SALVADOR, BAHÍA, BRAZIL ─ 15-17 SEPTEMBER 2005

REPORT

REPORT

SECOND MEETING
of the
NETWORK OF SCIENCE AND TECHNOLOGY INDICATORS IN HEALTH (RICTSAL)

SALVADOR, BAHÍA, BRAZIL – 15-17 SEPTEMBER 2005

I.   Introduction

The Second Meeting of the Network of Science and Technology Indicators in Health (RICTSAL II) was held on 15-17 September 2005, in the city of Salvador, Brazil.

Health organizations, research centers, and the National Councils of Science and Technology (ONCyTs) voiced the need to promote basic research activities and to develop a model of coordinated management between the Ministries of Health and the science and technology organizations of the health sector. Also pointed out was the need for information for analysis, as well as for policy formulation and its implementation. In response to these challenges, the Research Promotion and Development Unit of the Pan American Health Organization (PAHO) collaborated on the development and creation of different sources of information (i.e., the Virtual Health Library (VHL) and the ScienTI Network). Subsequently, however, the need arose for systematizing and organizing information on research, human and financial resources, and institutions.

The Network of Science and Technology Indicators in Health (RICTSAL), in coordination with the Ibero-American/Inter-American Network on Science and Technology Indicators (RICyT), prepared a work plan to enhance the value of data contained in existing sources of health-sector information. In turn, this data would then be used to build indicators—a valuable tool for use in health policy formulation, implementation, and management.

II.   Background

The Second Meeting of the Network of Science and Technology Indicators in Health (RICSTAL II) builds on the progress made at RICTSAL I (Buenos Aires, 13-14 September 2004), and the PAHO/WHO Workshop on Health Research Systems Analysis (Washington, D.C., 27-29 October 2004).

Early on during RICTSAL II, reference was made to the recommendations issued at the Ministerial Summit on Health Research (Mexico City, 16-20 November 2004), which pointed out the need to improve management capacity on the part of national health organizations. Also singled out was

the important leadership and active support exercised by the Global Forum for Health Research and the Council on Health Research for Development (COHRED), in coordination with the World Health Organization (WHO), in their efforts to promote the development of health information systems and the use of knowledge production within health systems.

III. Objectives of RICTSAL II

Objectives:
- Share information on the progress of the Countries of the Region of the Americas in the area of science policy in health and determine which models of health research organization and financing are currently in use;
- Agree on the basic information to be collected, via development of a standardized questionnaire, for publication on RICTSAL's portal;
- Learn about regional proposals developed by PAHO and RICyT, and agree on the basic input and product indicators, based on available sources, to be published on RICTSAL's portal;
- Discuss indicators for monitoring and evaluating science and technology policy (S&T) in health and research agendas;
- Share information on studies under way in the areas of science policy and science policy management in health, and their potential for building indicators; and
- Discuss and agree on RICTSAL's organizational and operational bases (mission and objectives).

IV. Meeting Agenda and Proceedings

SESSION ON THE GOVERNANCE OF RESEARCH

Country Perspectives of Health Research Management

Two models of health research management clearly emerged from the presentations and discussions at RICTSAL II: one argues that the Ministries of Health should be responsible for the steering function and financing of health research, while the other concludes these should fall to the National Councils of Science and Technology (ONCyTs). Moreover, owing to the creation of sectoral funds, a shift in responsibility for the steering role has been observed, from the ONCyTs toward the Ministries of Health, especially during the final years of the 1990s. Currently, however, the perception is that both sides are moving towards equilibrium with that responsibility.

Participants emphasized the need for strengthening and organizing ties between health research groups and the various actors involved, with a view to developing a national health system in accordance with the guidelines of each country.

However, some concerns were raised regarding the proposals put forward for the different health research management models:

- o Possibility that the evolving institutional model may put the *governance* of health at risk;
- o Possibility that one of the parties involved (i.e., the Ministries of Health or ONCyTs) may attempt to monopolize funds and hence, result in their segregation;
- o Possibility that certain areas such as technological innovation or sectors that receive funds from other sources of financing may be overlooked should the steering role of research become concentrated in the Ministries;
- o Probability that a lack of coordination would occur between the areas of public hospital care and services;
- o Doubts regarding the stability of a management model governed by national health policy when the primary role in this regard is exercised by the Ministry of Health;
- o Need to evaluate and monitor research projects at each and every phase of their development, from their introduction up through measuring their impacts.

