These massive immunisation campaigns were preceded by intense health education activities targeted at cattle farmers.

Some of the vaccine production techniques used were replaced during the late 1980's by new techniques developed by PANAFTOSA, (Pan American Health Organisation regional

center against Foot and Mouth Disease). Field tests were carried out from 1972 to 1975 in Bage, Brasil. In 1977, the Uruguayan Department of Livestock, Agriculture and Fisheries signed an agreement with PANAFTOSA to test the performance of the oil-based vaccine made by the Pan-American Center, in a milk producing area with high disease incidence.

Ten years later, an assessment showed that protection had been excellent. The oil-based vaccine showed no side-effects in terms of milk production and very few allergies. From 1977 onward, PANAFTOSA developed the technology for industrial production of oil-based vaccine for bovines and pigs and made it available for the countries.

Control and eradication program strategies

From the onset of the campaign, participation by farmers was considered crucial. The strategy for eliciting their participation was based on the creation of neighbour or local committees. By the end of the 1960's and early 1970's, the number of committees reached 300 for the approximately 77,000 cattle farmers identified by the 1966 General Agricultural Census

During the 1980's, participation fell off due to migration to urban areas, leaving only 50,000 farmers. Private participation was reorganised through the Honorary National Commission of Animal Health (CONHASA). Participation also decreased as people refused to participate in government-sponsored activities during the military regimen.

Applied research was carried out at DILFA, which had both the necessary laboratories and field services, plus the support of its epidemiology and statistics experts. This research was focused on the following areas:

- Epidemiological characteristics of different regions in the country
- Virus variants
- Immune studies with challenge tests using strains from the field
- Post-vaccine allergies
- Immune block due to the simultaneous provision of parenteral antiparasitic drugs and the vaccine.

Based on this research, the first epidemiological characterisation of the regions was made in 1978, providing guidelines for the modification of the campaign strategies.

In the mid 1970's, PANAFTOSA developed the Ecosystems Theory in Foot and Mouth disease, based on the prevailing production and socio-economic conditions. This epidemiological knowledge permitted the design of more appropriate strategies for eradication in those areas where the disease had the greatest impact. It also influenced the design of the River Plate Basin project, by recognising that an important region of Argentina, Brazil, and Uruguay formed a single primary endemic area.

In 1985, a project by Drs. Figares, Dias and Muzio laid the foundation for Law 16082. In 1990, with the new law in place, Uruguay obtained funding for the eradication project from the Interamerican Development Bank (IDB).

An important element for the consolidation of the country as a Foot and Mouth disease-free zone, was the sero-epidemiological national survey carried out in 1992. The survey population included all cattle and sheep in the country. Samples were processed in the national public laboratory, and positive samples were reprocessed in PANAFTOSA.

In October 1989, with the cooperation of PANAFTOSA, and in coordination with the River Plate Basin Project, the national strategy was modified to bring it in line with that of the region. This meant changing the immunisation strategy, using the oily adjuvant vaccine for bovines in order to achieve longer immunity, and ensuring high population coverage through direct control by government officials who made their rounds in periods not longer than 45 days. Efforts were concentrated on bovine immunisation, since this was found to be the main disease reservoir.

The last reported episode of disease was in June 1995. In May 1993, Uruguay was recognised by the OIE as a “Foot and Mouth Disease free with vaccine” country. In 1994, the second phase of the control program began, which led to the country achieving the status of “Foot and Mouth Disease free without vaccine” in May 1996.

Starting the second phase meant the complete elimination of virus handling, both in private laboratories and in the public sector. Given the effort industry had made to achieve good quality vaccines that could be exported, this was by no means an easy or consensual decision.

Epidemiological surveillance also increased, with participation of the whole veterinarian system (public services, producers, private veterinarians, and agroindustries). Ten to fifteen suspect cases have been reported annually from 1992 to 1998. Sanitary barriers were set up and when the illegal entry of stock was suspected, serological antibody presence tests were carried out.

An important tool to ensure compliance was the inclusion in Law 16.082 of a fund to compensate producers because of measures adopted to eradicate an outbreak or another exotic disease. This fund was generated by a tax of 0.21% of all exported animal products and by-products. By 1999, the amount accumulated in the fund was considered sufficient enough for the tax to be temporarily suspended.

