Executive Report

VI Session of the Advisory Committee of BIREME

February 2nd, 2017

Index

The Latin American and Caribbean Center on Health Sciences Information (BIREME/PAHO/WHO) was established in São Paulo, Brazil in 1967 as the Regional Library of Medicine by means of an Agreement between the Government of Brazil and the Pan American Health Organization and with a technical cooperation model based on the essential functions of a medical library. Since 1982 the denomination changed to reflect the expansion of the technical cooperation model, including the outstanding role of providing regional and international visibility to scientific and technical production in health in Latin America and the Caribbean (LA&C). On March 3, 2017, BIREME celebrates 50 years of uninterrupted work with the mission of contributing to the development of health in LA&C countries by means of the democratization of access, publication and use of scientific information, knowledge and evidence.

BIREME is one of the three specialized centers of PAHO/WHO, in addition to PANAFTOSA (Pan American Foot-and-Mouth Disease Center) and CLAP (Latin American Center for Perinatology, Women's and Reproductive Health). Its nature is regional and the work it carries out is at the service of LA&C.

Following is a summary of the aspects related to the institutionality, governance, financial sustainability and main products and services of the Center's technical cooperation.

1 Institutionality

1.1 Status of the Center

At the 55th Meeting of the PAHO Directing Council, held in Washington, DC, USA, from 26 to 30 September 2016 the document (Annex CD55/INF/12) with the status of the Pan American Centers was presented.

1.2 Governance

The resolution of the Directing Council of PAHO (CD49.R5) established the structure of the new legal framework constituted by the Statute of BIREME and the legal instrument for financial purposes, which is still under negotiation: Headquarters Agreement of BIREME in Brazil, to be established between PAHO and the Brazilian Government.

The Statute of BIREME also determines the new structure of governance of BIREME, with the following composition:

A) BIREME Members defined in the categories: a) Member States: all Member States, Participating States, and PAHO Associated Members; b) Participating States: the WHO Member States besides those that are PAHO Members; and c) Participating Organizations: public international organizations with specific qualification related to information and scientific and technical communication. The participation of new members shall be defined by PAHO;

B) Advisory Committee: permanent body of BIREME formed by PAHO and the Government of Brazil as permanent members and by five of BIREME Members as non-permanent members. The non-permanent members were elected as following:

- At the 54th PAHO Directing Council (CD54.R5,Sep29-Oct2/2015): Argentina, Jamaica and Peru for a three year mandate (2016-2018);
- At the 53rd PAHO Directing Council (CD53.R5, Sep29-3Oct/2014): Panama and Trinidad and Tobago for a three year mandate (2015-2017);
- At the 28th PAHO Pan American Sanitary Conference (CSP28.R5, Sep17-21/2012): Cuba, Ecuador, and Puerto Rico for a three year mandate (2013-2015);
- At the 51st PAHO Directing Council (CD51.R2, Sep26-30/2011): Bolivia and Suriname for a three year mandate (2012-2014);
- At the 49th PAHO Directing Council (CD49.R6, Sep28-Oct2/2009): Argentina, Chile, and the Dominican Republic for a three year mandate (2010-2012) and Jamaica and Mexico for a two year mandate (2010-2011).

The role of this Committee is to make recommendations to the Director of PAHO on the programming functions, the working plan and the financing of BIREME.

Five Sessions of the Committee occurred in compliance with the implementation of the new institutional framework of BIREME, following Resolution 5 of the 49th PAHO/WHO Directing Council (CD49.R5). The VI Session will be held on February 2nd, 2017.

The following table shows information on dates and participants:

Session	Date	Location	Participants
VI CA	February 2nd 2017	BIREME	PAHO (AD, KBR, BIR) Countries (Brazil, Argentina, Jamaica, Panama, Peru, Trinidad and Tobago)
V CA	December 3rd 2014	BIREME	PAHO (AD, KBR, BIR) Countries (**Cuba**, Ecuador)
IV CA	November 26th 2013	BIREME	PAHO (KMC, BIR) Countries (**Brazil**, Bolivia, Cuba, Ecuador, Puerto Rico)
III CA	December 5th 2012	BIREME	PAHO (KMC, BIR) Countries (Argentina, **Brazil**, Bolivia, Chile, Dominican Republic, Suriname)
II CA	October 25th 2011	BIREME	PAHO (KMC, PWR/BRA, BIR) Countries (Argentina, **Brazil**, Chile, Dominican Republic)
I CA	August 31st 2010	PAHO/HQ	PAHO (D, AD, DD, AM, KMC, LEG, PWR/BRA, BIR) Countries (Argentina, **Brazil**, Chile, Dominican Republic, Jamaica, México)

