

BIREME / PAHO / WHO

Latin American and Caribbean Center on Health Sciences Information

Evaluation Report of 10 year operation of the VHL

Technical Working Group for the VHL Evaluation

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Members of the *Technical Working Group for the VHL Evaluation*:

- Alberto Pellegrini, rapporteur
- Anna Maria Prat
- Cesar A. Macias Chapula
- Eduardo Pleitez
- Félix de Moya Anegón
- Gustavo Kouri
- José Jardines
- Pedro Urra

Card catalog

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BIREME / PAHO / WHO

Latin American and Caribbean Center on Health Sciences Information

Rua Botucatu 862

Sao Paulo, Brazil

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1. Introduction

In 2008 the Virtual Health Library (VHL) celebrates ten years of operation and development from its launch in March 2008 by occasion of the IV Regional Congress of Information in Health Sciences (CRICS4) carried out in San José, Costa Rica. Promoted and coordinated by BIREME, the VHL is the space and reference instance for technical cooperation in health scientific and technical information in Latin America and the Caribbean (Region). The VHL constitutes a public good constructed with the collaborative effort of all the countries of the Region in a context of globalization, of rapid technological changes, and of permanent challenges to health systems and to the public policies that seek the promotion of equity in health. An effort of such complexity and magnitude requires a systematic evaluation in order to identify progress, deviations, and necessary adjustments.

Considering:

- The advances and notable achievements that the VHL has contributed to policies, management, and operation of sources and flows of scientific and technical information, knowledge, and evidences in health in the Region;
- Its contribution to other developing regions; and
- The big challenges that persist for their broad adoption throughout the Region and for continuous quality improvement of the methodologies, technologies, and contents operated in the VHL.

BIREME is promoting a broad process of evaluation that should culminate in the next 5th Regional Coordination Meeting of the VHL (VHL5), that will be carried out in Rio de Janeiro in September, 14-16. This meeting precedes the 8th Regional Congress on Health Sciences Information (CRICS8) that will take place in September, 16-19 with a program organized around the subject of information, knowledge, and innovation.

This report presents the background and the evaluation methodology, in addition to its main achievements.

2. Background

During 41 years, technical cooperation in health scientific information led by the Pan American Health Organization (PAHO) through BIREME has evolved with successive management models of scientific information and communication. It is possible to identify the following periods:

First period: From its creation in 1967, as Regional Library of Medicine, until the end of the 1970s, the model of technical cooperation of BIREME was based on the essential functions of the medical libraries, including human resources education in management and operation of libraries and documentation centers, local collection development, shared use of the collections among libraries, user services, bibliographic searches in MEDLINE database and interlibrary loan.

Second period: Since the end of the 1970s until the end of the 1980s, the model of technical cooperation was expanded, on the one hand, with the new function of bibliographic control of the health literature published in the scientific journals of Latin America and the Caribbean and, on the other hand, expanding the thematic coverage in order to comprehend the health sciences in general, with emphasis on public health. In 1979, BIREME launched the Index Medicus Latino-Americano (IMLA), indexing nearly 150 journals and, as a result, complementing MEDLINE, which then included 44 titles of Latin America and the Caribbean. With the IMLA, BIREME began its prominent role to give regional and international visibility to the health scientific and technical production of Latin America and the Caribbean. This expansion of the cooperation model transformed BIREME in center of information and indexing for the Region, which is reflected in the change of the name of Regional Library of Medicine to that of Latin American and Caribbean Center on Health Sciences Information in 1982, remaining the acronym BIREME. During this period, the IMLA evolved to the bibliographic database called Latin American and Caribbean Literature on Health Sciences Information (LILACS), with emphasis on public health.

Third period: At the end of 1980s, BIREME promoted the decentralization, at the country level, of the functions of bibliographic control of the scientific production and of the bibliographic search services. This decentralization is shaped in the Latin American and Caribbean System on Health Sciences Information, with a national coordinating institution in every country. This movement has meant a notable progress for the development of the national capabilities with respect to national infrastructure of information and managerial and technical human resources. In this period LILACS evolved to the cooperative production. At the end of the 1980s, BIREME promoted the use of computers in the libraries, both for the decentralized production of LILACS database and for the bibliographic search in CD-ROM and subsequently on-line. LILACS-CD-ROM launched in 1988 was one of the first CD-ROMs of scientific information produced in the world. Also in this period, BIREME enriched the methodologies for scientific information management with the launch and annual updating of the vocabulary Health Sciences Descriptors (DeCS), which contains the translation of the Medical Subject Headings (MeSH) of the National Library of Medicine to Spanish and Portuguese languages, expanded with new descriptor categories in order to permit better indexing of the scientific and technical literature of the Region, especially public health and environment.

Fourth period: The period since the end of the 1990s and currently is in advanced phase of development, and has its centrality in the full adoption of the Internet as the means of production of the sources and flows of scientific and technical information. Technical cooperation is implemented by means of the Virtual Health Library (VHL), which was launched in March 1998, with the Declaration of San José, approved during the IV CRICS. In this Declaration the country representatives recognize that the access to the information constitutes one of the central elements to reach equity in health; that the new information and communication technologies pose risks and opportunities for the human development in the Region and that the Latin American and Caribbean System on Health Sciences Information under the leadership of BIREME has the capability for the control of these technologies, adapting them to the reality of the region. Based on these premises, they made the commitment to cooperatively built the Virtual Health Library, in order to strengthen capabilities and infrastructures and to facilitate the broad access to the information for the permanent improvement of the health and for sustainable human development of the region. At the same time, with the support of FAPESP (State of São Paulo Research Foundation) from Brazil, BIREME creates SciELO (Scientific Electronic Library Online) as a model for open access cooperative electronic publishing of scientific journals on the Internet.

The VHL represents a notable innovation that has contributed to the systematically update of the Region within research, education and health care systems, in accordance with the social, economic and cultural conditions of the Region regarding issues on methodologies, technologies, products and

contemporary services of scientific information, knowledge and evidence. The operation of the VHL and associated networks has radically contributed to the visibility, access, use, and impact of the information sources from Latin America and the Caribbean, as well as to the access to the international sources of reference. In 2007, the monthly average access to the regional site of the VHL and SciELO was of 7 million accesses and in the whole network it is estimated in more than 10 million accesses, which reveals that the VHL is one of the main world initiatives in scientific and technical information.

In the last 10 years there have occurred significant changes in the Latin American and Caribbean societies as well as in international environment and particularly in the field of the information and knowledge management. Among these processes there are pointed out the movement of open access, the struggle for reducing the digital divide, the know-do-gap in health, the rapid integration of technology and social advances as the so-called social Web and others that constitute permanent challenges to the processes of information and knowledge management.

Furthermore, in the last ten years, it has considerably increased the awareness, by the decision-makers, of the importance of the information as essential supply for the definition of public policies. It has increased, also, by the population, the awareness on the importance of the information for the adoption on healthy behavior and for the health advocacy. The foregoing poses new challenges for the broad and equitable access of information that answer the needs and demands for the different social groups.

3. Evaluation Methodology

3.1. Evaluation Process

The evaluation process promoted by BIREME combines two main axes:

- **VHL and Associated Networks evaluation by a technical working group.**

The VHL evaluation was coordinated by BIREME with the support of a technical working group (Working Group) integrated by specialists of Ibero-American countries. Its function is to advise BIREME on the preparation of the guides and to critically follow the evaluation process. The first meeting of the Working Group was held in BIREME on last May, 12 and 13, when the VHL state of progress was discussed based on presentations given by BIREME's professionals. A second online meeting occurred in the week of June, 17 to 20. On this occasion a draft of the evaluation guide was elaborated, subsequently expanded and distributed to the whole network in order to guide the preparation of the reports by the national and thematic VHL initiatives.

- **Self-evaluation of the national and thematic initiatives in the VHL.**

All countries and thematic areas that operate in the VHL did an analysis and evaluation of their participation in the VHL, using one common guide that considers the political, managerial and operational dimensions. The preliminary result presentation of these analyses was made through an intense on line meeting program. From June to August 36 online meetings were held with the presentations of reports from 25 countries, 8 thematic areas and 4 associated networks of the VHL. Furthermore a self-evaluation

tool was sent to countries with VHL progress indicators. These reports constitute the main sources for the elaboration of the final document of the VHL5 meeting and of the 10 years of the VHL.