In 1985, with the return of democracy, a new process started which ended with (sooner than expected) disease eradication. All political parties voted for the approval of Law 16.082 in 1989, in a consensus that has not occurred in other fields, and which remains to this day.

5. Conclusions

Chagas disease and Foot and Mouth disease provide two examples of lengthy, on-going research processes that finally led to successful control programs. Similarities between the two cases include:

- The continuing existence of groups of researchers, which has allowed for the accumulation of knowledge, even when solutions were not yet available, and the creation of a critical mass of scholars to continue the different lines of research
- The varying availability of research funds and infrastructure to support the work of these researchers
- The permanence of both health problems in public opinion over the many years
- The negative impact of totalitarian regimens both on science and program development
- The opposite situation following the overthrow of these regimes
- The contribution of many different disciplines and approaches to the solution of the same problem

- A timely and appropriate use of international cooperation, particularly strong at the sub-regional level.

Differences are also noteworthy:

- In the case of Chagas disease, science preceded action. As the affected population does not have economic or political power, it was necessary for scientists, driven by scientific curiosity, to become active in political parties and within the Ministry of Health and introduce research findings into actual programs
- Foot and Mouth disease, on the other hand, because of the economic importance of cattle, was a government priority and research was always included as part of control plans
- Much of Chagas research was supply-driven, while in the case of Foot and Mouth disease much was demand-driven
- Most Chagas disease research was university based, while government institutions were prominent in Foot and Mouth Disease research – although the University also participated, particularly in basic research
- Financing mechanisms were also different. Whilst Chagas research was subject to severe budget cuts affecting the university for many years, Foot and Mouth disease research enjoyed better and more continuous funding.

In conclusion, there are many different roads leading to the successful use of research. In any case though, it is a long process, requiring continuity and a critical mass of committed scientists who may not see the application of their work in their lifetime. Political will to undertake action is more easily achieved when those affected are among the more affluent or powerful sectors of society. But this is not the only way, and demonstration of the severity of a problem and the possibility of its solution can prompt action. These two cases also demonstrate the fallacy involved in the attempt to separate basic, clinical, or public health research, or to give one priority over the other.

Author's Note – At the time this paper went to press, a new outbreak of foot and mouth disease had affected the Southern cone countries. The degree to which control measures will be effective shall put the program - and its scientific basis - to a renewed test.

6. References

- Chagas C. (1909) "Uber eine trypanosoma". *Arch.Schiffs U.Tropen Hyg.*, 13(4): 120-122.
- Dias E, Pellegrino J. (1948) "Alguns ensaios com o Gammexane no combate aos transmissores da doenca de Chagas". *Brasil med.*, 62 (18/20): 185-191
- Errecart L. (1945) La investigacion de T.cruzi por el metodo de la gota espesa.. *An.Fac.Medicina Montevideo*, 30: 527-532.
- Gaminara A. (1923) "Estudio experimental sobre Schizotripanum cruzi y enfermedad de Chagas en el Uruguay". *An.Fac.Medicina Montevideo*, VIII(3-4): 311-359.
- Gibbons M. (1999) "Science's new social contract with society". *Nature*, Supplement to Volume 402(6761): C81-C85, 2 December.