Note: Country in bold indicates the Chair of the Session

C) Scientific Committee: permanent body of BIREME formed by at least five scientific information specialists appointed by the Advisory Committee of BIREME. Its function is helping to maintain and improve BIREME's capacity to follow the development of methodologies, technologies, products, services, and events that characterize the national and international systems of information and scientific communication and the challenges for their contextualization in the LA&C. The process of indication of its members by the national authorities, appraisal, and nomination of members of the Scientific Committee was concluded in December 5th 2012, in the III Session of the Advisory Committee. The four members named were indicated by Canada, Honduras, Trinidad and Tobago and Brazil and, a fifth member from the National Library of Medicine of United States. Two sessions of the Scientific Committee occurred. The III Session is planned for 2017.

The following table shows information on dates and participants:

Session	Date	Location	Participants
III CC	2nd Semester 2017	BIREME	PAHO (AD, KBR, BIR) Countries (to be defined)
II CC	August 14th 2014	BIREME	PAHO (AD, KBR, BIR) Countries (Brazil, **Honduras**, Trinidad and Tobago, National Library of Medicine (USA))
I CC	July 25th 2013	BIREME	PAHO (AM, KMC, BIR) Countries (**Brazil**, Canada, Honduras, Trinidad and Tobago, National Library of Medicine (USA))
Depending on the installation	2012, 2011 and 2010		

Note: Country in bold indicates the Chair of the Session

D) Secretariat: permanent organ of BIREME, formed by the Director and the technical and administrative teams of the Center. It is responsible for the management and execution of the programming functions of BIREME's biennial work plan 2016-2017 that was developed in coordination with PAHO KBR Office.

2 Biennial Work Plan (BWP)

2.1 BWP2016-2017

BIREME's Biennial Work Plan follows PAHO structure which is organized by Initiatives, Projects and Tasks under the Expected Result 4.4.3 (Implementation of the regional knowledge management strategy) of the Program and Budget approved by PAHO in accordance with the following.
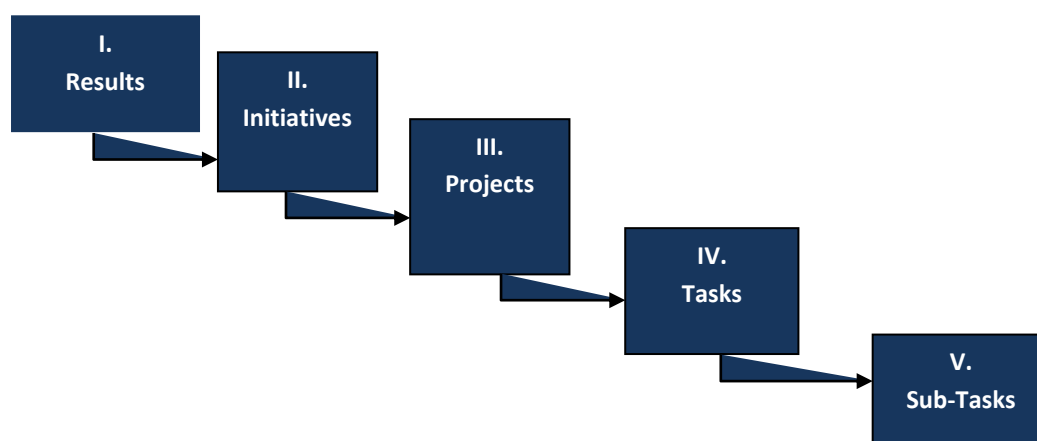
Summary of BIREME Initiatives and Projects

The following table presents the Initiatives and Projects of the BWP 2016-2017 in a structured form.

