An Assessment of the AIHA Learning Resource Center Project

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Executive Summary

Accompanying the American International Health Alliance (AIHA) Learning Resource Center Project Coordinator and assistant coordinator, an independent researcher conducted interviews with medical professionals at seventeen medical institutions in Russia(4), Uzbekistan(2), Azerbaijan(3), Ukraine(3) and Albania(5). The purpose of these interviews was to assess the use of the new medical information technologies in the Learning Resource Centers (LRCs) of each institution and to consider the sustainability of the LRC in each institution. The purpose of the LRC evaluation was to focus on impacts and outcomes of the overall LRC program. The key focus issues for the evaluation were:

(1) LRC operation model (library, telemedicine/teleconsultation centers, evidence-based practice centers, information systems development, computer skills training, community outreach and education)

(2) Impact on health care

(3) Role of gender within the LRCs

(4) LRC monitoring and evaluation

(5) Recommendations for the future of this project

By using the four "C's" framework (content, connectivity, community and care) for organizing the various functions and capabilities of telemedicine, the researcher reached a number of important conclusions regarding the LRC project:

- Throughout all LRC sites, the overwhelming use of the LRC is for 'content', as a training and research tool for the users. From professional education through computer training, the users consistently identified those activities as the most frequently used.
- LRCs are also frequently used as a community tool by the use of email to communicate and share information, and to provide or receive peer and emotional support.
- Use of the LRC in support of either connectivity or care is rare, and often used only on a single issue or problem, rather than a consistent procedure within the user base.
- LRCs model of operation is very dependent upon the local administrative support and vision. Many successful LRCs are part of a larger IT effort on the part of their organization.
- From the results of the LRC survey, the view of the function of the LRC is very similar between the info coordinator and user base.
- LRCs that remain limited to their original hardware/software/mission have a static role identified within their organizations.

Introduction

From August 23rd to September 17, 2001, Thomas Filmore, independent evaluator, accompanied by Mark Storey, AIHA Learning Resource Center Director, Irina Carnevale, AIHA Washington, and the regional ICT Coordinator from the appropriate AIHA regional office, on seventeen site visits to medical institutions in Russia (4), Uzbekistan (2), Azerbaijan (3), Ukraine (3) and Albania (5). Detailed information on the sites visited is listed in Appendix A.

The purpose of the LRC evaluation was to focus on impacts and outcomes of the overall LRC program. The key questions for the evaluation were:

(1) Over the course of the project, individual LRCs have evolved in various ways, focusing on different aspects of using information technology to improve the quality of care. AIHA has observed several different models within the broad network of LRCs, where an LRC may serve in one or more of the following capacities:

   (a) Library – where staff come to the LRC with specific information needs and info coordinator assists them in finding information

   (b) Telemedicine/teleconsultation centers – where staff use the LRC as a communication center to help them correspond and consult with professional colleagues in other institutions locally and abroad

   (c) Evidence-based practice centers – where the LRC is used routinely by groups of clinicians who are active in developing guidelines/standards of care for the institution

   (d) Information systems development – where the LRC is part of or forms the basis of an information systems department for the institution, and the info coordinator helps to foster the creation and application of databases and patient record systems

   (e) Computer skills training – where the LRC is heavily involved in providing computer and Internet skills training to staff

   (f) Community outreach and education – where the institution makes LRC resources available to a wide community of patients, community groups, and health professionals at other institutions

      - Was each of these models observable?
      - Were there any other models observed?
      - How well do LRCs perform in each of these roles?
      - What factors determined which LRCs have adopted each of these roles?
      - Does AIHA provide sufficient resources for LRCs to function in each of these roles?

(2) Impacts on health care – Do the LRCs have an impact on health outcomes (including indirect outcomes such as changes in practice as well as direct impacts such as improvements in morbidity and mortality)?

(3) Gender – What role, if any, do the LRCs play in affecting gender equality? Does gender impact the effectiveness of the info coordinator's role as an agent of change within his or her institution? Does the role of info coordinator and/or the LRC help to empower women health professionals at the institution? How well do LRCs meet the health care needs of women (e.g., in terms of providing relevant resources related to women's health, domestic violence, family planning)?