Presentation – RICTSAL Portal

A presentation was given to introduce the RICTSAL portal (**www.ricyt.org/rictsal**), pursuant to the work plan agreed upon at RICTSAL I. The portal includes systematized data already available from existing sources, disaggregated for the health sector pursuant to the methodology agreed upon at RICTSAL I.

The information appearing on the website is a "model" of indicators, which is subject to review by representatives of the countries. This is the case because, as it has been very clearly established, the Network, although supported by PAHO/RICyT, belongs to the countries. Moreover, it is important to integrate RICTSAL's portal with the Virtual Health Library (VHL).

With regard to the content of the website, descriptions of each corresponding group of indicators were presented:

- o Context indicators

- o Input Indicators
    - ▪ Financial Resources
    - ▪ Human Resources

- Product Indicators
  - Bibliometric
  - Scientific contextualization tables

Mention was made of the limitations involved in quantifying science and technology activities in the heath field. Also pointed out was the problematic nature of identifying projects in the health sector, for which several possible solutions were offered, including identifying projects by socioeconomic objective (i.e., safeguarding and improving human health) or in accordance with the scientific disciplines listed in the OECD manuals (i.e., basic medicine, clinical medicine, and health sciences). Also touched on were limitations inherent in the definition of the *health investigator* concept, including the difficulties associated with measuring hourly workload, since it is difficult to draw a distinction between the time dedicated to assistance and that spent on research, given the fact that time devoted to assistance also applies to research.

Accordingly, health services were regarded as a "black box," the content of which has not yet been rigorously defined. In addition, it was considered that measuring input/output in and of itself does not yield information on the quality and usefulness of such inputs, just as traditional product indicators do not take many important activities into account.

Part of the proposed methodology for measurement—the part that uses as its source databases of scientific output (i.e., LILACS, MEDLINE) to identify researchers, was considered valid by the participants, inasmuch as it is a good proxy with significant areas of coincidence with curricular databases such as the CVLAC (Latin American and Caribbean Scientists Curricular Network).

During discussion on these subjects the following observations and suggestions were made:

  - Existence of a time lag between the conclusion of the project and the execution of expenditures and publication, which usually occur two years following its conclusion. In order to correct this limitation it was suggested that the period be extended;
  - Allow investigators to be included who, although they do not work full-time on projects, do publish their research;
  - Need to identify indicators that more accurately reflect conditions in Latin America;
  - Limitations associated with MEDLINE in that it only permits searches for a single author;
  - With regard to the curricular databases, one difficulty pointed out was the self-definition, on the part of the investigators, as belonging to the health sector.

SESSION ON INDICATORS FOR MONITORING AND EVALUATION

During this session two specific studies were presented: "***Approaches to the Evaluation and Impact of S&T policies in Health***" (Colombia) and "***Monitoring and Evaluating Research Agendas***" (Brazil).

The first presentation emphasized that measurement of impacts should include the following:

- o Evaluation of methodologies;
- o Assessment of potential impacts;
- o Evaluation of externalities and capacities;
- o Promotion of knowledge networks; and
- o Creation of new groups (i.e., young investigators).

It was also pointed out that the steering role should fall to the ONCyTs, inasmuch as it is the project's impact that is being measured and not the project itself. It was additionally emphasized that, with respect to the analysis merited by organizational changes, the *hospital* should be regarded as the epicenter of knowledge—as the larger context of knowledge generation—within which importance should be placed on the dissemination of that knowledge.

The representative of Brazil noted that the objective of the study presented is basically to determine the efficiency of the agenda of health research priorities.

The following considerations were brought up in discussions at the end of the session:

- RICSTAL should make the effort to build macro indicators based on the input-output model. These should be standardized, systematized, and comparable internationally. Moreover, they should serve as a starting point for building micro indicators of interest to the countries, promote specific studies, facilitate analysis, and help create spaces for the exchange and dissemination of information and knowledge;

- Within this framework some participants suggested that specific indicators be defined to address the needs of individual countries. Most participants agreed on the importance of measuring a combination of aspects linked to S&T research in the health sector, which could then serve as tool for policy formulation, with emphasis on impact and result indicators.

  - o **Impact.** It was suggested that impact be measured through variations in capabilities. Impact would therefore consider variations in terms of knowledge, the increase in capabilities reflected in scientific publications, and the externalities of the

project in terms of human resources education, which, in the health sector, is reflected in the training of technical personnel, the development of methodologies and instruments, and the creation of knowledge networks and new research groups. Also proposed was the need to develop indicators for measuring the impact on specific sectors, such as the social and scientific sectors, and on the implementation of health policy.