The Working Group advised BIREME on the preparation of two main reports:

The first report was submitted at the meeting on "Access to quality health information" organized by BIREME on July 20-25 in Bellagio. This meeting had the participation of 23 representatives selected throughout the world that they lead different organizations and initiatives in information and scientific communication. At this meeting, ideas, proposals, recommendations were discussed for the development of a global initiative of support for the equitable access to the scientific and technical information. The meeting of Bellagio is one of the 8 meetings on subjects related to the application of technologies of information and communication in health systems that the Rockefeller Foundation is leading under the name "Making e-Health Connection: Global Partnership, Local Solutions."

The second is the current report that will be discussed in the 5th Regional Coordination Meeting of the Virtual Health Library which after discussed and complemented with the conclusions and recommendations will be the official document of the VHL 10 years. The VHL5 Meeting represents the principal collective forum of the VHL Network for the periodic evaluation of VHL, to share experiences, lessons learned, progress, and challenges, suggest corrections, and make recommendations for its future development. The analysis and recommendations that emerge from the regional coordination meetings of the VHL guide the work of technical cooperation among the VHL producers, intermediaries and users, and inform the work plan of BIREME.

The entire process of evaluation, as well as the generated documentation are shared between all the members of the network and its final results will be published in open access.

3.2. Evaluation method

The VHL evaluation includes its three fundamental dimensions:

- VHL as Strategy.
- VHL as Model.
- VHL as Operational Framework which includes the social networks, the content networks and the learned and informed networks.

For each one of these dimensions appropriate indicators were defined to identify trends, achievements, and weaknesses during the 10 year period.

3.2.1. VHL as Strategy

Based on the CRICS declarations and of the various VHL constitutive documents, *the VHL can be defined as a strategy to put the information and the knowledge at the service of equity in health and for the sovereign and conscious incorporation of the countries of Latin America and the Caribbean in the global information flows.*

The evaluation assumes this strategic definition as basic reference, taking as object of evaluation its two strategic objectives:

- **Insertion in the global information flows**

Indicators:

- Increase of the visibility of the regional scientific output in the international context.
- Indicators of international positioning of the regional scientific output.
- Presence articles on the VHL in the scientific literature.
- Increase of the access to the global information flows.
- Evolution on the quantity, distribution, and type of VHL users.
- Evolution of the diversity of participants, lecturers, and subjects of the CRICS as indicator of insertion in the global information flows.
- International adoption of the VHL model particularly in south/south cooperation and with other developing regions.

- **Utilization of the information and knowledge for the promotion of health equity**

Indicators:

- Increase in the use of the information and knowledge included in the VHL by:
 - decision-makers
 - managers
 - health professionals
 - general public

3.2.2. VHL as Model

The model of information and knowledge management adopted by the VHL is based on the development of the national capabilities and infrastructure for a cooperative work in network. The main fundamentals and components of the model are:

- Knowledge as capacity for action;
- Knowing as individual act profoundly rooted in social processes;
- The interaction information-knowledge-action-knowledge-information;
- Open access;
- Interoperability;
- Development of national capabilities;
- Continuous quality improvement;
- Integration of information producers, intermediaries, and users;
- Convergence;
- Alignment to international standards and trends;
- Use of common methodologies and technologies in accordance to the *state-of-the-art*;

- Support of the disciplines of information science, knowledge management, scientific communication, library science, bibliometrics, infometrics, cienciometrics, systems engineering, information and communication technologies, health sciences in general, administration, etc.

Adopting this model as reference, the evaluation tried to identify the trends, achievements, and difficulties in the implementation of the same. Among these evaluation indicators are included:

- Explicit national policies in health information linked to the VHL model;
- National information infrastructures improvement;
- National investments for connectivity increase and access to different users;
- Training of national human resources in technologies and methodologies related to the VHL, through courses, congresses, etc;
- Autonomous development of information sources;
- Collaborative development of methodologies and working tools;
- Integration and exchange opportunities for collaborative developments;
- Improvement of the information management process at national level: National VHL certified or in process, national reports;
- National VHL development degree as indicator of local capability through the evaluation of the national portals.

3.2.3. VHL as Operational Framework

The operational framework that guides the VHL implementation is based on the construction of three network dimensions: social networks learned and informed environment networks and content networks

- **Social Networks**

They are made up by people, groups, and institutions that through collaborative work construct and maintain the national and thematic VHL initiatives. The development indicators of these networks include:

- Number and type of institutions involved in the process of the VHL construction;
- Number and composition of the national advisory committees.

The developer network constitutes a social network of high strategic value for the VHL decentralized construction and its development was evaluated through:

- Quantity of technology development projects that implied more than one institution;
- Participation of the developer network in the development of the vhl methodologies and technologies.

- **Learning and Informed Networks**

It concerns the evaluation of the development of interaction, publication and access spaces in VHL including the virtual communities and the collaborative spaces, and the training of different

users. The learned and informed environments aim at maximizing the inclusion of the members of the institutions, organizations and communities in health information and knowledge management. The learned and informed environments are sustained by means of local information flows and were evaluated through:

- Dissemination of the knowledge management concept in the network institutions, mainly in health systems;
- Adoption of information and knowledge socialization models;
- Country investments for creation of public spaces of Internet/VHL access in different environments as hospitals, schools, community centers, etc;
- Country investments for training different types of users.

- **Content Networks**

The VHL contents, handled and operated basically by means of information sources and flows are organized in content networks of products, services and events that in turn find support in specific social networks. The development of each one of these networks was evaluated through its quantitative and qualitative growth. For each one of them the following aspects were analyzed:

- What is it?
- What are the objectives?
- When did it start?
- Who participate and how?
- How did it evolve since its creation?
- What is the degree of development of the collaborative process through which was given that evolution?
- Main achievements;
- Challenges and perspectives.

The evaluation of development of these content networks in the Region concentrated on the following: SciELO, LILACS, DeCS, ScienTI and Public Health Virtual Campus (CVSP), and in other regions of the world: Global Health Library, TropIKA.net, ePORTUGUESe and EvipNet.

4. Results

Below there are presented some initial results of this process of evaluation, which should be consolidated as a sustainable activity that permits a systematic and in-depth evaluation of all the dimensions of aforementioned VHL.

4.1. VHL as Strategy

In this dimension the VHL was evaluated on two strategic objectives: the insertion of countries of the Region in the global information flows and utilization of information and knowledge for the promotion of equity in health.

In this report some results related to the first strategic objective are presented. The VHL impact assessment on the improvement of the information utilization by the decision-makers, managers, health professionals, and general public requires a appropriate evaluation methodology and should be subject to a future specific evaluation/research.

The auto-evaluation of National VHL permitted to observe some very positive trends with respect to the countries insertion improvement in the global information flows. More than 90% of the 20 countries that carried out a self-evaluation reported that information professionals and technical personnel working on the VHL in the country participate in national and international events related to VHL and management of health information, indicating a strong exchange of HR promoted by VHL.