Initiatives and Projects
Initiative BIR.01 - Knowledge Management
Collaboration Network for Information Management
DeCS vocabulary compatible with MeSH, interoperable with UMLS and extended with other terminology categories
VHL as strategy of management and access to scientific and technical information in LA&C
LILACS as the main index of the scientific and technical production from LA&C
Integrated service of management of referential information sources
Directory of Experts and institutions
Public Health SciELO collection developed, extended and strengthened
Platform of Management of Research Ethics Committees - ProEthos
Initiative BIR.02 - Information Services
Develop knowledge translation products to reduce the gap between knowledge and practice in health
VHL reference service
Personalized services in the VHL
Target audience trained in communication and scientific writing
VHL user service
Access to the full text document service
Instructional project for courses in the area of health in priority themes for the LA&C Region
Campaigns for promotion and use of information
Initiative BIR.03 - Intelligence in Health Sciences Information
Terminologies in the health sciences to support the organization and exchange of scientific and technical knowledge
Infometrics of the scientific and technical production of LA&C published in LILACS
Ontologies of DeCS and LILACS for search and semantic interoperability of scientific and technical information in health
Search tool for scientific and technical information contextualized in health information systems
Publication of national, thematic and regional profiles of the scientific production of LA&C integrated into the VHL
Assistance to decision-making in health through the informetrics generated from the information sources of the VHL
Initiative BIR.04 - Leadership and Management of BIREME
New Institutional Framework of BIREME (Headquarters and Facilities Agreements) implemented and in full operation
Management System implemented in accordance with the institutional framework, recommendations and rules of PAHO
Defined risk assessment and mitigation response plans approved and implemented
BIR communication policy (image, products, services and events) elaborated and implemented
Implement the policy of Learning and Informed Environments of BIREME
Compliance with PAHO procedures and recommendations related to the administrative management of the Center
IT infrastructure available and up-to-date in accordance with the standards and management methods oriented by PAHO

Following a summary of some of the progress in each initiative of the work plan is provided.

✓ **Initiative BIR.01 – Knowledge management:**

▪ The VHL model continues to be developed and adapted to the new needs of the Network. The model is applied in 107 national, thematic and institutional VHL initiatives in 30 countries. A new Portal of the VHL Network is in the final phase of construction and will have as its function to support the application of the VHL Model of health information and knowledge management as well as a space for the VHL Collaboration Network.

- LILACS was updated weekly with contributions from its Collaboration Network, reaching 760 thousand records indexing articles from 923 journals and other types of documents. The management of LILACS updating, maintenance and publication processes was fully integrated into the new system "Integrated Service of Management of Referential Sources (FI-Admin)" developed by BIREME.

- The DeCS is updated annually, according to the MeSH update maintained by the NLM, in the English, Portuguese and Spanish languages. The Spanish version of LA&C has the collaboration of the Faculty of Medicine of the University of Chile and the Spain version with the collaboration of the *Instituto de Salud Carlos III*. In 2016 the MeSH translated into French was added to the VHL, in addition to the translation of the exclusive DeCS categories (Public Health, Homeopathy, Health Surveillance and Science and Health) in collaboration with Rouen Hospital in France. Terminology studies have been started in order to extend the DeCS according to the cross-cutting priority themes (gender, ethnicity, human rights and equity) and the themes of eHealth and Universal Access and Coverage in Health.

- The technical cooperation of BIREME has been maintained in the development of regional and international projects such as ProEthos, for the systematization of the activities of the research ethics committees, CARPHA, for access to evidence in health by the countries of the English Caribbean and the Global Index Medicus, for organizing and accessing scientific production in low- and middle-income countries.

- The technological platform for managing the VHL and its sources of information was updated, replacing eleven legacy systems with three systems developed with new technologies.

✓ **Initiative BIR.02 – Information Services:**

- 20 training activities for users to access and use information and promotion of the VHL in 9 scientific events were provided in 2016. In addition, a self-study distance learning course on access to and use of health information was updated and published in the CVSP.

- The Regional Portal of the VHL in operation and regular updating recorded about 8.7 million visits (accesses) resulting in 25 million page views. In addition, this Portal was included in the Knowledge Showcases to highlight relevant information on priority topics to the Region, such as the case of Zika.

- The User Service regularly responded to the demands on access and use of the services offered by BIREME by means of the VHL and developed more than 80 search strategies to support systematic reviews and other types of research and needs.
- Instructional projects were developed for the development of distance learning courses on the diagnosis, prevention and treatment of backward diseases in the Americas, such as Rabies, Trachoma, Visceral Leishmaniasis, Tegumentary Leishmaniasis and Helminthiasis.
- VHL's Personalized Services are being developed and tested, which will allow users to identify themselves to use services of selective dissemination of information. These services will also make it possible to know the public interest profile of the VHL, making it possible to offer specific services by segment of users.