- o **Results.** With regard to this topic, reference was made to the limitations of the Science Citation Index. Consequently, it was suggested that the LILACS Database serve as a source, as it is considered more appropriate for conditions in Latin American.

In this regard it was considered crucial to reflect on the definitions and classifications that apply to the health field, with a view to proposing criteria that make it possible to standardize and compare information, and which can also be adapted to conditions in the region.

PANEL – STUDIES ON S&T MANAGEMENT IN HEALTH

This session included the following presentations: "*Model of Analysis for Developing Scientific Communities in Health*," "*The Case of Clinical Research*," "*Health Research through the Media*," and "*Financing Flows of Health Research Projects in Brazil*."

During this session, thought was given to the importance of the interaction among the various institutions (i.e., educational, welfare), and the human and financial resources committed to the management of the different health-sector activities. It was pointed out that some factors be taken into account when measuring human resources, such as: the depreciation of human capital in the absence of a knowledge-producing institution, the social capital concept that the institution instills in the individual, and formation of human resources based on supply and market requirements.

Moreover, the presentation entitled "**Health Research through the Media**," which focused on quantifying the dissemination of scientific subject matter in the health field by the leading newspapers of Argentina, Brazil, Colombia, and Costa Rica, was particularly well received by participants in this line of work. Some suggestions were offered regarding the presentation, such as including the input of the scientific and professional community. Also mentioned was the possibility of including other mass media (i.e., TV, radio) as the subject of analysis in future studies, pursuant to social level of access thereto.
Also emphasized was the importance of disseminating information on the sciences, with special emphasis on language so that this information can be easily understood by the general public.

The presentations in this session featured methodologies and results of specific studies carried out in some countries (i.e., Argentina, Brazil, and Colombia).

With a view to disseminating these experiences, RICTSAL needs to get involved, meaning we challenge it to become a showcase of micro studies, but based on standardized macro indicators. In addition, RICTSAL should work to secure the recognition and support of national health institutes for its capacity of R&D measurement, and should approach and encourage countries to carry out specific studies.

SESSION ON NETWORK GOVERNANCE

During the course of RICTSAL II, it became clear that most of the participating countries face challenges preventing them from effectuating the good governance of their health institutions. Accordingly, demand is strong for information that can serve as input for building indicators—essential tools for formulating health policy. Also perceived, is the need for mechanisms of institutional interaction between the State and civil society, which refer to the concept of health-sector *governance*. This concept is especially useful when analyzing health reform experiences involving different models of state organization and management, in which civil society plays a prominent role.

Emphasis was placed on the need to identify social demands through studies aimed at disseminating scientific topics, such as assessing the social and public management impact in order to create and strengthen capacities.

Accordingly, RICTSAL is seen as a forum for the creating **opportunities** for international cooperation for the purpose of sharing methodologies in order to build systematized and comparable macro indicators that will, in turn, serve as the basis for carrying out specific studies in different countries. The **means** in this regard will be the community, which, consequently, will help to achieve the proposed **ends**—or inputs—for policy formulation.

In conclusion, RICTSAL was tasked with several objectives:

- Production of information for public-policy decision-making, beginning with few indicators;
- Standardization of this information, with a focus on two areas: how to capture the information, and how to standardize the information in a way that facilitates comparison;
- Dissemination;
- Promotion of specific micro indicator research projects, based on the use of standardized and systematized macro indicators;
- Training of human resources under different modalities, primarily those of the less developed countries;

- Compilation of a manual designed for a specific area, based on reference manuals (i.e., Frascati Manual, Canberra Manual, Bogotá Manual)

In short, the various participants were clear in terms of their wants: the concept should be one of a knowledge network, a forum for sharing and exchanging studies and analyses, integrated with either the ONCyTs or the public sector (i.e. Ministries of Health), and with special attention to the specific characteristics of each country. The idea is to build a flexible structure that facilitates ample production of information—one that is systematized, standardized, and comparable internationally, and which serves as tool for decision-making, for strategic analyses, for the orientations and practices at each level comprising science policy in health, and policy for technology and innovation in health, and for the subsequent evaluation thereof.

Additionally, it should periodically disseminate indicators of science, of technology and innovation, for studies and diagnostic purposes, and that take into account the state of scientific research, and of technology development and innovation in health in the different countries. Included in this periodic dissemination of indicators should be the definitions, methodology, and the concepts used to prepare them, thus affirming their legitimacy both in the national and international context. With respect to the latter, a review of reference manuals has been proposed.

Finally, it is recommended that the Secretariat of RICTSAL, with the support of a working group, give consideration to the aspects discussed above, and use these as the basis to prepare a draft statement of mission and objectives of RICTSAL, to be submitted for discussion.