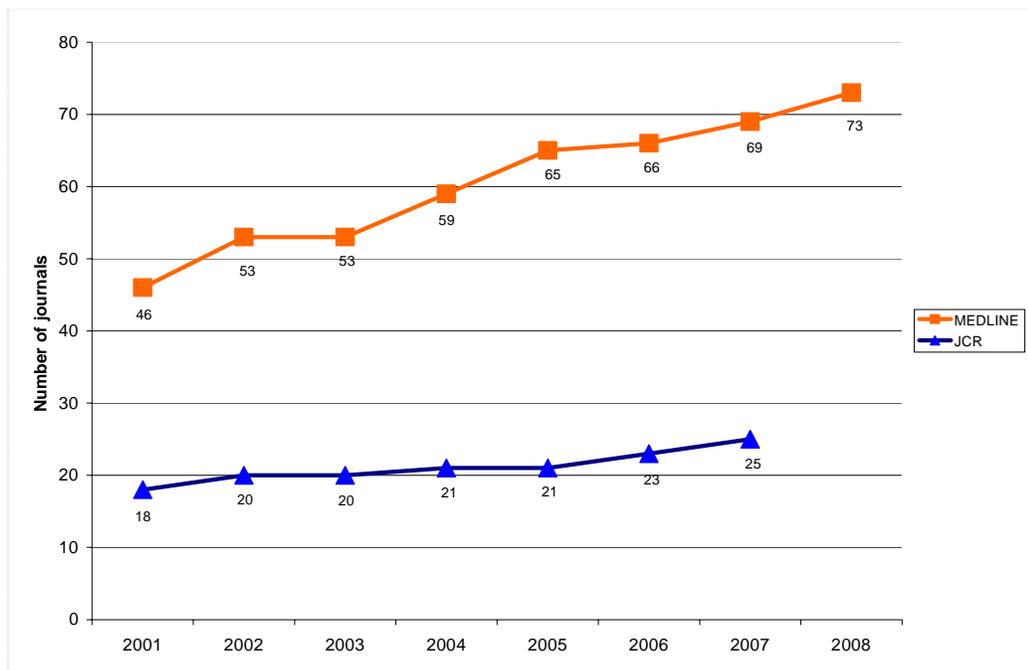
It is worth also mentioning that near 70% of the respondents consider that VHL helped to increase the visibility of the scientific output in health of the country in the international context through the increase of the number of national journals indexed in regional databases.

The following table shows the important role of LILACS as about 70% of the journals are indexed only on this database.

Country of publication	LILACS	SciELO	MEDLINE	JCR
Argentina	120	7	7	3
Bolivia	9	0	0	0
Brazil	324	111	35	25
Chile	60	22	3	4
Colombia	90	23	2	1
Costa Rica	12	9	1	1
Cuba	30	23	1	0
Ecuador	15	0	0	1
United States (PAHO)	3	1	1	1
Guatemala	4	0	0	0
Honduras	1	0	0	0
Jamaica	2	1	1	1
Mexico	37	8	13	5
Panama	1	0	1	0
Paraguay	6	0	0	0
Peru	14	11	1	0
Puerto Rico	2	0	2	0
Uruguay	11	6	0	0
Venezuela	48	10	3	2
Total	789	232	71	44

Source: VHL Health Scientific Communication, August 2008

SciELO and LILACS are contributing in improvement of quality and visibility of the scientific output of the Region, what can be perceived by the growth of number of journals indexed in international databases such as MEDLINE and the Journal Citation Reports (JCR).



Source: List of Journals Indexed for MEDLINE, 2001-2008 and JCR, 2001-2007

4.2. VHL Model

The VHL model is based on the development of the national capabilities for a cooperative work in network. Therefore, the principal focus of evaluation of this component was to confirm if the VHL contributed to the strengthening of the national capabilities. Based on the responses to the common evaluation guide, some significant achievements were observed.

With regard to assuming VHL as a model for health scientific information management, 80% of the respondents reported that a portal of national VHL exists and is updated regularly and that a National Advisory Committee exists made up of representatives of various institutions which meet at least twice a year in order to evaluate the VHL development.

It is noteworthy that, of the 20 answering countries, 18 reported that the National VHL Portal follows the standard model promoted by BIREME and is integrated in the Regional VHL. More than 70% of the respondents reported that the statistics and health indicators of the country are registered in country-specific databases and 80% reported that the national health scientific output is registered in bibliographic databases developed with LILACS methodology, sending regularly updated records to BIREME.

In regard to the national human resources training, 75% of the countries indicated that they have the professionals and technical personnel necessary for guaranteeing the VHL operation and that they develop, systematically, courses, and other educational activities to train the VHL users in the management of the information sources and services. A weakness in regard to these aspects related to human resources

is that less than 25% of the countries make a periodic evaluation of the information professionals and technical personnel linked to the VHL on respect to the indispensable competencies for their performance.

In regard to the technological infrastructure for the operation of the VHL sources and services it is auspicious to confirm that in 80% of the countries there exist dedicated servers, in order to function as hosts of the main national information sources and services. Furthermore, in 70% of the countries the producer and/or intermediary institutions linked to the VHL are connected to the Internet and use the Web for the sources and services updating and maintenance. Weakness in regard to this aspect is that only 25% of the countries have financial resources to guarantee the VHL technological scalability in accordance with the identified needs. This low proportion is also confirmed in regard to the existence of an investment plan to increase the levels of connectivity and access of the users.

Based on the country reports of analysis and evaluation of their participation in the VHL, one can see that countries achieved different maturity levels of adoption of the VHL model for information management at national level.

Until July 2008 there were 152 VHL initiatives, distributed at institutional, national and regional levels.

VHL Initiatives	Number
Institutional	22
National	27
National Thematic	78
Regional Thematic	25
Total	152

Status	Number
Pilot projects	19
Certified	39
In development	68
Institutional	20
Discontinued	6
Total	152

The initiatives that were discontinued represent a minimum amount, which shows the general acceptance of the work model and the commitment of the institutions on the long range maintenance of the Project.

It is worth mentioning some mature and successful VHL models in the countries, which become reference as a result of the effort to give quality to the contents and sustainability, despite the technological and human resource restraints. The VHL model could be customized to local conditions and adapted to available resources in the countries that achieved certification of the national and thematic VHL initiatives: Argentina, Bolivia, Brazil, Colombia, Costa Rica, Cuba, Dominican Republic, Honduras, Mexico, Peru, El Salvador, Trinidad and Tobago, Uruguay and Venezuela.

In some of these countries, like Brazil, Bolivia and Cuba, there is a strong insertion of the VHL model as a referential framework for the governmental actions in the health sector and as a component of the national health information, education and communication policy.

Brazil occupies a decisive position, of high impact and of leadership in development and operation of VHL and its associated networks. The principal legal milestones for establishment of the health information policy are part of the Directives of the National Conferences of Health and of the Publishing

Policy of the Ministry of Health, published in 2004. As a result there was programming and budgetary progress in order to establish a common policy of Health Information for the three levels of the Unified Health System (SUS) and support for the implementation of the projects of VHL Brazil. Furthermore, Brazil participates at a significant level in the management of health scientific and technical communication in the Region, being the largest producer and health information user and the principal partner of PAHO/WHO in the creation and maintenance of BIREME. In fact, Brazil has also cooperated with the majority of the countries of the Region and with the Portuguese-speaking developing countries of Africa and Asia.

Health legislation is incorporated to VHL in the area of MERCOSUR, including Argentina, Colombia, and Brazil, as a way of dissemination of the normative acts produced in the countries in full text.

All of the above permits to conclude that VHL is achieving objectively its consolidation as the predominant model of regional technical cooperation in health sciences information, although near 85% of the countries do not have a national health information policy that explicitly adopts and recognizes this singular VHL role.

4.3. VHL as Operational Framework

In regard to the various networks that permit the decentralized and collective sources construction, common methodologies and technologies, it is observed that in nearly half of the countries there is participation of specialists and information technical personnel in development, updating, and adapting the VHL methodologies and model, jointly with BIREME and other institutions of the Region. This percentage falls for 35% when refers to the integration of the national technical team for software development through Networks that operate under the principles of the Open Source model.

The Network of Cooperating Centres of VHL is made up of more than 2000 libraries and institutions. This Network had a key role for strengthening the cooperation work which is especially decentralized in Argentina, Bolivia, Brazil, Colombia and Uruguay.

Taking into account the concept of Learning and Informed Environments, the Virtual Communities, the Communities of Practice, and the Collaborative Spaces in the VHL promote and facilitate the utilization of formal communication channels by specific groups and make possible the dissemination of ideas and knowledge. Integrated in the VHL, in the current paradigm of participation of the social networks in the Web, these spaces make viable the insertion of the general knowledge in its areas of news, documents, images, forums for discussion, talks and blogs, characteristics of that source of information.