- Guerreiro C, Machado A. (1913) "Da reação de Bordet e Gengou na molestia de Chagas como elemento diagnostico". Nota previa. *Brasil med.*, 27(2): 225-226.
- Magallanes N., (1993) "Ciento veinte años de Aftosa en Uruguay". *Veterinaria* 120, Abril-Dic.
- Mazza S. (1926) "Caso de squizotripanosis humana observada en la ciudad de Jujuy". *Rev.Soc.Argentina de Biología*, 2:79-87.
- Ministerio de Agricultura y Pesca, Dirección de Lucha contra la Fiebre Aftosa (1978) Análisis de la Epidemiología Descriptiva en Uruguay, Cambio de Estrategia.
- Ministerio de Ganadería y Agricultura (1966) Plan nacional de Desarrollo Económico y Social. OPYPA- CIDE.
- MSP/Prog.de Chagas (1994) Programas Prioritarios. Informe General. MSP, Montevideo.
- Omran A. (1971) *The epidemiologic transition. A theory of the epidemiology of population change*. 49 (4; part 1): 509-538, Milbank Memorial Fund Quarterly
- Osimani,J. (1959) "Enfermedad de Chagas: importante flagelo de las zonas rurales del Uruguay". *Rev.Goiana Medicina*, 5(4): 339-356.
- PAHO (1997) Situación de salud en las Americas. Indicadores Básicos .
- PAHO (1997) II Evaluacion Internacional del Programa de Control de Chagas de Uruguay. Ed.OPS/INCOSUR Chagas, OPS/HCP/HCT/112.97, Montevideo.
- PAHO (1998) III Evaluacion Internacional del Programa de Control de Chagas de Uruguay. Ed.OPS/INCOSUR Chagas, OPS/HCP/HCT/132.98, Montevideo.
- Programa de Salud Humana. (1982) *Normas de tratamiento de la enfermedad de Chagas*. Ed.Prog.de Salud Humana/BID, 25 pp., B.Aires.
- Salvatella R. et al (1989) "Seroprevalencia de anticuerpos contra T.cruzi en 13 departamentos del Uruguay". *Bol.Of.Sanit. Panamer.*,107(2): 108-117.
- Salvatella R. (1991) *La enfermedad de Chagas y su control en Uruguay. Anales Taller Erradic.o Control de la Enf.de Chagas en Chile*. Ed.MINSAL/Chile-CEE-OPS: 18-23, Santiago.
- Salvatella R. et al (1999) "Evaluacion serologica de la transmision de Chagas en Uruguay". *Bol.Chil. Parasitologia*, en prensa.
- Talice R, Costa R, Rial B, Osimani,J. (1940) *Los 100 primeros casos confirmados de la enfermedad de Chagas en el Uruguay*. Ed. Monteverde, 349 pp, montevideo.
- Talice R, Verissimo S, Osimani J, Franca M. (1952) "Estudio epidemiologico sobre la enfermedad de Chagas en la zona endemica del Uruguay". *Bol. Of. Sanit. Panamer.*, 33(6) :595-620.
- UNDP (1997) *Human development report*. Oxford University Press, New York.
- WHO (1997) 50a.Asamblea de Salud. WHO, Ginebra.

Chapter Seven

The Role of Research in Child Health Policy and Programs in Pakistan

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Pakistan faces a wide array of health challenges, including communicable diseases and nutritional deficiencies connected with poverty and low levels of development, as well as non-communicable conditions more commonly associated with affluent countries. The former are major contributors to the national disease burden. The extent to which they continue to threaten and diminish the well-being of Pakistan's children is of particular concern. Conquering them will require a wide range of resources and actions, some well beyond the concerns of health policy. But how effectively health policy and programs address the challenges remains critical, and health research can potentially be an important contributor to effective, efficient, and equitable policies and programs.

Since at least 1953, with the founding of the Pakistan Medical Research Council (PMRC), Pakistan has officially recognised the importance of research in solving the health problems of the country. There have been repeated calls for more support for health research and for such research to be utilised more fully in policy formulation and implementation. The 1990 and 1998 National Health Policies both mentioned research utilisation as important and pledged to strengthen it (Government of Pakistan, Ministry of Health, 1990 and 1998). A process of defining an essential national health research agenda occurred in the early nineties and recently has been rejuvenated (COHRED 1999).

This chapter reports on a case study undertaken to understand better the role that research plays in child health policy and programs in Pakistan.⁶ In open-ended in-depth interviews, we asked informants about their views on health research and policy generally in Pakistan and about their own experience in linking research with policy. This gave us an overall picture of research, policy, and linkages between the two. We also focused on three program areas: control of diarrheal disease (CDD), acute respiratory infection (ARI), and iodine deficiency disorders (IDD). For these three areas, we reviewed research studies and program documents and carried out additional interviews.