(4) Monitoring and evaluation – Evaluate existing monitoring and evaluation instruments (monthly reports and staff surveys) used by AIHA. Include recommendations on indicators that AIHA might try collecting from the LRCs in the future to better assess program outcomes and impacts.

(5) What are the elements that make some of the LRCs more successful or effective than others? What, if anything, can AIHA do to improve the effectiveness of weaker LRCs?

(6) What has worked well and what has not worked well in AIHA's approach to the LRC project? What recommendations do you have to AIHA and USAID regarding the future of this project?

Overview

Today, the world has access to the largest volume of health information in history. People can seek support and advice from potentially millions of online peers and professionals worldwide at any time of day. In the developed world, they can, by using the Internet, assess their health risks, fill a prescription, manage a chronic condition, decide on treatment regimens, and consult a health care provider without leaving home. Emerging information and communication technologies promise to usher in a wealth of innovative solutions for seemingly intractable problems in health and health care, including quality, access, and cost.

For example, in January 2001, approximately 168 million (60 percent) of the total U.S. population had access to the Internet at home or work, and as many as 86 percent of adult Internet users accessed it to research information on health care or specific diseases. The number of health-related Web sites available is unknown, but it is widely believed that the more than 19,000 health sites indexed on Yahoo as of May 2001 represent only a small fraction of the universe of health related sites.

With the user base of 144 million within the U.S. population alone, the growth of the health information in the Internet knowledge pool will continue to grow. All users of the Internet worldwide will be able to access and benefit from the wealth of information available.

However, on the darker side of the Internet potential, there are characteristics that will impede its usefulness to all users.

- Instability and technology churn: The underlying technology of the Web is undergoing rapid mutation – "Web-years" are measured in human weeks. Health care organizations devote scarce resources to keep up with the pace of change.
- Search engines can't see everything: Dynamic Web pages make up an increasing share of all content on the Web. Also lacking are filtering agents that make truly

targeted searches more feasible. This means that a person searching for health care content will miss much of what is available.

- Low bandwidth links to most homes: Health care information lends itself well to rich content such as images, animations, and video. Most users reach the Web through modem connections at data rates that do not give responsive performance for that type of content.
- The mixed quality of information on the Internet: The Internet provides ready access to a vast body of health information for consumers, information that at its best can equip consumers to lead healthier lifestyles, detect potential medical problems early, work more collaboratively with physicians to treat illness, and learn of effective treatments that a local provider may not have access to. At its worst, however, the information can mislead consumers into self-destructive beliefs and behavior changes, ineffective or harmful treatments, and false medical understandings that undermine relationships with their physicians.
- Physician ambivalence: Medical culture is extremely conservative and cautious, especially when it comes to technologies that could alter the doctor-patient relationship. Doctors' experience of the quality of information on the Internet is mixed. A recent analysis of information on the Web showed that searches to answer common clinical questions produced little applicable, high quality information that was appropriate for health care professionals, that was applicable to the question that prompted the search, or that was of high quality.
- Lack of resources for web development: Information resources in most health care organizations are not Web-oriented. They have not made the investments needed to build a Web presence. Many are under funded – health care as a whole spends much less on information technology than other information-intensive industries.

To address these and other problems involved in the merger of information technology advances and medicine, the umbrella term 'eHealth' has been coined. It incorporates other terms have been widely used in the past several years to describe the application of information, computer, or communication technology to some aspect of health or health care. These terms include medical informatics, consumer health informatics, public health informatics, telemedicine, telehealth, and interactive health communication.

eHealth is the use of emerging information and communication technology, especially the Internet, to improve or enable health and healthcare. eHealth resources are classified to:

- Improve health status by supporting healthy lifestyles, improving health decisions, and enhancing health care quality;
- Reduce health care costs by improving efficiencies in the healthcare system and prevention;
- Empower people to take greater control of their health by supporting better-informed health decisions and self-care;
- Enhance clinical care and public health services by facilitating health professional practice and communication; and

- Reduce health disparities by applying new approaches to improve the health of underserved populations.