The development of the Collaborative Spaces is advancing consistently since 2004 and several improvements have allowed their full integration into the VHL, as happens with the search and retrieval of news and documents generated by users themselves.

Until July 2008 38 Collaborative Spaces were established, of which 23 are in regular operation, 4 under development and 5 are the Communities of Practice using specific tools.

The main challenges of the Learning and Informed Environments are:

- Need to extend the understanding of communication processes as an information source of the VHL;
- Dissemination of the concepts of collaborative environments on the Web;

- Dissemination and training in the tools of collaborative spaces.

In regard to the creation of public spaces to access Internet and the VHL in different environments, to maximize the inclusion of the members of institutions, organizations, and communities in the management of health information and knowledge, one can point out the initiatives from Brazil and Cuba in the implementation of VHL Stations in hospitals, schools, community centers, public libraries and health secretaries of municipalities.

The current situation, trends, and perspectives in regard to the main VHL content networks are presented below.

4.3.1. SciELO

SciELO includes a program guide for the publication of high quality scientific journals on the Internet in open access, focusing on Latin America countries and the Caribbean. The overall objective of the SciELO model is to contribute to the advancement of scientific research in the Region and the dissemination of its results by improving the quality of its scientific publications. The specific objectives are to increase visibility, accessibility, credibility, use and impact through online publication in open access of scientific journals, gathered in national and thematic collections, with integrated control of use, impact and collaboration for the improvement of the management of editorial processes, scientific quality and international indexing.

In each country, SciELO collections are promoted and operated in coordination and with the active participation of the scientific editors, under the responsibility of one or more national institutions that play a recognized leadership role in scientific research and output reporting such as the National Councils of Science and Technology and the Universities. BIREME is responsible for the international coordination and for the promotion and operation of international thematic collections, sharing that leadership with other specialized institutions.

Since its launching in 1997, with the collection of SciELO Brazil, SciELO Network has been gradually expanding its coverage of countries and collections. Following the launch of SciELO Brazil, the project was adopted by the National Commission of Scientific and Technological Research of Chile (Chile - CONICYT) promoting the creation and regular operation of the SciELO Chile collection. SciELO represents the most important initiative for online publishing of quality scientific journals in developing countries and figures prominently in the international movement of Open Access scientific publishing.

Nowadays, SciELO Network consists of the following sites:

- *Certified collections (in regular operation)*: SciELO Argentina, SciELO Brazil, SciELO Chile, SciELO Colombia, SciELO Cuba, SciELO Spain, SciELO Portugal, SciELO Venezuela and the thematic sites: SciELO Public Health, which includes journals from Brazil, Spain, Mexico, Colombia and the journals from Pan American Health Organization (PAHO) and World Health Organization (WHO), and SciELO Social Sciences English Edition.
- *Collections not certified (under development)*: SciELO Costa Rica, SciELO Mexico, SciELO Peru, SciELO Uruguay, SciELO Paraguay and the West Indian Medical Journal from Jamaica.

The following table shows the SciELO network development status in August 2008, including the distribution by country and subject areas.

SciELO Network: distribution of journals by countries and years, 1997 - 2008

Certified Collections	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Brazil	10	25	35	54	66	92	114	134	144	158	203	211
Chile		3	6	20	26	32	39	46	50	56	69	71
Cuba					5	5	11	15	18	19	22	22
Argentina								4	4	18	33	44
Colombia								4	7	9	46	54
Portugal								5	5	9	17	20
Spain					3	7	12	18	24	27	34	36
Social Sciences	0	0	0	0	0	0	0	0	5	12	29	29
Venezuela									6	18	35	41
Public Health				5	5	7	7	8	8	8	8	11
Total	10	28	41	79	105	143	183	221	271	334	496	539
% of growth	0	180	46.4	92.7	32.9	36.2	28	20.8	22.6	23.2	48.5	8,67

Collections not certified	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Costa Rica				4	6	9	9	9	9	9	9	9
Mexico							10	10	10	10	19	26
Peru								7	13	13	19	23
Uruguay									6	6	6	7
Paraguay											3	3
West Indian Medical Journal										1	1	1
Total	0	0	0	4	6	9	19	26	38	39	57	69
% of growth	0	0	0	0	50	50	111	36.8	46.2	2,63	46.2	21,1

Source: SciELO, August 2008

The operation of the SciELO network is based heavily in national infrastructures, which helps to ensure its sustainability and develop national capacities in online and network science communication in open access. Therefore, the SciELO model is continually improved incorporating international developments and lessons learned in the operation of the national collections.

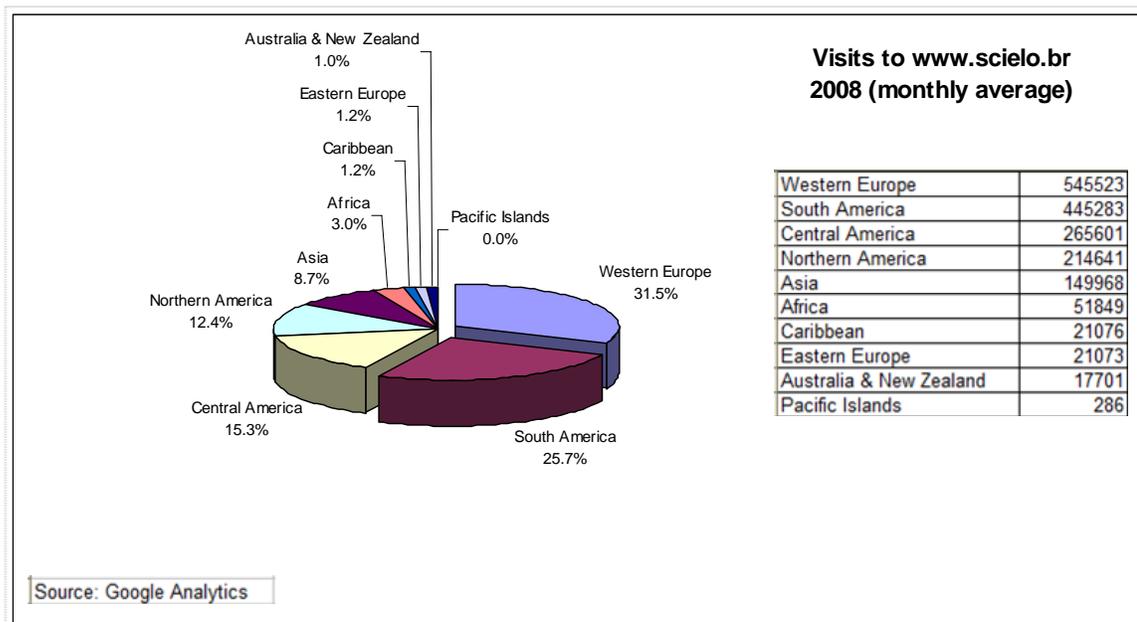
The SciELO Network Portal indexes all SciELO sites in Latin America, Caribbean, Portugal and Spain, both in regular operation and in development, allowing access to more than 600 journal titles and more than 177 thousand full-text articles

Major achievements in building SciELO cooperative network:

- Growth of the number of journals in electronic format using the SciELO methodology in many knowledge areas.

- Training of scientific editors on electronic journal management.
- Extraordinary increase of visibility of the scientific production of the Region, which is confirmed by the indicators of access to SciELO. For example, SciELO Brazil has reached a monthly average of about 8 million accesses to articles, with users from all regions of the world (see table). Access to the SciELO Brazil collection had a large increase after its indexing by Google, followed by Google Scholar and, most recently with the new services on demand offered to users of the portal. SciELO Chile, which is one of the oldest collections, reached a monthly average of one and a half million visits.
- The implementation of innovations and new customized user services by Brazil, Cuba and Mexico, and, in initial stage, by Chile and Spain.
- Use of SciELO model for publishing some popular science magazines and thematic collections outside the SciELO Network, such as the Psychology, Nursing and Dentistry collections in Brazil.