We interviewed 16 decision-makers who are, or have been, in positions of responsibility for policy formulation or implementation in the government, the central ministry of health, the planning commission, or provincial health authorities, including as many people as possible involved with the ARI, CDD, and IDD programs. Twenty-two researchers and heads of health education and research institutions were also interviewed.⁷ The researchers held positions in a wide variety of institutions – federal or provincial hospitals, universities, training institutions,

6 The Pakistan case study was prepared under the USAID-sponsored Applied Research for Child Health (ARCH) project. Financing for the field research, conducted in 1998, was provided by the Milton Fund. The Pakistan Medical Research Council (PMRC) helped to facilitate the research in Pakistan.

7 There was some overlap, with a few of the policymakers and program managers also being researchers. Their views are reported in this analysis on the decision-making, rather than the research, side.

and research institutes. Most were involved with research in the three focus areas, and some in related areas. They represented a mixture of types of research, including clinical/biomedical, community health, and demographic. We also interviewed relevant program staff of international and bilateral agencies.

The case study was guided by several questions: To what extent did the evolution of the programs reflect learning from research? How did research affect the programs? What factors were important in shaping the role of research? We looked at four major factors, or sets of factors, which we hypothesised to be important in shaping the role of research. These were the environment, the availability of relevant research, the demand for research by decision-makers, and linkage strategies, or the ways in which researchers tried to get research into policy and programs.

1. The focus areas

Diarrhea, acute respiratory infection, and iodine deficiency are major challenges for child health in Pakistan. Diarrhea and acute respiratory infections are the leading causes of loss of healthy life in Pakistan (Hyder & Morrow, 2000). Diarrheal disease is one of the leading causes of death among infants between one month and one year old, and by far the most important cause among children 1-5 years (Khan, Fikree and Ahmed n.d.: 18,69; Midhet, Karim and Berendes 1997: 82). Acute respiratory infection is the second leading killer of children under five (Khan, M. 1993: 3; Khan, A. et al 1990.) Disorders resulting from iodine deficiency – which inhibits physical and mental development, causes lethargy, and leads to an increased rate of miscarriages and stillbirths – are most severe in the north, an area long known for its lack of naturally-occurring iodine. But there is also evidence that the problem exists throughout the country (Government of Pakistan and UNICEF 1994: 5-8). Even moderate levels of iodine deficiency harm children’s mental development: the resulting diminution in IQ levels and human potential is a high cost for affected individuals and society as a whole.

Each of these diseases or disorders has been the focus of a national program in Pakistan. The earliest, the CDD Program, was linked with the expanded program of immunisations (EPI) from its founding in 1982. The ARI Program, launched in 1989, is much newer. Both continue to exist, but neither was very active by the end of the 1990s. For the CDD program, the termination of USAID funding in the early 1990s left it without resources to continue many of its activities. The ARI program, which had never enjoyed very strong support within the ministry of health, was further sidelined by a move toward greater integration of health issues rather than vertical programs. The activities of the Iodine Deficiency Disorders (IDD) Program began in 1986 with the Iodised Oil Injection Project in the north; more recently it has focused on an effort to iodise salt nationally.

2. The role of research in policy and programs

The decision-makers and researchers interviewed agreed that there was a gap between research and policy. Although program managers tended to characterise programs and research as being intimately connected in their own programs, there was general agreement on the decision-making side that research was utilised little overall. Similarly, among the researchers interviewed, 15 said that research had no or very little effect, while four felt that it sometimes played a role. Several perceived that there had been improvement in the last few years, at least at the national level.

Despite the pessimistic assessment of the role of research generally, a number of researchers could cite instances in which their own research had had an effect on a policy or a program. (Not all of these were in child health.) Examples included: research on cotrimoxazole and on community perceptions of ARI that supported the ARI program, research on general practitioners that raised awareness of a problem, and studies on maternal mortality and on Vitamin A that attracted a provincial government's interest and led to its willingness to support further research or engage in joint research. Another researcher's work on the magnitude of injuries as a public health problem resulted in their inclusion in the national health policy document for the first time. In addition, a few researchers mentioned other examples of research affecting policy, including early CDD research, breastfeeding research underlying the pediatric association's call for a policy on infant formula, and the "hew and cry" by the medical colleges that led to a greater recognition of the high incidence of polio.