The LRC program objectives support the development of eHealth within the communities served.

Method

Each site visit was scheduled for approximately three hours. There were two separate evaluation teams. Team one consisted of Mr. Filmore and an interpreter. Team two included Mark Storey, Irina Carnevale, and the regional AIHA Coordinator. In addition, a representative from the USAID local mission joined team one for 6 site visits (Albania (5 of 5) and Uzbekistan (1 of 2)). For every interview, team one used an interpreter who translated our questions from English. Irina Carnevale of team two could speak Russian and thus she served as the translator for team two. The teams conducted open-ended interviews, approximately 30 to 40 minutes in length, with three constituencies in each medical institution: info coordinators, staff members, and administrators. Each visit started with an overview presentation from the info coordinator, and a short meeting with the administrator for introductions and coordination. Sometimes variations occurred because of the unique constraints at each institution: for example, at some sites, the administrator wanted to control the site visit to a great extent; at other sites, few staff members were available because of vacations; or the info coordinators had prepared rather formal presentations that left less time for interviews. At the end of the visit, a wrap-up discussion was held with both teams, the info coordinator and chief administrator to review the findings and present initial recommendations.

Although ten survey questions were prepared about the LRC project in advance (see appendix C), the open-ended interview sessions did not adhere rigidly to these questions because each situation was unique, and instead followed the interests of each constituency (info coordinators, staff, administrators). The open-endedness of the interviews allowed the teams to gain and then to provide AIHA with a fresh perspective on the uses and value of the LRC at that site.

Framework for Analysis

The uses of the LRC may be best explained by considering the specific functions and capabilities of telemedicine technologies. The efforts of a LRC can be structured by using a four "C's" framework (Eng, 2001). Table 1 shows how the various functions and capabilities of telemedicine could be framed using a content, connectivity, community and care model. It should be noted that the categories presented are not mutually exclusive; in fact, there is considerable overlap among them, and many online activities fit in several categories and perform multiple functions.

TABLE 1 Functions and capabilities

	FUNCTIONS AND CAPABILITIES
CONTENT	For the LRC environment, content effect was measured by the user's response to the availability of reading medical and professional journals and of general medical resources.

Information presentation:	Provide general or individualized health information on demand.
Information search assistance:	Help locate online content and other resources in response to a specific information request through search engines, directories, personalization technologies, or intelligent systems.
Health behavior change	Promote the adoption and maintenance of positive health behaviors on both an individual and community level. Some applications promote healthy behaviors by providing information, assessing risks, explaining associated benefits and costs, and facilitating peer support. These tools may be based on theories of behavior change.
Informed decision making	Facilitate the decision-making process of individuals (e.g., consumers, patients, caregivers, family members) regarding the prevention, diagnosis, or management of a health condition or the selection of a provider or service.
Distance learning and training	Facilitate the learning and training process among instructors and students who are located in different places.
CONNECTIVITY	For the LRC environment, connectivity effect was measured by the improvement of the users to access and reach resources to support their work. This was measured by the user's response to questions concerning contacting partnership hospitals, continuing professional education, and training on computer skills
Clinical and public health information systems	Support the routine work processes of clinicians (e.g., clinical, lab, reimbursement) and public health professionals (e.g., surveillance, outbreak investigation).
Health services and information systems integration	Promote integration and interoperability of services or information systems across health sectors.
Administrative transactions	Facilitate online transactions and administrative functions (e.g., appointment scheduling, eligibility and enrollment, financial transactions).
Clinical and biomedical research	Facilitate clinical trials and other biomedical research.
COMMUNITY	For the LRC environment, community effect was measured by the user's rating of email.
Peer-to-peer and person to-person messaging, information exchange, emotional support, and	Enable individuals (e.g., consumers, patients, health professionals, caregivers) with specific health conditions, needs, or perspectives to communicate and share information, and provide or receive peer and emotional