Distribution of visits to the SciELO Brazil collection by regions of the world in 2008



Source: Google Analytics, August 2008

The extraordinary growth of SciELO particularly in early years has been raising a series of challenges. It's worth mentioning:

- The technical processes used in SciELO Methodology have been significantly improved in the last 10 years and the production cost of journals using the SciELO model has been decreasing in the last 3 years. However, it is necessary to find alternatives for decreasing production costs in order to facilitate adoption of SciELO Model by low-income countries.
- The need to find more sustainable funding mechanisms in accordance to the reality of each country.
- The expansion of SciELO to countries and regions with low scientific production finds a series of obstacles such as the low quality of the journals, lack of institutional support, scarce qualified

human resources for technology management and the high implementation costs. Many of these obstacles could be eventually overcome by the establishment of a technical cooperation based on partnership among regional institutions or neighboring countries.

4.3.2. Latin American and Caribbean Health Sciences Literature – LILACS

LILACS is a bibliographic database which, since 1982, indexes the health scientific and technical literature produced by countries of the Region. Using the Health Sciences Descriptors (DeCS), LILACS include journal articles, books, book chapters thesis, papers presented in scientific events, scientific and technical reports, research projects, and non-conventional documents, also known as gray literature.

LILACS is particularly devoted to health professionals, researchers, decision makers, authors, publishers, scientific and technological institutions, and international funding agencies, universities, libraries, information centers, scientific and technical, professional associations, among others.

Its main objectives are:

- To index health scientific and technical literature produced in Latin America and Caribbean region, contributing to its bibliographic control and visibility.
- To strengthen the decentralized technical cooperation model, using the VHL methodologies.
- To contribute to the development of local and national capabilities for document collection, selection, description, indexing, and for the generation of health bibliographic databases in the Region.

Among the most important institutions participating in the LILACS Network are libraries and documentation centers, research institutions, hospitals, professional associations, ministries and governmental organizations, PAHO Regional Centers and Country Offices in the Region.

The following table presents the evolution of the bibliographic control in LILACS:

Contribution to the LILACS database per country and period, 1982-2008

Country/period	Total	1982-2004	2005-2008
TOTAL	460232	360914	99318
ARGENTINA	33090	26643	6447
BARBADOS	13	13	
BOLIVIA	6800	5594	1206
BRAZIL	253054	184098	68956
BAHAMAS	10	10	
BELIZE	132	48	84
CHILE	34911	29239	5672
COLOMBIA	21209	15868	5341
COSTA RICA	5143	4650	493
CUBA	15478	12041	3437
DOMINICAN REPUBLIC	1920	1920	
ECUADOR	6166	6049	117
GRANADA	1	1	
GUATEMALA	2208	2143	65
HONDURAS	1395	1172	223
JAMAICA	1051	1051	
SAINT LUCIA	5	5	
MEXICO	20857	20770	87
NICARAGUA	2587	1816	771
PANAMA	1555	1384	171
PERU	11132	9837	1295
PARAGUAY	1302	1105	197
EL SALVADOR	77	77	
TRINIDAD AND TOBAGO	393	393	
UNITED STATES	17613	17096	517
URUGUAY	4197	3517	680
VENEZUELA	17933	14374	3559

Source: LILACS, agosto 2008

The creation of LILACS Express should facilitate and speed the process of indexing, since editors themselves will be responsible for input to the database. The system is being used in Brazil since February 2008, with nearly 100 journals already registered, and it should be expanded to other countries in 2009.

Among the main present challenges of LILACS it is worth mentioning:

- The need to strengthen the development and updating of technology to remain aligned with the state of the art and to respond to countries' needs for input to LILACS and operation of its services.
- The restructuring of LILACS methodology tools for the online and networking operation.

- The development of national capabilities for national database management and for the increase of contributions to LILACS.
- The progress of LILACS as the regional repository of Latin America and Caribbean health scientific production, with links to all existing electronic full texts, integrating journal editors in the input process.

It is important to mention that the Cooperative Service for Accessing Documents (SCAD) from the VHL is still in regular operation and represents one of the most traditional services supported by networks of libraries document delivery. SCAD allows access to full texts that are not available electronically for free in the VHL databases, or to serve users without access to online services and portals of scientific publications

However, due to the greater national, regional and international accessibility and availability of full texts of health, scientific and technical information, since 2000 SCAD has been registering a steady decline in the volume of transactions. In 2008 a monthly average of 16.5 thousand requests were processed. The highest monthly average of SCAD was in 2000, when it reached 31.5 thousand requests. As an example, LILACS has about 50% of the records from 2000 to 2008 with links to electronic full texts, and also there is an increase in the number of electronic full texts available in national and specialized databases.

BIREME coordinates this service in the VHL and is responsible for fulfilling 80% of all document delivery requests, with the cooperation of the libraries of the Brazilian Health Information Network. In turn, it is also important to mention the role of the Union Catalog of Scientific Journals from the libraries of the VHL Network, SeCS - Health Sciences Serials, supporting the SCAD on the identification of journal issues in these libraries collections and portals that offer electronic access to scientific publications, such as SciELO, CAPES Portal and HINARI.

Therefore, SCAD service remains essential to ensure and provide access to documents not available in electronic format on the Web or to attend users without access to services and portals of scientific publications online.

4.3.3. Health Sciences Descriptors – DeCS

Launched in 1987, DeCS is a structured vocabulary in three languages (Portuguese, English and Spanish) which includes controlled and organized descriptors/concepts in the health sciences. DeCS was developed based on MeSH–Medical Subject Headings– produced by the U.S. National Library of Medicine (NLM). In addition to the original MeSH terms, other new specific categories were developed in DeCS, such as Public Health (1987), Homeopathy (1991) and Science and Health (2005).

The main users of DeCS are information specialists, for indexing and content organization, VHL users, for search and retrieval of information, and researchers, authors and editors, for identifying health terminology.

Its main objectives are:

- To serve as a unique indexing and retrieval language among the VHL participants.
- To permit structured search and retrieval in databases such as LILACS, MEDLINE, in the three languages.

The annual updates of MeSH are incorporated in DeCS by BIREME, which is responsible for its maintenance. The translation to Portuguese and Spanish, as well as the development of new terms in specific areas such as Public Health, Homeopathy, and Science and Health result from the collaborative network of BIREME in the Region. There is an annual average of nearly 1000 term additions or modifications.

In 2008 DECS includes 24,767 descriptors distributed in the following categories:

Category	Number of Descriptors	%
A-Anatomy	1528	4.6
B-Organisms	3497	10.4
C-Diseases	4268	12.7
D-Chemicals and Drugs	8617	25.7
E-Analytical, Diagnostic and Therapeutic Techniques and Equipment	2266	6.7
F-Psychiatry and Psychology	858	2.6
G-Biological Sciences	2117	6.3
H-Natural Science	536	1.6
HP-Homeopathy	1950	5.8
I-Antropology, Education, Sociology and Social Phenomena	491	1.5
J-Technology, Industry, Agriculture.	428	1.3
K-Humanities	177	0.5
L-Information Sciences	364	1.1
M-Named Groups	193	0.6
N-Health Care	1157	3.4
SH-Science and Health	218	0.6
SP-Public Health	3486	10.4
V- Publication Characteristics	139	0.4
VS-Health Surveillance	830	2.5
Z-Geographical	372	1.1
Qualifiers	84	0.3

The inclusion of new non-MeSH categories in DeCS is presenting some challenges:

- The collaborative networking updating and validation of new terms in the three languages.
- The restructuring of tools for online and networking operation of DeCS.

4.3.4. ScienTI Network

The International Network of Information and Knowledge Sources for Science, Technology and Innovation Management (ScienTI) is a PAHO initiative created in 2003, with the participation of BIREME as Executive Secretary of the network since its foundation until 2007. The network involves the National Councils of Science and Technology, OAS and UNESCO through its regional office in Montevideo. ScienTI operates on line directories and integrates researchers and research groups with the objective to identify “who is who” in research in the countries of the Region. Since 2007, the ScienTI Executive Secretary has been in Colciencias (National Council of Science and Technology from Colombia). BIREME still participates as technical cooperation instance for the network.