At least seven researchers reported having been involved personally in some way in policy discussions. These involvements were diverse, including researchers serving as a member of the steering committee for the national health policy, advising the provincial government, contributing to the provincial five-year plan, providing data to the government, and (most frequently reported) serving as staff on one of the national disease control programs. One researcher also noted her involvement in discussions on the medical college curriculum.

Looking at the three programs, there was considerable variation in the extent to which their evolution reflected learning from research. In the ARI program, there was a close relationship between the program and research. Research was carried out within the program on an ongoing basis to review and support decision-making on case management and communication programs. The program used the research as the basis for decisions and program improvements.

In contrast, the CDD program did not substantially reflect local research. For the most part, the CDD program was transferred on whole into Pakistan from global institutions and programs, and it was not substantially altered through further research in Pakistan. There were, however, several specific instances of a linkage between a particular research finding and a change in a specific policy. In the first, hospital officials changed feeding policies as a result of research findings. In the second, standardisation of oral rehydration solution (ORS) packages followed research finding that two different sizes were confusing to users. It seems likely that the effort (reportedly on the part of the CDD program director) to get ORS producers to standardise the packages resulted from the information gained through research.

Research has played a smaller and different role in IDD than ARI. For the most part, the program has used research for persuasion and advocacy rather than as the basis for policy or program decisions. The evolution of the program has reflected international pressure and approaches, along with learning from experience. Research on the incidence of goiter and, more recently, iodine deficiency, has been utilised to support already-taken decisions regarding the regional scope of the program and to try to get IDD and salt iodisation on the policy agenda beyond the program level. In addition, the non-governmental organisation (NGO) implementing the communication campaign has done test marketing and some limited behavioral studies to inform its work.

3. The environment for policy-research linkages

In general, the environment has not been conducive to linking research to policy. Low levels of economic and human development contribute to weaknesses in research and policy.

Health policy, and social policy more generally, have never been high priorities of political leaders. As evidenced by the 1998 policy document, which serves only as a general guideline, the health policy framework is inadequate. Without a political commitment to solving health problems, there is little interest in research to find solutions and inform policy. Similarly, outside a few favored areas (such as nuclear sciences), research has not received much emphasis or support. The result is weak research capacity in most fields; health is no exception. The lack of interest and resources on the part of the government leaves donor agencies playing the central role in both health research and health policy. To the extent that there is financial or other support for research on social development, including health, it comes mainly from donors.⁸

The donor environment varied somewhat across the three program areas. All three were similar in that they adopted and implemented internationally accepted approaches (e.g., Oral Rehydration Therapy, ARI case management recommendations, and universal salt iodisation). But the CDD and the ARI programs both included significant donor support for local applied research and research capacity building,⁹ while the IDD program did not emphasise a strong local research component to complement the global approach.

4. Availability of relevant research

Both decision-makers and researchers perceived the low supply of relevant, high quality research as a constraint on its utilisation in policy and programs. Some of the decision-makers interviewed blamed the gap on various deficiencies in the available research: its weakness, sketchy coverage, and lack of relevance. One (who was generally positive about the value of and need for research) mentioned that there were often questions about its soundness and that findings needed to be reproduced for potential users to have confidence in them. Also cited was the problem of research being done in only one region, raising questions about whether the findings could be generalised to other parts of the country. Furthermore, one noted that researchers often do not have a close connection with either the government or the community and doubted whether they really understand community needs or the relevance of their research to policy questions.

Researchers, while mainly attributing the limited role for research in policy to weaknesses on the policy side, were also quite critical of research. These assessments were shared widely among the researchers interviewed. Responses included the following:

- Research quality is low
- There is very little research
- It is hard to find community-based, primary health care research
- Most research is descriptive, not analytical
- It is often based on questionable data

8 Throughout, “donors” refers to both bilateral development assistance agencies and international agencies, such as UNICEF and WHO.

9 During the late 1980s and early 1990s, USAID’s Applied Diarrheal Disease Research (ADDR) project and Pakistan Child Survival Project (PCSP) supported an active effort to build local capacity to conduct applied research in these areas; these projects were carried out under HIID’s leadership.