✓ **Initiative BIR.03 - Intelligence in Health Sciences Information**

- Proof of Concept tests have been performed to evaluate and adopt specialized tools in data management, quality and visualization, which will allow improving the metadata stored in LILACS and generate and visualize indicators of the scientific and technical production in health of LA&C.
- Techniques of extraction, transformation, aggregation, analysis and visualization of data were applied to generate indicators of the scientific and technical production stored in LILACS and Medline related to the Research Institutes of the State Secretary of Health of São Paulo and to the areas of Human Resources in Health, Health Systems and Services and Water Systems and Basic Sanitation in 2030 Agenda.

✓ **Initiative BIR.04 – Leadership and Management of BIREME**

- The management of BIREME continues to be effective, according to the new institutional framework of the Center defined in its Statute, PAHO recommendations, rules, policies and procedures, PAHO Brazil support and PMIS operation. Cash flow has also been monitored with the support of PWR Brazil and PAHO headquarters.
- The infrastructure including Information Technology (IT) is implemented in the current BIREME address and connectivity is maintained available. The facilities for technical cooperation and ADM are aligned to PAHO rules. The backup and update processes are continuously improving.

- BIREME's formal communication channels are updated as part of the communication strategy of the Center that launched its Bulletin (http://boletin.bireme.org/) in the second semester. It is being disseminated throughout PAHO/WHO.

2.2 BIREME financial structure

The establishment of a stable and balanced structure for financing BIREME was one of the main motivations for the BIREME's institutional reform. The Statute of BIREME foresees that this structure of financing is analyzed and recommended by the Advisory Committee of BIREME, also recommending the financial contributions from Brazil and from PAHO, and from the participating members of BIREME.

The following table shows the distribution of financial contributions received in 2016.

Types of Funds	U$	%
Contribution PAHO HQ – 2016	1.080.000,00	38,0%
Contribution PAHO HQ – 2017	400.000,00	14,1%
Resources PAHO BRA as support to BIREME's Work Plan	571.732,80	20,1%
Technical Cooperation Projects	485.337,80	17,1%
Balance from Biennium 14/15 Services and Projects	305.018,90	10,7%
TOTAL	2.842.089,50	100%

In recent years, BIREME and its national signatories have been discussing the need to balance regular contributions with non-regular contributions from projects, contracts and service delivery. According to this model, PAHO and the Brazilian Ministry of Health must contribute with 50% of BIREME's annual budget. From the affiliation of new members to BIREME, the sources of contribution as ordinary resources will increase. At the same time, BIREME must be able to mobilize additional resources through projects, agreements, voluntary donations and service delivery.

3 Technical Cooperation: main products and services

BIREME promotes the democratization of access, use and exchange of scientific and technical health information, contributing to strengthen health systems and services in the countries of Latin America and the Caribbean (LA&C), in convergence with national and regional strategies of the 2030 Agenda and Universal Health Coverage. Founded in 1967 as a specialized Center of the Pan American Health Organization / World Health Organization (PAHO/WHO), BIREME guides its initiatives, projects, products and services by means of lines of actions with all LA&C countries, Portugal, Spain and Portuguese speaking countries in Africa and Asia, involving more than one thousand academic and governmental libraries and over 2.4 thousand institutions in the health area.

Increasing the visibility of the scientific production in health from LA&C countries by promoting the registry and indexing of their scientific and technical literature in regional, national and international databases, adopting Open Access strategies, producing data survey for assessing scholarly communication in health, and developing web technologies and interfaces for information search and retrieval are part of the actions promoted by BIREME.

Additionally, **developing capacity to make evidence-informed decisions in health**, such as training activities on the access and use of evidence to guide policy and decision making in health and implementing instructional design for distance learning courses integrated to the Virtual Campus of Public Health (CVSP from the acronym in Spanish).

Developing and implementing actions on knowledge management to strengthen health national policies and strategies by improving the capacity of institutions on knowledge management; developing information products and services designed to facilitate the information access and knowledge application in order to meet the strategic priorities and health objectives.

Applying knowledge discovery process to extract potentially useful information and generate indicators on health scientific and technical literature from data available in the Virtual Health Library (VHL) information sources.