community building	support. There are online support groups and virtual communities for virtually all health conditions.
CARE	For the LRC environment, care effect was measured by the user's access to patient and medical resources for patient case management. This was evaluated by the user's response to questions concerning telemedicine consultation, researching specific patient problems, software development, and database development.
Care coordination and information portability	Facilitates case management and information exchange across the continuum of care.
Electronic health records	Support the storage and retrieval of computer-based personal medical and health data.
Shared clinical decision making	Assist clinicians and patients to jointly evaluate and decide on a course of treatment based on current evidence, likely outcomes, and patient preferences (a subset of informed decision-making tools).
Expert systems	Guide clinicians or other professionals in making screening, diagnosis, or treatment decisions based on the most current accepted standards of practice.
Disease management	Improve patient health outcomes by teaching providers latest disease management guidelines. Assist providers and others to reduce unnecessary or inefficient patient use of health services and/or increase use of effective services (some overlap with self-care tools).
Telemedicine /telehealth	Support the delivery of clinical services or selected elements to underserved areas.

Results – User Survey – AIHA Assessment 2001

To identify the impacts and outcomes for a LRC site, a survey form was provided to the site's info coordinator for the users of the LRC. The info coordinator was responsible for the selection of the users for the survey. There were a total of 145 respondents from all LRCs visited.

The survey listed the various common services available from the center and asked each respondent to rank their frequency of use of the service on the following scale.

1. Very frequently
2. Frequently
3. Average
4. Rarely
5. Never

The users were responding to the question "How frequently do you use the Learning Resource Center for: " with each service listed as a separate row. The survey forms are attached in appendix C.

Overall Results

To analyze the results, each question's responses from all LRC sites were averaged and the results are displayed in figure 2. For each spoke, the higher value indicates greater frequently of use (a value of one indicating the service in never used vs. a value of five to indicate the service is very frequently used). The filled area between the spokes shows the level of relationship between the spokes. Individual LRC site results and radar graphs are listed in Appendix B. Figure 3 shows the same questionnaire results from the info coordinator for each site.

Comparison of the two radar charts side by side shows an almost identical pattern of responses for all questions. The primary difference between the two groups is a higher rating for all questions from the info coordinators. The only significant difference between the two groups is on contact and communication with Partnership Hospitals. Info coordinator's activities appear to include being the primary contact with this group.