- Most research is not based on any set of priorities beyond the individual's own interests and promotion needs
- Research capacity is weak.

Reasons for research weakness included lack of trained researchers; lack of research jobs for people who do come back with training; little requirement in undergraduate or post-graduate training for research; and low research requirements for faculty members in universities and medical colleges (although those have recently been raised somewhat).

We also found that research “communities” – where researchers shared their work, commented on that of others, debated issues, and assessed evidence – were weak. Several researchers commented on the absence of scientific interaction. Without it, there did not seem to be a strong sense of an accumulation of knowledge or overall understanding of the state of knowledge in particular fields.

In the three program areas specifically, there were some notable differences on the research side. At least some relevant research was available for each program, but again with variation in the amount and type of studies. Available research on IDD was the most limited in amount and range, with a number of studies of prevalence of goiter and fewer of iodine deficiency more generally. Ethnographic and behavioral research has rarely been carried out. For the others, there have been more studies and a wider range. For ARI, this includes bacteriology, clinical trials of drugs and resistance, behavioral studies of doctors and parents, and ethnographic research on how mothers understand the treat the illness. CDD studies include clinical studies of ORT and locally acceptable foods, behavioral studies of ORS use in the household and doctors' treatment of diarrhea, ethnographic research, evaluation of the effectiveness of program training, and household surveys. All these kinds of research are relevant for the programs' issues and challenges.

Research on ARI, as well as CDD, has been of excellent quality and has at times been part of international research efforts. Pakistan was part of the original multi-site studies that supported the development of ARI case management guidelines. Thus, even before the beginning of the ARI program Pakistan had a history of participation in international ARI research teams, and the experience had allowed it to build up credible local research capacity (Bale 1988; Qazi and Simon 2000). For ARI and CDD, there have been small networks of researchers who have worked together and have created real capacity for research, at least over a period of time. At the end of the 1990s, ARI research was continuing, but CDD was no longer prominent on the research agenda. There does not seem to be an IDD research community to identify questions and make progress toward answering them and finding solutions.

The difference in research-policy linkages between ARI and CDD on one hand and IDD on the other probably reflected to some extent the difference in availability of relevant, high quality research on which to draw. The differences between the ARI and CDD programs, however, can only be partially traced to such a distinction. But ARI does stand out for the quality and longevity of research effort, demonstrated research capacity, and extent to which there is a (small) ARI research community.

5. Demand on the policy and program side

Almost all of the decision-makers interviewed indicated that they believed research was important for policy and programs, although to some extent that response may have been conditioned by what interviewees thought they should say. Seven mentioned particular studies,

although their degree of familiarity with the work mentioned clearly varied. Going beyond perceptions to actions, there was less evidence of active usage of research. A few indicated that they did use research or had asked to have research done on a particular question, but others (including some who believed that it was important) indicated that they had not commissioned research or used it to any great extent, if at all.

Current decision-makers pointed mainly to their concern for quick results as a factor limiting demand for research. Former decision-makers joined researchers in also citing an emphasis on short-term political considerations, the fact that senior policymakers often do not have a background in health; a tradition of intuitive, impressionistic policymaking, without empirical evidence or systematic assessment of options; and attitudes among people in the ministry that they know what they need to know, and therefore fail to see the need for research.

In the three program areas, the variation in utilisation clearly reflected different demand within the programs themselves for research. A major difference among the programs is in the importance that program directors and staff put on research in meeting their program's challenges. In the ARI program, from its outset until recent changes in leadership, the program director and staff defined research as essential to provide guidance for their decisions and programs. Significantly, the staff were themselves researchers, and they saw little distinction between their roles as researchers and as program staff. In CDD, doing regular household surveys was defined as part of program work. While program directors (not generally researchers themselves) expressed varying degrees of interest in research and belief in its importance, it was quite different from the ARI program with its central research focus. IDD program leadership also did not in practice define research as essential to their work, but they were aware of existing research and used it as a resource in efforts to build support among policymakers and the public. They were only likely to have research done if it could be used strategically in the advocacy effort.