CONCLUSIONS AND RECOMMENDATIONS

This section includes the conclusions and recommendations of RICTSAL II, which are organized under five main groupings: 1) aspects related to the institutional framework and governance of health research; 2) regional input-output indicators from the RICTSAL portal; 3) indicators needed for monitoring and evaluating research policy and research agendas; 4) studies on S&T management in health and contributions to the building of indicators; 5) the mission and objectives of the Network.

INSTITUTIONAL FRAMEWORK AND GOVERNANCE OF HEALTH RESEARCH

The following was concluded on the basis of country presentations and discussions:

In the countries, different institutional models for organizing and managing research in health coexist. Some essentially assign the steering role to the Ministries of Health, while others leave it to the ONCyTs. Since the late 1990s through the early 2000s, new organization processes have been identified, influenced by the creation of sectoral health research funds.

These models have been converging toward an equilibrium and joint coordination between the Ministries of Health and the ONCyTs. Nevertheless, questions have been raised regarding the risks and/or comparative advantages resulting from the decentralization of financing resources in the sector, and what this means for health research in terms of efficiency, impact, and building scientific capacity. It was conceded that these processes are still very new, and that, consequently, there is insufficient information at this time in order to evaluate its performance, as well as its scientific and social impacts.

It was concluded that management models operating in the Region need to be looked at carefully to determine their main features, and to better document these features. Accordingly, it was agreed that RICTSAL would work to systematize existing data, which, in turn, would be used to tap the diversity of models and facilitate comparison between the countries.

It was recommended and agreed that the Secretariat would prepare a standardized questionnaire to collect this information with a view to its subsequent publication on RICTSAL's portal.

INPUT AND PRODUCT INDICATORS FOR HEALTH RESEARCH

PAHO and RICyT were commended for their efforts in this regard. It was agreed that RICTSAL's portal was the appropriate venue for the publication and dissemination of the indicators, which will be publicly accessible over the Internet.

The methodology used to calculate the number of investigators was presented, drawing on the MEDLINE and LILACS bibliographic databases. Mention was made of the originality of the methodology and that the criteria used appeared to be a good "proxy" of the number of investigators in health, and, in turn, this data can serve as reference for more exhaustive analyses. It was recommended that work continue on perfecting the methodology and that the results be published on RICTSAL's website.

It was agreed that the countries would review the calculations generated by the methodology, and that these estimates would then be compared with the calculations of each country.

Through discussion, the possibility was raised that calculations to determine the number of investigators performed by PAHO and RICyT based on bibliographic sources, and RICyT's calculations based on R&D surveys administered by ONCyTs, as well as the calculations from other sources—i.e., CvLAC (the cases of Colombia and Brazil), the Programs to Promote Investigators (Venezuela), and the National System of Investigators (Mexico)—may all have been using different definitions of "health investigator." It was also recognized that these systems have to exclude as "investigators" those health professionals who perform clinical practice, as well as public health professionals who conduct and publish research but do not meet the conditions set out in the definition of the international manuals.

With respect to calculating indicators, it was concluded that in order to facilitate the comparability of indicators steps must be taken to standardize the capture and calculation of indicators, noting that thus far the general definitions in international manuals have been followed, which do not take the specificities of health into account.

Based on this discussion, it was recommended that a working group be designated to identify the definitions and classifications applicable to health that appear in the Reference Manuals (i.e., Frascati, Canberra and Bogotá), with a view to proposing criteria that reflect the conditions of health research in the Region.

INDICATORS FOR MONITORING AND EVALUATING S&T POLICIES IN HEALTH

RICSTAL should take steps to build macro indicators based on the input-output model, which should be standardized, systematized, and facilitate comparison internationally. RICTSAL should also serve as a starting point for building micro indicators of interest to the countries, promote specific studies, facilitate analysis, and help generate venues for the exchange and dissemination of information and knowledge.

Within this framework some participants suggested that specific indicators be defined to address the needs of individual countries. Most participants agreed on the importance of measuring a combination of aspects linked to S&T research in the health field, which could then serve as tool for policy formulation, with emphasis on impact and result indicators.

Impact. It was suggested that impact be measured through variations in capabilities. Impact would therefore consider variations in terms of knowledge, the increase in capabilities reflected in scientific publications, and the externalities of the project in terms of human resources education,

which, in the health sector, is reflected in the training of technical personnel, the development of methodologies and instruments, and the creation of knowledge networks and new research groups. Also proposed was the need to develop indicators for measuring the impact on specific sectors, such as the social and scientific sectors, and on the implementation of health policy.