Moreover, **developing Knowledge Translation products and services** to bridge the research-to-practice-gaps by means of special services on search, analysis, synthesis and application of scientific knowledge to support health decision-making processes and helping to reduce the so-called "know-do-gap". And equally important, **implementing Knowledge Platforms to integrate and manage research data** ease measurement and analysis of research activity and facilitate the access to comparative information on the countries' priority health issues.

Regional Program & Products

VHL - Virtual Health Library

The VHL (http://www.bvsalud.org) is the main program for health scientific and technical information management in LA&C promoted and coordinated by BIREME since 1998. It is a regional public good built and operated collectively between institutions and professionals from 30 countries in the production, intermediation and use of scientific and technical information in health. The VHL is a wide network of open access sources of health information with over 1 million visitors per month (aimed mainly at students, researchers and decision makers) from all regions in the world, especially from the LA&C. Some characteristics that define the VHL are:

- VHL Regional Portal - integrated and free access to the collection with over 30 information sources, products and services in health of the VHL Network
- National VHL Instances – countries' portals aiming at national health priorities
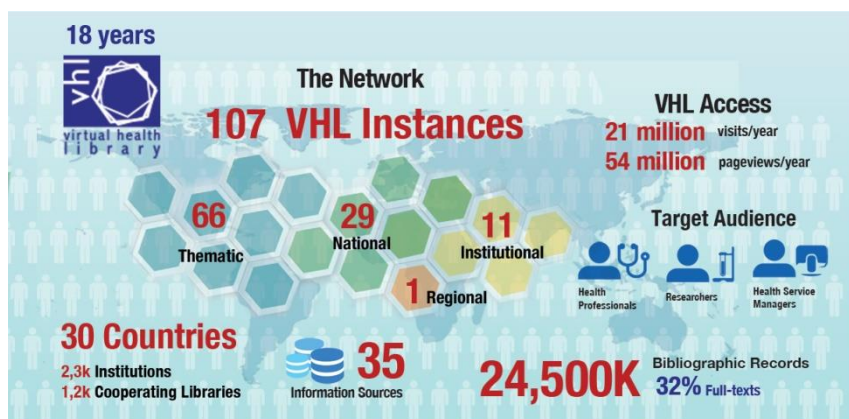
- Thematic VHL Instances - portals aimed at priority areas such as Public Health, Social Determinants of Health, Cancer Prevention and Control, Dentistry, Nursing and many others
- Institutional VHL Instances – portals aiming at the organization and dissemination of scientific and technical information produced by health or educational institutions as Ministry of Health, Secretary of Health, Institute of Health and Health Sciences Colleges
- Interoperation with networks and information systems: CVSP, SciELO (Scientific Electronic Library Online), EVIPNet (Evidence-informed Policy Network) and the National Library of Medicine of the United States (NLM)

LILACS - Latin American and Caribbean Literature in Health Science

LILACS (http://lilacs.bvsalud.org) is the most relevant and comprehensive index of scientific and technical literature in health of LA&C countries. For over 30 years LILACS has been contributing to increase the visibility, access and quality of health scientific output in the Region:
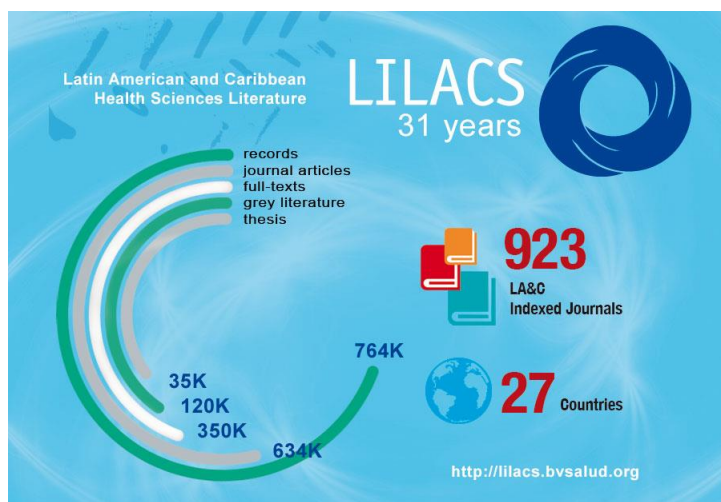
- It is available in open access and receives more than 1 million visits per month, aimed mainly at students, researchers and health professionals;
- It gathers over 760 thousand documents published in LA&C region, including articles of 923 journal titles, theses, monographs and gray literature;
- LILACS complements MEDLINE/PubMed and increases the visibility and impact of the scientific production of LA&C – around 923 LA&C journals are indexed in LILACS;
- LILACS is cited in thousands of systematic reviews as research source for Latin-American primary studies.