Demand had less to do with whether the program directors had a research background, although that played some role, than with their perception that the problem facing them was one to which research could (or could not) contribute. This was partly a result of the policy situation. For example, the IDD goal of national salt iodisation required operating in the legislative arena rather than just within a narrow program. That made the immediate policy situation different from that of either ARI or CDD, and made advocacy rather than problem-solving and program adjustment the priority. The perception that research was needed was also partly a result of how the donor presented the global approach and whether it encouraged questioning and adjustment of the recommendations through local research.

6. Linkage strategies

The interviews found a telling difference between decision-makers and researchers regarding the importance attributed to communication by researchers. Decision-makers cited lack of communication between researchers and policymakers as one factor behind the low level of research utilisation. They complained that researchers did not always understand the real issues, and especially did not understand the needs and pressures faced by policymakers and implementers, including resource and time limitations. This resulted in researchers not presenting their work in accessible ways that took account of policymakers' and managers' time constraints.

On the other hand, not many researchers expressed particular concern about their methods of communicating their research findings to government. Also, few seemed to feel that researchers had a responsibility for narrowing the gap between research and policy. While

agreeing that researchers should work on topics that were relevant and important for Pakistan, most researchers interviewed seemed to feel that, as long as they did relevant research, its “uptake” was the government’s responsibility.

We asked researchers what actions they take or have taken to link research with policy. We found two approaches to be the most common: at the minimalist end, simply sending papers to the ministry, sometimes with a cover sheet highlighting key findings and their policy implications, and, at the more activist end, organising workshops involving policymakers and program managers at the end of a research project. In addition, those who had worked with a program directly (mostly in the ARI program) felt that they had been in a position to bring their research and the research of their group into the program. One such person mentioned taking research findings to inter-provincial meetings where health officials discussed the program.

A few other types of actions were noted, but much less frequently. These included carrying out joint research with the provincial health department, serving on technical committees with people in the ministry, conducting evaluation and baseline research for programs, trying to choose topics that would be helpful in tackling a problem, seeking out opportunities to pressure policymakers, going to the press to act as an advocate, and helping to inform advocacy groups.

Getting at questions about linkage strategies requires looking into specific cases where research affected policy. A small number of such instances were identified. The main examples were research on cotrimoxazole (Strauss et al. 1998), ethnographic research on mothers’ understanding and labeling of respiratory illnesses (Kundi, Malik et al. 1993; Hussain et al 1997), and a piece of research on local foods in the Northern Areas appropriate for feeding during diarrhea episodes (Jan et al. 1997). The cotrimoxazole research, which tested clinical resistance to the drug as opposed to laboratory resistance, led the ARI program to maintain that drug as the primary treatment for ARI, against WHO recommendations, and, further, led WHO to change its own recommendations. ARI program staff used findings from the ethnographic research to improve the “mother cards,” or posters used to help communicate with and educate mothers on how to respond to various symptoms. The research on locally appropriate foods resulted in the head of the hospital in the Northern Areas altering the hospital’s policy to use the local food. He went further and made the policy effective by allocating money for a hospital kitchen to prepare the food.

These cases of a clear-cut, immediate linkage between the research and decisions share a couple of significant characteristics: the research question was defined in terms of its relevance for policy or practice from the beginning and, furthermore, the relevant decision-makers were aware of and involved with the research from the very beginning. In the ARI cases, the overlap between the program staff and the researchers meant that the research questions were defined in terms of the program’s questions. In the CDD case, the researchers purposefully brought in the relevant decision-maker from the outset. These successful cases of research-policy linkages point strongly to the importance and effectiveness of strategies that involve working closely with relevant decision-makers from the outset to define the questions in a way that is relevant for them and to maximise their “buying into” the importance of the research and its findings.

Lessons for researchers and donors

The analysis of research-policy linkages in Pakistan holds lessons for researchers and donors. By recognising that the research supply is only part of the picture, researchers can think strategically about how to stimulate demand from decision-makers. Further, it is clearly important to work jointly with relevant decision-makers from the beginning. The most successful cases of direct application of research results were when there was joint definition of a research question and collaboration throughout the research process.