In these 5 years of development of the ScienTI Network there are several achievements to be consolidated and challenges that must be overcome. To overcome them various technical meetings are being conducted with the establishment of specific working groups.

With regard to the institutional dimension, in the first half of 2008 the signing of the Cooperation Agreement by all member countries was completed. This formalization provides transparency to its functioning and is an important incentive for attracting new technical and financial support for the expansion of the network.

In regard to the financial dimension, the costs associated with the coordination, technical support and methodological development were covered, so far, mainly by PAHO Research Promotion Unit, by the National Council of Scientific and Technological Development (CNPq), Brazil, BIREME and Colciencias with the support of projects funded by the OAS. This project with the OAS, under the leadership of Colciencias, is a good example of mobilization of resources and must ensure many of the development activities of the Network in 2008. However, it is necessary to establish financial mechanisms for the sustainable operation of the Executive Secretary, as well as the ScienTI portal and the cooperative products and services.

The interoperability between the sources of information to facilitate the exchange of researchers, group formation and virtual networks of research, regional collaborative training, international peer review, etc. in conjunction with the development of national capacities, are the main objectives and rationale of the ScienTI network. Still this interoperability is emerging to enable access to integrated content, including structured search and information retrieval for identification of researchers, consultants and reviewers.

4.3.5. Public Health Virtual Campus (CVSP)

The Public Health Virtual Campus (CVSP), as a tool of technical cooperation and as a public good, has the conceptual and operational model of the VHL as one of its benchmarks, which has enabled critical advances to its sustainable functioning and growth.

Furthermore, the experience of the Virtual Campus as a decentralized learning network for strengthening the leadership and the public health practices proposes new challenges common to the VHL, as the organization's repertoire of learning resources.

In this sense, there are important advances in the realignment of VHL networks and CVSP with the PAHO Portal Network at the Central Office, the PAHO Representatives and Specialized Centers, allowing to set up spaces of convergence with other networks such as the Observatory of Human Resources in Health, EVIPNet, ScienTI, Collaborating Centers, ensuring greater synergy with each other and ultimately a greater impact in those countries.

The CVSP incorporates components of access, operation and contribution to information sources, aligned with the concepts of Web 2.0, according to navigation, utilization and accessibility standards of the VHL model.

4.3.6. The VHL Model in other Regions

The experience and knowledge acquired by BIREME, particularly with the successful VHL model, allowed to extend its cooperation outside the Americas Region, actively contributing to international networks coordinated by WHO. Among them, it should be mentioned:

- **Global Health Library (GHL)**

Launched in 2005 in CRICS7/ICML9, GHL was established in 2007 as a global network interoperating the regional systems of health scientific and technical information, as part of WHO technical cooperation activities, aimed at developing the capacity of the countries in the production, organization, indexing, publishing, dissemination and use of scientific and technical information in the decision-making process and the development of health activities.

The collective and decentralized construction of the GHL, involves the participation of all countries under the coordination of the WHO Regional Representative Offices, through collaborative networks of producers, intermediaries and users of information involved in research, education and health care services.

GHL is yet in a pilot stage. The target is to cover all six WHO regions and 192 countries. As of today, four regions are actively participating: Africa (AFRO), Americas (AMRO), East Mediterranean (EMRO) and West Pacific (WPRO), with the participation of 71 countries in the GHL Directory of Libraries. Seven databases using LILACS methodology are available, with a total of 765,000 records. The Directory of Libraries has 1120 records (AFRO 53; AMRO 843; EMRO 4; SEARO 3; WPRO 217).

BIREME is actively participating since the conception and creation of this initiative, and is giving hosting and maintenance of GHL site installed in one of its servers. GHL uses VHL's methodologies and BIREME offers manuals and advanced training workshops for the use of these methodologies. One week training courses were held by BIREME in AFRO, EMRO, and WPRO, further permanent technical support

WHO Regional offices are committed to collaborate with this initiative. AFRO programmed several workshops in 2008 in the Region, and WPRO organized a workshop for 4 countries.

The main challenge of the initiative in this stage is the consolidation as part of the WHO and PAHO official policies, with the corresponding permanent resources.

- **ePORTUGUESe**

It is a Network of Portuguese-speaking countries based in the VHL model for the management of information, knowledge and scientific evidences, created in 2004 after the Ministerial meeting held in Mexico City in 2004. The following countries participate in this Network: Angola, Brazil, Cape Verde, Guinea-Bissau, Mozambique, Portugal, Sao Tome and Principe, and Timor-Leste. It is expected that in the next two years the majority of Portuguese-speaking countries begin to operate national instances in the VHL.

Its objectives are:

- Improve access to health-related information in Portuguese, building on the VHL model.
- Foster access to the latest health information at local, regional and national levels.
- Promote visibility and support for local knowledge production.
- Facilitate the application of knowledge into policy and action.
- Build Communities of Practice (CoP) and discussion groups to support the sharing of knowledge.
- Contribute to the GHL and to HINARI initiative and to promote multilingualism.

Its main achievements are:

- Integration of all countries of the Network to promote the activities in the countries.
- Training of human resources in Sao Tome and Principe for the operation of its national portal.
- Training on access and use of information available on the VHL, in Cape Verde.
- Dissemination activities, constitution of a National Consultative Commission for the VHL and inclusion of budget for the development of the VHL in 2009 in Angola.
- Contribution of the Brazilian Ministry of Health for the construction of the -Blue Trunk Libraries in the Portuguese language
- Sensitizing the governmental institutions of Mozambique and identification of cooperating institutions for the development of national VHL.

- **EVIPNet**

EVIPNET is a network aimed at promoting the systematic use of health research evidence in policy-making. WHO coordinates this Network. PAHO acts as the EVIPNet Secretary for the Americas, ensuring effective planning, organizing and inviting the national and regional networks. BIREME is cooperating in managing information sources created or supported by EVIPNet Network, using the VHL model

EVIPNet goals are:

- To create opportunities for decision makers to define priority areas, abilities and necessary resources to address these priorities through solutions which consider local context.
- To contribute to the partnerships between producers and users of evidence, training and strengthening the policy makers and other decision makers on how to access and apply scientific evidences.
- To reduce inequities and to improve population health utilizing existent scientific knowledge, through the creation of mechanisms for dissemination, sharing and use of knowledge in decision making.

- **TropIKA.net: Tropical Diseases Research to foster Innovation and Knowledge Application**

TropIKA.net is a web-based platform, launched on November 2007 in Beijing, China to access, review and sharing of current information and knowledge, with the following objectives:

- Present up-to-date content in a context that makes sense for health researchers and policy makers.
- Improve access to scientific information on infectious diseases of poverty
- Facilitate broad-based participation of disease-endemic countries in discussions and the formulation of current and emerging research priorities and agenda setting.
- Provide health researchers and decision makers with a comprehensive resource about best practices and authoritative summaries of research findings that have implications for their efforts to meet the challenges of infectious disease control.
- Be used as an interactive knowledge platform for infectious diseases of poverty at health forums.

The target users of TropIKA.net are researchers, policy makers and professionals specialized on infectious diseases of poverty.

To achieve these objectives, information sources on the following subjects were developed:

- Public health research needs and scientific opportunities.
- Research-based evidence in support of control and policy.
- High profile research activities and control projects.
- International research funding and support opportunities.
- Potential innovations for interventions and control of infectious diseases of poverty.

TropIKA.net initiative has an Advisory Board with members from different regions in several areas of knowledge related to infectious diseases. The information flows from TropIKA.net are based on a network integrated by a group of research editors managed by BIREME, an international editorial team managed by TDR, a review coordinating team, communities of practices for Disease Reference Group (DRG) and Thematic Reference Group (TRG), and others. Although TropIKA is an early stage of development, is rapidly creating critical mass of contents and working to become a reference for the stakeholders on infectious diseases of poverty.

The main challenges for the current stage of TropIKA.net development are:

- Bring together research editors, scientific journalists, experts and so on in a collaborative network to produce new contents of high impact in infectious diseases of poverty.
- TropIKA.net platform playing an advocacy role to support health research and effective utilization of its results in infectious diseases control at the international policy level.
- Produce authoritative reviews on selected topics/issues focusing on research priorities in infectious diseases of poverty.