DeCS - Health Sciences Descriptors

DeCS (http://decs.bvs.br or http://decs.bvsalud.org) is a controlled vocabulary that maintains and regularly updates the terminology in health sciences in Spanish, Portuguese and English.

- Available online in open access, aimed mainly at students, researchers and health professionals, () and by means of a no charge license of use upon request
- It receives circa 300 thousand visits per month
- It is the only yearly updated standard vocabulary for indexing scientific and technical health literature in Spanish and Portuguese in the world
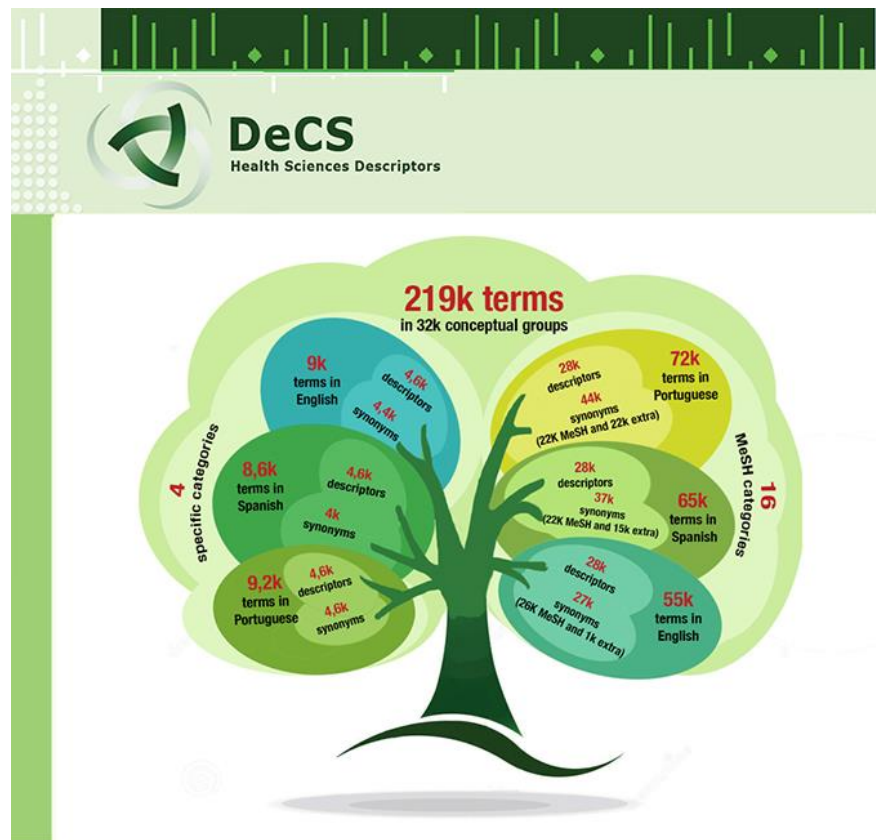
- It includes the translation of the Medical Subject Headings (MeSH/NLM) into Portuguese and Spanish
- DeCS is an extended and enriched thesaurus with additional categories maintained by BIREME, such as Public Health, Health Surveillance, Homeopathy, and Science and Health, also translated into French
- The translations of MeSH/NLM into Portuguese and Spanish are integrated into the Unified Medical Language System (UMLS/NLM) of the USA
- DeCS provides Web services that facilitate the use of the MeSH/DeCS terms for indexing contents in health information systems
- It is a tool that allows searching MEDLINE and other VHL information sources by subject headings in Spanish, Portuguese, French, and English
- DeCS is an ever-growing vocabulary through annual updates and by receiving suggestions

The translations into Spanish and French rely on the collaboration of the Central Library of the Medical School of the University of Chile; *Biblioteca Nacional de Ciencias de la Salud* (BCNS) of *Instituto de Salud Carlos III* (ISCIII) of Spain's *Ministerio de Economía y Competitividad*; and *CHU Hôpitaux de Rouen*, France. The French MeSH terms are translated by *Institut National de la Santé et Recherche Médicale* (INSERM), France.