The analysis also suggests that the potential for informing policy and programs with research would be enhanced through strengthening research “communities”. Increased scientific interaction and discussion among researchers working in the same or related areas would lead to better communication within the scientific community itself about ongoing research, findings, and important research questions. Such research communities would then be better placed to communicate to decision-makers and the public the “state of knowledge” about a particular problem – what is known and what the gaps in understanding are. Institutions that are centers of research strength could play an active role in fostering greater scientific exchange and communication beyond their own faculty, as well as efforts to inform policy discussions.

Donors are in a good position to increase the potential for research-policy linkages. The analysis suggests that, in the absence of other support, donor support for research and research capacity building is critical. At the same time, donors can work to stimulate demand for research in government institutions, as well as capacity to use that research.

How donors introduce global technologies and approaches is important. Donors can stimulate demand by working with local decision-makers and researchers to identify local research questions that relate to the relevance, appropriateness, and implementability of global approaches, rather than mechanically applying them. This would ideally be complemented by support for the research effort and a research-policy dialogue on critical issues. Such an approach sets an example of how to deal with policy questions, fosters behavior that supports research-policy linkages, and avoids supplanting local research.

7. References

- Bale, Judith R (1988) "Creation of a Research Program to Determine the Etiology and Epidemiology of Acute Respiratory Tract Infection among Children in Developing Countries," in Judith R. Bale, guest editor, *Etiology and Epidemiology of Acute Respiratory Tract Infection in Children in Developing Countries. Reviews of Infectious Diseases*, Vol. 12, supplement 8, November-December.
- COHRED (1999) *Research Into Action*, COHRED Newsletter, Geneva.
- Hussain, W, et al. (1997) "Management of Acute Respiratory Infections by Mothers in the Community", *Journal of the Pakistan Medical Association*, Vol. 47, no. 2 (February), pp38-41.
- Hyder, AA, and Morrow, RH (2000) "Applying burden of disease methods in developing countries: case study from Pakistan," *American Journal of Public Health* (forthcoming).
- Jan, A, et al. (1997) "Evaluation of Dowdo (Wheat-Milk Gruel) in Children with Acute Diarrhoea," *Journal of Pakistan Medical Association*, Vol. 47, no. 1 (January), pp12-16.
- Khan, A. J., et al. (1990) "Acute Respiratory Infections in Children: A Case Management Intervention in Abbottabad District, Pakistan." *Bulletin of WHO*, Vol. 68, pp577-86.
- Khan K, Fikree F, and Ahmed R (no date) *Reproductive Health in Pakistan: Country Review*, paper written for the Task Force on Social Science and Reproductive Health, Social Development Center, De La Salle University, Philippines.
- Khan MA, et al. (1993) *National Programme for the Control of Acute Respiratory Infections: Policy Document*. January.
- Kundi MZ, Malik et al. (1993) "Maternal Perceptions of Pneumonia and Pneumonia Signs in Pakistani Children," *Social Science and Medicine*, Vol. 37, No. 5, pp640-60.
- Midhet F, Karim MS, and Berendes HW (1997) *Situation of Women and Children's Health in Rural Areas of the NWFP and FATA (Pakistan): Results of the Maternal and Infant Mortality Survey (MIMS 1992-1993)*. Karachi: Aga Khan University, and Bethesda, MD: National Institute of Child Health and Human Development (May).
- Ministry of Health (1998) *National Health Policy*, Government of Pakistan.
- Ministry of Health (1990) *National Health Policy*, Government of Pakistan.
- Nutrition Section, Planning and Development Division, and UNICEF (1994) *Report on the National Consultation on Elimination of Iodine Deficiency Disorders from Pakistan*. Government of Pakistan: Islamabad, February 8.
- Qazi SA, and Simon JL, (2000) *Linking Research to Policy: Acute Respiratory Infections (ARI) Control Programme and Research in Pakistan*. Paper presented at the Global Health Council meeting, Washington, D.C. (June 14-16).
- Straus WL, et al (1998) "Antimicrobial Resistance and Clinical Effectiveness of Cotrimoxazole versus Amoxicillin for Pneumonia among Children in Pakistan: Randomised Controlled Trial," *Lancet*, 352(9124), (July 25), pp270-74.