5. Main Conclusions

- VHL is achieving to be consolidated as the predominant model of regional technical cooperation in health sciences information, contributing to the strengthening of the national capabilities in the management and organization of the scientific and technical health information.
- It is necessary, both in the countries of the Region and in PAHO itself, the definition of a health information policy that explicitly adopts the VHL model.
- The VHL and Associated Networks center their operation in the cooperative network processes and in the promotion of Open Access to scientific information, knowledge and evidences as essential public goods for health development, decisively contributing to global initiatives.
- VHL is significantly contributing to the insertion of the countries of the Region in the global information flows, increasing the visibility of their scientific production and facilitating the access to the main information sources at international level.
- SciELO is being consolidated as the main Open Access publishing model of the scientific production of the Region, also contributing to the development of new criteria for qualitative evaluation of this production.
- ILACS and DeCS are the main instruments available in the Region for the collection, indexing and retrieval of scientific and technical information.
- In relation to human resources, it is necessary to expand traditional and virtual training programs, to create graduate and specialization courses on health information and knowledge management, in cooperation with national universities and public health schools, for the constitution of teams in the countries to maximize the technical cooperation in the VHL.
- The collaborative development of methodologies and applications, based on open source information technologies are fundamental for the promotion of innovation in the work, communication, collaborative and operational processes of VHL information sources. The operation of online social networks in the context of the VHL and its information sources should be supported by collaborative developments of network applications, by the use of standards, open interoperability protocols and international trends.
- The countries should define sources and mechanisms for financing the VHL, in order to ensure the sustainability of its operation, the updating of its technologies and methodologies, and the permanent training of involved human resources.
- The strengthening of the follow-up processes of development, operation and quality of the VHL information sources are convergent to national health information policies. These processes should have systematic methodological and operational review, as well as continuous feedback.

ANNEX I - List of the VHL methodologies and associated networks

I. VHL Framework

Guide of the VHL model

<http://bvsmodelo.bvsalud.org/php/level.php?lang=en&component=16&item=118>

Presentation of VHL 2005 Guide

<http://bvsmodelo.bvsalud.org/php/level.php?lang=en&component=16&item=185>

The VHL's management model for scientific health information and knowledge

<http://bvsmodelo.bvsalud.org/php/level.php?lang=en&component=16&item=135>

The management of the network of producers, intermediaries and users

<http://bvsmodelo.bvsalud.org/php/level.php?lang=en&component=16&item=136>

Operation of the VHL Information Sources Network

<http://bvsmodelo.bvsalud.org/php/level.php?lang=en&component=16&item=169>

Scientific literature

<http://bvsmodelo.bvsalud.org/php/level.php?lang=en&component=16&item=138>

Directories

<http://bvsmodelo.bvsalud.org/php/level.php?lang=en&component=16&item=142>

LIS

<http://bvsmodelo.bvsalud.org/php/level.php?lang=en&component=16&item=175>

DeCS

<http://bvsmodelo.bvsalud.org/php/level.php?lang=en&component=16&item=176>

ITD

<http://bvsmodelo.bvsalud.org/php/level.php?lang=en&component=16&item=178>

Communication

<http://bvsmodelo.bvsalud.org/php/level.php?lang=en&component=16&item=177>

Development of VHL sites and portals

<http://bvsmodelo.bvsalud.org/php/level.php?lang=en&component=16&item=180>

Managing the VHL standard site

<http://bvsmodelo.bvsalud.org/php/level.php?lang=en&component=16&item=180>

Graphic design and navigation

<http://bvsmodelo.bvsalud.org/php/level.php?lang=en&component=16&item=180>

Quality control and evaluation of the VHL sites Network

<http://bvsmodelo.bvsalud.org/php/level.php?lang=en&component=16&item=154>

VHL appraisal indicators and Checklist for the operation of the VHL

<http://bvsmodelo.bvsalud.org/php/level.php?lang=en&component=16&item=154>

List of methodological components

<http://bvsmodelo.bvsalud.org/php/level.php?lang=en&component=16&item=156>

Example of Matrix of Responsibility

<http://bvsmodelo.bvsalud.org/php/level.php?lang=en&component=16&item=158>

Project model for the VHL

<http://bvsmodelo.bvsalud.org/php/level.php?lang=en&component=16&item=132>

Glossary

<http://bvsmodelo.bvsalud.org/php/level.php?lang=en&component=16&item=182>

Bibliografic Reference to the VHL 2005 Guide

<http://bvsmodelo.bvsalud.org/php/level.php?lang=en&component=16&item=183>

Document models

<http://bvsmodelo.bvsalud.org/php/level.php?lang=en&component=16&item=131>

NorDoc - Documentation standardization

Guide to document conformation

<http://bvsmodelo.bvsalud.org/download/nordoc/NorDoc-ConformationGuide-en.pdf>

Manual for creating user's documents

<http://bvsmodelo.bvsalud.org/download/nordoc/bvs-template-manual-uso-en.pdf>

Manual to the standardization methodology and advanced MS-Word topics (file available only in portuguese)

<http://bvsmodelo.bvsalud.org/download/nordoc/CapacitNorDocWordAvanzado.pdf>

2. VHL Information Sources

VHL Information sources integrator (VHL-Site)

Administration of the VHL integrator

http://bvsmodelo.bvsalud.org/download/bvs/Manual_BVS-Site4.0_en.pdf

VHL Graphic Design Guideline and VHL Usability Guide

<http://bvsmodelo.bvsalud.org/download/bvs/BVS-Site-InterfaceGrafica-4.0-en.pdf>

Access to the VHL Information Sources

<http://bvsmodelo.bvsalud.org/download/bvs/AccessIS-VHL-2007-en.pdf>

Virtual Communities [in Portuguese]

<http://bvsmodelo.bvsalud.org/download/comvir/ComVirGuiaMetodologico.pdf>

Newsletter

<http://www.bireme.org/php/level.php?lang=en&component=109&item=28>

DeCS

About

<http://decs.bvs.br/l/decswebi2008.htm>

DeCS Update Guide

<http://bvsmodelo.bvsalud.org/download/decs/DeCS-UpdateGuide.pdf>

DirEve

<http://bvsmodelo.bvsalud.org/download/direve/DirEve-ManualEntradaRegistros-en.pdf>

Organization and events information management

<http://www.bireme.org/php/level.php?lang=en&component=112&item=27>

LILACS

Document Selection Guidelines

<http://bvsmodelo.bvsalud.org/download/lilacs/LILACS-1-GuiaSelecao-en.pdf>

Cr terios de Sele o e Perman ncia de Peri dicos na Base de Dados LILACS - Agosto de 2007

<http://bvsmodelo.bvsalud.org/download/lilacs/LILACS-1-GuiaSelecao-pt-ApendiceB-200708.pdf>

Manual of Bibliographic Description

<http://bvsmodelo.bvsalud.org/download/lilacs/LILACS-2-ManualDescricao-en.pdf>

LILDBI-Web Manual of Procedures

<http://bvsmodelo.bvsalud.org/download/lilacs/LILACS-3-ManualProcedimentos-en.pdf>

Documents Indexing Manual [in Portuguese]

<http://bvsmodelo.bvsalud.org/download/lilacs/LILACS-4-ManualIndexacao-pt.pdf>

LILACS-Express [in Portuguese]

<http://bvsmodelo.bvsalud.org/download/lilacs/LILACS-Express-v1.0-pt.pdf>

LIS

Implementation and Operation Guide

<http://bvsmodelo.bvsalud.org/download/lis/LIS-1-GuiaImplantacaoOperacao-en.pdf>

Criteria for the Selection of Health Information Sources Available on the Internet

<http://bvsmodelo.bvsalud.org/download/lis/LIS-2-CriteriosSelecaoFontes-en.pdf>

Guidelines for the Entry of Information Sources

<http://bvsmodelo.bvsalud.org/download/lis/LIS-3-GuiaRegistroFontes-en.pdf>

SciELO

SciELO Model Guide

<http://bvsmodelo.bvsalud.org/download/scielo/SciELO-1-GuiaModelo-en.pdf>

Secondary Pages Creation and Update

<http://bvsmodelo.bvsalud.org/download/scielo/SciELO-2-PaginasSecundarias-en.pdf>