CRICS - Regional Congress on Health Sciences Information

CRICS, since its first edition in 1992, is one of the most important and consolidated international congress on scientific information and periodically addresses the state of art in the areas of information, knowledge and scientific evidence management. It includes scientific communication, library science, information science, methodologies and information technology and its applications for national research systems, education and health.

The VHL Regional Coordination Meeting which is the most important exchange forum of the VHL cooperative network is held as a preliminary event to each CRICS and analyzes the VHL status of development at regional, national, thematic and institutional levels.

Both events are coordinated by BIREME in cooperation with the national and local institutions of the host countries.

Institutional relationship

BIREME develops technical cooperation initiatives with institutions and organizations at local, national, regional and international levels. Some of them are listed below:

- Government institutions related to health, science and technology, environment and other areas – Ministries, Science and Technology National Councils, Secretaries and State and Municipality Departments
- Research Foundations
- Academic institutions in the health sciences area, scientific editors of LA&C journals, researchers, authors, and Health Sciences graduate students
- Organizations, Scientific Associations and Societies in Public Health and related areas

Human Resources and Cooperative Network

BIREME's intellectual capital is composed by professionals with expertise in information management, development of methodologies and technologies for the management of scientific and technical information, and an administrative infrastructure which includes information technology and building infrastructures.

The Center follows the strategic planning of the PAHO/WHO, also considering policies, procedures and internal controls to assure transparency and accountability.

Moreover, the cooperative work undertaken through the networks of individuals and institutions in information and knowledge management and sharing present in 30 countries with around 2400 institutions stands out. The network offers flexibility on expansion and inclusion of new members, as well as interchange of ideas, experiences and self-organization knowledge.

The main Networks which BIREME coordinates, promotes and interoperates with are:
- Cooperating Centers of the VHL information sources and services and users of information systems and methodologies developed by BIREME – there are more than one thousand libraries of institutions in LA&C countries;
- Thematic and National VHL, such as BiblioSUS (libraries that operate in the Unified Health System of Brazil), EnfAmericas (International Networks of Nursery in the Americas), RENICS (Health Sciences Information National Network, Argentina) among others
- Associated networks: CVSP, SciELO, EVIPNet, and PAHO/WHO Collaborating Centers

BIREME and its products and services applied on successful initiatives

✓ **One-stop-shop portals to fit specific information needs and target**

▪ **CARPHA - Caribbean Public Health Agency**

In a coordinated initiative led by CARPHA, the CARPHA EvIDeNCe Portal is under development using the VHL search interface. This portal aims

to provide a single one-stop-shop solution, where a single query through this interface will produce consolidated user-friendly results. It is a way to make available both published journal articles and grey literature to health technical staff, health authority policy and planning staff, health system stakeholders and university staff.

▪ ***Programa Telessaúde Brasil Redes*** [Telehealth Brazil Networks Program]

Development and management of information sources such as "Questions and Answers" as a

result of Teleconsulting service offered to the Health Primary Care Network of Brazil. It is a concrete example of knowledge translation, since the answer is straightforward, with an appropriate language aimed at professionals who referred the question and based on the best evidence available. There are more than one thousand questions and answers available at http://aps.bvs.br, which are mainly accessed by primary care teams of the Brazilian Health System.

▪ **Global Index Medicus**

The Global Index Medicus (GIM) provides worldwide access to biomedical and public health literature produced by and within low- and middle- income countries. The main objective is to increase the visibility and usability of this important set of resources.

The material is collated and aggregated by WHO Regional Office Libraries on a central search platform allowing retrieval of bibliographical and full text information. Through the GIM portal, users can search across 1,842,693 bibliographic and full text records produced by these countries.

BIREME contributes to GIM with the VHL model to publish and integrate all the index medicus in GIM portal; with LILACS methodology to manage and publish the African and Eastern Mediterranean Index Medicus; with the collaboration flow for South-East Asia and Western Pacific by harvesting, processing and publishing their bibliographic metadata.

✓ **Customized web solutions to improve health information management**

▪ **REBEC - Brazilian Registry of Clinical Trials**

REBEC (http://www.ensaiosclinicos.gov.br/), coordinated by ICICT/Fiocruz, is the first clinical trials registry database in Portuguese language in accordance with ICTRP/WHO criteria. BIREME is responsible for the technological platform development – OpenTrials – used by REBEC, which is free and open source software available for download, use and customization by any country or region.