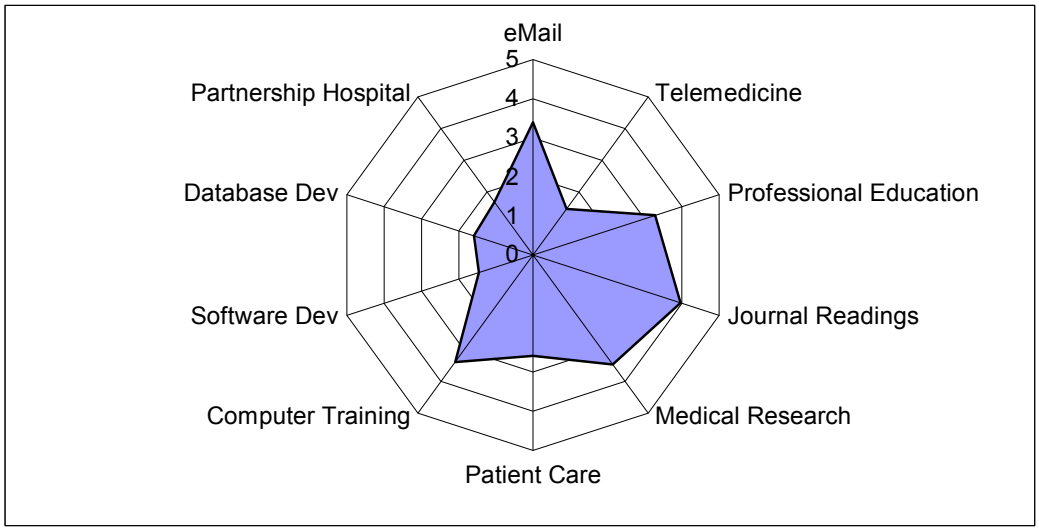


Figure 2: Radar Graph of Total User Survey Responses

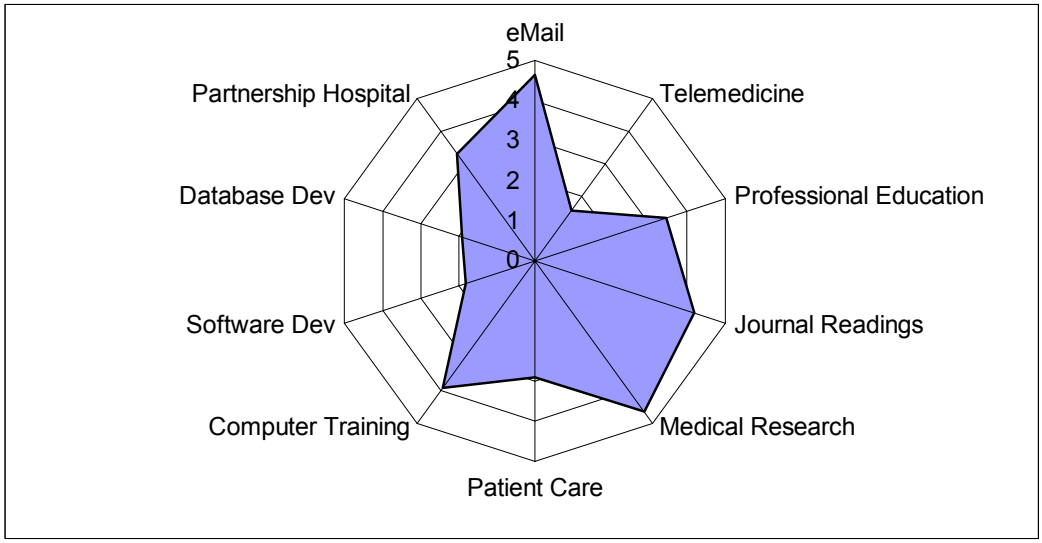


Figure 3: Radar Graph of Total LRC Info Coordinator Survey Responses

The result that leaps from the graph is the overwhelming use of the LRC as an email, training and research tool for the users. From Professional Education through Computer Training, the users consistently identified those activities as the most frequently used. The user survey results have been grouped under the four "C's" framework.