Results. With regard to this topic, reference was made to the limitations of the Science Citation Index. Consequently, it was recommended that the MEDLINE and LILACS databases also be used.

In this regard it was considered crucial to reflect on the definitions and classifications that apply to the health field, with a view to proposing criteria that make it possible to standardize and compare information, and which can also be adapted to conditions in the region.

STUDIES FOR MANAGING S&T IN HEALTH

Subsequent to the presentations of the study on human resources for research in Colombia (Prof. Jaramillo), the study on financing flows of health research in Brazil (Prof. Vianna), and the study on the coverage of health research in the media of 4 countries, the following was concluded:

Studies represent and invaluable contribution toward advancing the development of specific indicators and provide empirical evidence the guide the formulation and evaluation of policies in specific contexts. Moreover, it is recognized that studies benefit the Region as a whole by providing very valuable contributions to methodologies, which can eventually be applied to other contexts. Precisely for these reasons it was recommended that RICTSAL serve as the platform for the diffusion of methodologies and study results. It was also recommended that RICTSAL continue its efforts to promote and share studies at future meetings of the Network.

RICTSAL MISSION AND OBJECTIVES

It was suggested that RICTSAL perform the role of an international cooperation agency with a view to fulfilling important objectives in support of decision-making processes. These objectives would include the standardization of indicators, their dissemination, and training and research on S&T indicators in health. Discussions in this regard yielded a first draft that was circulated among RICTSAL II participants subsequent to the meeting, the text of which is included herein. The Secretariat of RICTSAL will support the creation of a discussion forum and provide other inputs with a view to drafting, in conjunction with a working group, the final text of Network's mission and objectives.

RICTSAL MISSION AND OBJECTIVES
(FIRST DRAFT FOR DISCUSSION PURPOSES)

September 2005

The development of science, technology, and innovation in health is a necessary and crucial condition for ensuring both the sustainable development of the health of our populations as well as increasing levels of competitiveness and the insertion of the countries of Latin America and the Caribbean into communities of knowledge, invention, and innovation. The management and administration of these processes require up-to-date, pertinent, and timely information, as well as studies that make it possible to guide the Region's S&T policies in health. In view of these needs, we hereby propose the creation of the Network of Science and Technology Indicators in Health, a collaborative effort of the Pan American Health Organization, the Ibero-American/Inter-American Network on Science and Technology Indicators (RICyT), and the countries of the Region.

MISSION

To promote, within the framework of international cooperation, conceptual development, instruments for scientific measurement and analysis, and technology and innovation in the health field in the Americas, with a view to further expanding knowledge and support decision-making in the Region.

OBJECTIVES

RICTSAL is envisaged as an opportunity for consensus-building, the sharing of experiences, and cooperation for the purpose of attaining the following objectives:

- Development of definitions and standards for measuring scientific, technological, innovative activities in health for the purpose of ensuring the production of indicators that facilitate comparison internationally;

- Publication and dissemination, via different mediums, of comparative indicators between countries, and manuals and criteria to support their production;

- Training and sharing of experiences of professionals working in the areas of production, analysis, and application of indicators used to formulate and evaluate S&T&I policy and activities in health;

- Promotion and execution of studies and collaborative research among countries with a view to formulating and evaluating public policies in the field.

Organizational Principles of RICTSAL

The work of a network requires flexible organizational, open, and democratic structures to allow a convergence of different actors from the public sector, academia, and civil society organizations interested in the issues surrounding S&T management in the health field. In order for the Network to function and develop its contents, its structure needs to be minimal, with a view to coordinating efforts, strategic planning, and implementing activities at the regional level.

Consequently, RICTSAL shall possess:

Institutional liaisons with national agencies – These refer to the governmental institutions responsible for capturing and producing S&T indicators in health. With regard to the Network, these include ONCyTs and the Ministries of Health;

Institutional liaisons with international organizations – These refer to organizations that compile and systematize pertinent data and information for building S&T indicators in health and/or are responsible for compiling and administering databases with international coverage;

An Advisory Committee – An advisory body responsible for furnishing technical and methodological criteria for Network development; it also supports the Executive Secretariat;

An Executive Secretariat – Under PAHO supervision, the Research Promotion and Development Unit, in collaboration with the Centro REDES, base of the Executive Secretariat of RICyT, which will be responsible for technical coordination at the regional level;

The Network will include representatives of governmental agencies, NGOs, academia, and scientific organizations interested in S&T management issues specific to the health field.