▪ **MedList - Annotated Medicines Hyper Lists**

The MedList is a component of the Regional Platform for Innovation and Access to Health Technologies (PRAIS - http://www.paho.org/prais), coordinated by PAHO HSS/MT Area. It aims at managing and publishing Drug Lists.

▪ **ProEthos Platform**

The ProEthos Platform is coordinated by PAHO AD/KBR area and aims to facilitate the review process of ethics committees and organize them with the support of information and communication technologies (ICT).

✓ **Fostering information and knowledge management on health organizations**

▪ **Brazilian Ministry of Health**

There are many technical cooperation projects between BIREME and the Ministry of Health of Brazil, considering several technical cooperation agreements between PAHO and the Brazilian government. Besides the development of the national VHL (http://brasil.bvs.br/), thematic web portals, such as Public Health (http://saudepublica.bvs.br), Infectious Diseases

(http://www.bvsdip.icict.fiocruz.br), Primary Health Care (http://aps.bvs.br) and others (see more - VHL web portals), BIREME has promoted, in the context of this technical cooperation, some innovations for the VHL, such as mobile interface and web accessibility in accordance to W3C (World Wide Web Consortium). The first VHL web portal that reached the highest level of accessibility standards (Level AAA of W3C) was the institutional VHL of the Ministry of Health of Brazil (http://bvs.saude.gov.br/).

- **SES-SP - Secretary of Health of the State of São Paulo**

SES-SP coordinates the Knowledge and Information Network of Research Institutes of São Paulo State and operates an institutional VHL with BIREME collaboration. Informetric analyses are applied in order to monitor the scientific and technical output of those Institutes.

- **SMS-SP - Secretary of Health of the Municipality of São Paulo**

Besides the SMS-SP VHL, BIREME also collaborates with the implementation of *Programa Telessaúde Redes do Município de São Paulo*, which is integrated to the nationwide initiative. This is an example of knowledge management strategy applied at the municipality level.

✓ **Promoting capacity building and continuous learning in health**

- **Scientific Communication courses**

Courses on Scholarly Communication in Health Sciences aimed at researchers, scientific editors, health professionals, graduate students and other stakeholders cover topics such as writing of scientific papers, actors of the editorial chain, business models of health journals, Open Access, journal selection, authorship and coauthorship, ethics in scientific experimentation and writing, peer review, conflicts of interest, assessment of scientific journals, traditional and alternative metrics and novel trends in scholarly publishing.

- **Distance learning courses**

Development of instructional design of distance learning courses and integration of scientific evidence as basis for the contents of several courses, such as: *Leishmaniasis visceral en las Américas, Geohelmintiasis: prevención, tratamiento y control*, *Profilaxis Post Exposición de la Rabia*, *Políticas informadas por evidencias.* Recently, the self-study course on *Acceso y Uso de la*

Información Científica en Salud [Access and Use of Scientific Information in Health] in Spanish was launched, and it is available at the Virtual Public Health Campus (CVSP).

✓ **Selective dissemination of information to empower users and promote equitable access to information**

▪ **Specialized Search Service**

Literature clipping, drawn up in cooperation with experts, aimed at the most diverse needs, as a showcase of the scientific production of the country or area on priority issues such as infection by Zika Virus, Safe Water and Sanitation on the 2030 Agenda for Sustainable Development; build search expression and documentation for systematic reviews; support in the development and localization of documents for policy informed by evidence in cooperation with working groups.

▪ **Informetrics and data visualization for knowledge discovery**

The use of techniques and tools related to data management, data quality, data and text mining, advanced analytics and data visualization in order to promote quantitative analysis of bibliographic data available and extract potentially useful information.

The informetrics can be applied for several aspects of health scientific production such as publication year, publication country, main research subjects, journals, publication language, and authorship (individual, institutional and research groups).

BIREME as a reference center in scientific and technical information and communication, has ensured to the countries of the Region the continuity of the governance, development, operation, and innovation of products, services, events, information systems, methodologies, and technologies of scientific and technical information following the international state of the art. Thus, BIREME contributes systematically and efficiently to sustain, strengthen, and increase the capacities and infrastructures of scientific and technical information and communication in LA&C Region. The progress of BIREME's operation is made evident by the fact that the technical cooperation by means of the VHL and Associated Networks is present in 30 countries and it includes over 2400 institutions.