File Preparation Procedures

<http://bvsmodelo.bvsalud.org/download/scielo/SciELO-3-PreparacaoArquivos-en.pdf>

Installing PC Programs

<http://bvsmodelo.bvsalud.org/download/scielo/SciELO-4-InstalacaoProgramas-en.pdf>

Code Manager e Title Manager

<http://bvsmodelo.bvsalud.org/download/scielo/SciELO-5-CodeTitle-en.pdf>

Markup e Parser

<http://bvsmodelo.bvsalud.org/download/scielo/SciELO-6-MarkupParser-en.pdf>

Converter

<http://bvsmodelo.bvsalud.org/download/scielo/SciELO-7-Converter-en.pdf>

Local Site

<http://bvsmodelo.bvsalud.org/download/scielo/SciELO-8-SiteLocal-en.pdf>

SciELO Processing Procedures

<http://bvsmodelo.bvsalud.org/download/scielo/SciELO-9-Processamento-en.pdf>

3. Information services

Trigramas

Cited by

<http://trigramas.bireme.br/cgi-bin/mx/cgi=@cited?pid=S0034-89102004000300001>

Related to

<http://trigramas.bireme.br/cgi-bin/mxlind/cgi=@related?pid=S0034-89102004000300001>

Similar to

<http://trigramas.bireme.br/cgi-bin/mx/cgi=@1?xml&collection=SciELO.org.TiKwAb&minsim=0.30&maxrel=30&show=sciELOI&text=Controle%20de%20crian%C7as%20e%20adolescentes%20comunicantes%20de%20tuberculosos>

Bibliometrics

Data source

http://statbiblio.scielo.br/stat_biblio/index.php?xml=http://statbiblio.scielo.br/stat_biblio/xml/03.xml&state=03&lang=en

Impact factor

http://statbiblio.scielo.br/stat_biblio/index.php?xml=http://statbiblio.scielo.br/stat_biblio/xml/04.xml&state=04&lang=en

http://statbiblio.scielo.br/stat_biblio/index.php?xml=http://statbiblio.scielo.br/stat_biblio/xml/18.xml&state=18&lang=en

Half-life

http://statbiblio.scielo.br/stat_biblio/index.php?xml=http://statbiblio.scielo.br/stat_biblio/xml/07.xml&state=07&lang=en

Received citations

http://statbiblio.scielo.br/stat_biblio/index.php?xml=http://statbiblio.scielo.br/stat_biblio/xml/09.xml&state=09&lang=en

Granted citations

http://statbiblio.scielo.br/stat_biblio/index.php?xml=http://statbiblio.scielo.br/stat_biblio/xml/11.xml&state=11&lang=en

Co-authors

http://statbiblio.scielo.br/stat_biblio/index.php?xml=http://statbiblio.scielo.br/stat_biblio/xml/16.xml&lang=en&state=16

Indicators of use / access

Access to magazines

http://www.scielo.br/scielolog.php?script=sci_journalstat&lng=en&nrm=iso

Access to issues

http://www.scielo.br/scielolog.php?script=sci_statiss&lng=en&nrm=iso

Top Ten Titles

<http://scielo-log.bireme.br/scielolog/ofigraph20.php?app=scielo>

Articles visited per month

<http://scielo-log.bireme.br/scielolog/ofigraph21.php?app=scielo>

Access to information sources of the Regional VHL [in Portuguese]

<http://serverofi.bireme.br:2424/iahlog/iahlog01.htm> [BIREME's internet access]

Access to VHL network (geographic and thematic)

<http://logs.bireme.br/cgi-bin/awstats.pl?config=<nome do portal>>

example: <http://logs.bireme.br/cgi-bin/awstats.pl?config=adolec-br>

Indicators of production

Processing of information sources Regional VHL, SCiELO, GHL, TropIKA, Cochrane, Collexis, Links

<http://serverofi/html/pt/home.html> (general) [BIREME's internet access]

<http://serverofi.bireme.br/docs/OFI200805.htm> (month of reference) [BIREME's internet access]

Indicators of contribution

LILACS

http://bvsmodelo.bvsalud.org/site/lilacs/E/eesta_menu1.htm

4. Cooperative Service for Accessing Documents

SCAD

About SCAD

<http://scad.bvs.br/php/level.php?lang=en&component=41&item=1>

Terms of service

<http://scad.bvs.br/php/level.php?lang=en&component=41&item=3>

How to request documents

<http://scad.bvs.br/php/level.php?lang=en&component=38&item=2>

About requests

<http://scad.bvs.br/php/level.php?lang=en&component=38&item=3>

5. ISIS Family

CISIS

Basic concepts of CDS/ISIS databases: an introduction to the use of CISIS

<http://bvsmodelo.bvsalud.org/download/cisis/CISIS-ConceitosBasicos-en.pdf>

CISIS Utilities - Reference Manual

<http://bvsmodelo.bvsalud.org/download/cisis/CISIS-ManualReferencia-en-5.2.pdf>

CISIS Formatting Language

<http://bvsmodelo.bvsalud.org/download/cisis/CISIS-LinguagemFormato4-en.pdf>

WWWISIS

The WWWISIS Handbook (Andrew Buxton)

<http://bvsmodelo.bvsalud.org/download/wwwisis/wwwisis-handbook-en.pdf>

IsisScript Language Reference

<http://bvsmodelo.bvsalud.org/download/wwwisis/WWWISIS-IsisScript-en.pdf>

Apuntes del Curso: Introducción al WWWISIS XML IsisScript Server (CNEA) [in Spanish]

<http://bvsmodelo.bvsalud.org/download/wwwisis/APUNTES.pdf>

IAH

IAH User's Manual

<http://bvsmodelo.bvsalud.org/download/iah/IAH-ManualUsuario-en.pdf>

SeCS

Registration of Periodical Titles and Collections - Manual of Instructions

<http://bvsmodelo.bvsalud.org/download/secs/SeCS-ManualInstrucoes-pt.pdf>

EMP

<http://bvsmodelo.bvsalud.org/php/level.php?lang=en&component=31&item=5>

ISIS_dll

ISIS_DLL User's Manual

http://bvsmodelo.bvsalud.org/download/isisdll/ISIS_DLL-Manual.pdf

Learning ISIS_DLL By Examples

<http://bvsmodelo.bvsalud.org/download/isisdll/LearningISIS.pdf>

XIsis

XISIS Platform - Administration Manual

<http://bvsmodelo.bvsalud.org/download/xisis/xisis-ManualAdministracao-en.pdf>

6. Methodology of Learning and Informed Environments Management

<http://ambienteaprendiz.bvs.br/php/index.php?lang=en>

Network Project Management Methodology

<http://ambienteaprendiz.bvs.br>

7. Methodologies of the VHL Developer Network and associated networks

<http://regional.bvsalud.org:8070/reddes>

8. List of Standards used in the VHL

DTD – Document Type Definition

<http://www.w3.org/Markup/SGML/>

XML Schema

<http://www.w3.org/XML/Schema>

XML – eXtensible Markup Language

<http://www.w3.org/XML/>

XSL – eXtensible Stylesheet Language

<http://www.w3.org/Style/XSL/>

CSS – Cascade Style Sheets

<http://www.w3.org/Style/CSS/>

XHTML

<http://www.w3.org/Markup/>

XForms

<http://www.w3.org/Markup/Forms/>

SOAP – Simple Object Access Protocol

<http://www.w3.org/2000/xp/Group/>

OAI-PMH - Open Archives Initiative - Protocol for Metadata Harvesting (OAI-PMH)

<http://www.openarchives.org/>

Dublin Core Metadata Initiative

<http://dublincore.org/>

PubMed DTD

<http://www.ncbi.nlm.nih.gov/entrez/query/static/spec.html>

PubMed Central DTD

<http://dtd.nlm.nih.gov/publishing/>