Section One: Content

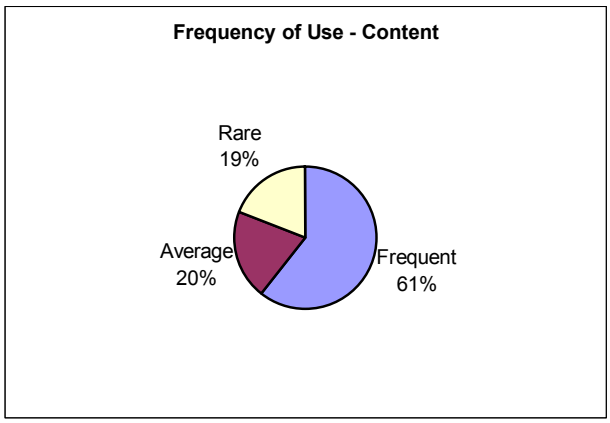


Figure 3: Pie Graph of Total Survey Responses for Content Area

1) Reading Medical & Professional Journals

Very Frequently	44%
Frequently	25%
Average	18%
Rarely	9%
Never	4%

2) Researching General Medical Resources

Very Frequently	31%
Frequently	21%
Average	23%
Rarely	15%
Never	10%

Section Two: Community

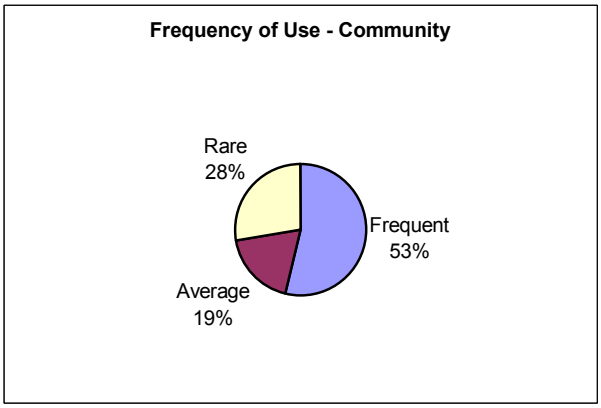


Figure 4: Pie Graph of Total Survey Responses for Community Area

1) email

Very Frequently	35%
Frequently	18%
Average	19%

Rarely	6%
Never	22%

Section Three: Connectivity

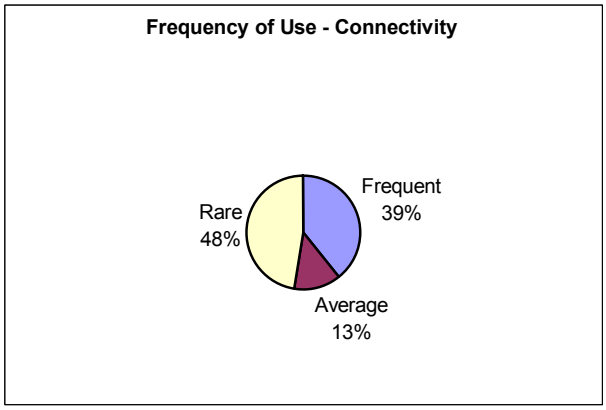


Figure 5: Pie Graph of Total Survey Responses for Connectivity Area

1) Contacting Partnership Hospitals

Very Frequently	7%
Frequently	4%
Average	7%
Rarely	16%
Never	67%

2) Continuing Professional Education

Very Frequently	26%
Frequently	28%
Average	15%
Rarely	8%
Never	22%

3) Training on Computer Skills

Very Frequently	32%
Frequently	19%
Average	19%
Rarely	16%
Never	14%

Section Four: Care

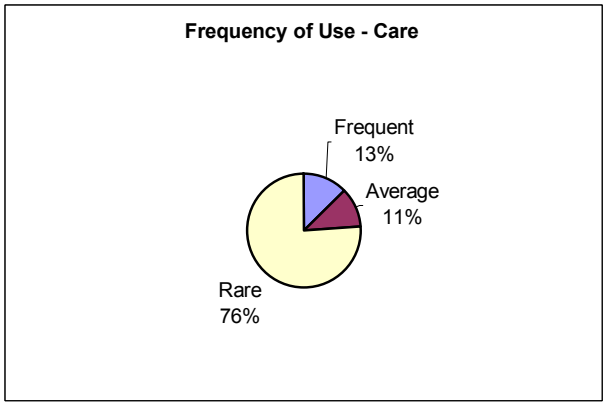


Figure 6: Pie Graph of Total Survey Responses for Content Area

1) Telemedicine Consultation

Very Frequently	1%
Frequently	5%
Average	11%
Rarely	6%
Never	77%

2) Researching Specific Patient Problems

Very Frequently	14%
Frequently	15%
Average	18%
Rarely	20%
Never	33%

3) Software Development

Very Frequently	4%
Frequently	4%
Average	5%
Rarely	9%
Never	79%

4) Database Development

Very Frequently	4%
Frequently	6%
Average	11%
Rarely	6%
Never	74%

In looking at the LRC in light of the user surveys, the impact of the LRC on their professional activities is concentrated in content and community. The key model is that of a library with email. The effect of the information retrieved from the web or through email correspondence improves the quality of service of the provider. During the interview process with the users, examples of other LRC activities were expressed. One center was a publishing house for hospital flyers and a youth newsletter. Another had integrated their computers into a master plan for computerizing the facility. A number became 'email Post Offices' for staff members unable to use the LRC themselves. Over the course of the evaluation, most individual LRCs had an example of a special use of the facility.

Primary Function Analysis

By grouping the surveyed LRCs by primary function, a more detailed analysis of the survey results can be performed. For this report, the LRC were grouped into one of four categories:

1. Provide direct health care services to patients
2. Provide formal training to health professionals
3. Engage in biomedical research
4. Determine health care policy and administering the health system for a geographic region

Due to the nature of the institution, its classification may fall into more than one of these categories. In that case, it was included in each subgroup.

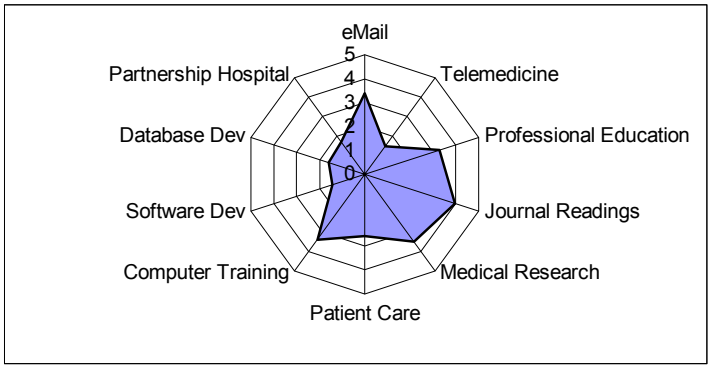
1. Provide direct health care services to patients

The following LRCs were included in this category:

- Hospital #2, Vladivostok, Russia

- Joint Hospital #6, Baku, Azerbaijan
- Korsakov Rayon Hospital, Sakhalin Island, Russia
- Mir-Kasimov Hospital, Baku, Azerbaijan
- National Center of Emergency Medicine, Tashkent, Uzbekistan
- Odessa Oblast Hospital, Odessa, Ukraine
- Odessa Sea Port Polyclinic, Odessa, Ukraine
- Odessa State Medical University, Odessa, Ukraine
- Pereyaslavka Rayon Hospital, Khabarovsk Region, Russia
- Polyclinic #8, Baku, Azerbaijan
- University Hospital Center, Tirana, Albania
- Women's Wellness Center, Tirana, Albania

Total User Responses Radar Graph:



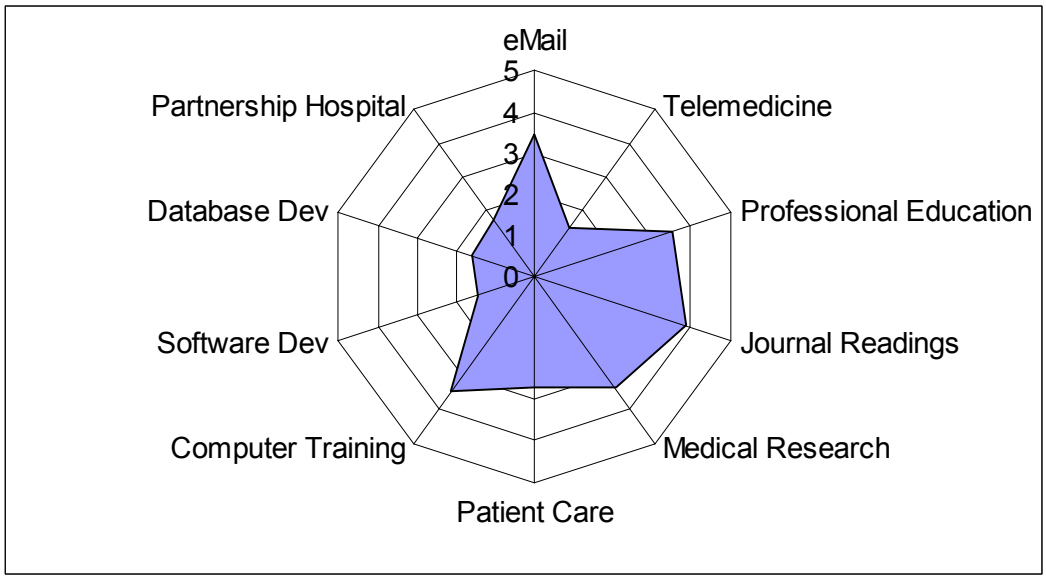


Figure 7: Radar Graph of LRCs providing direct health care services to patients (Group 1)

Comparison of the two radar charts side by side shows an almost identical pattern of responses for all questions. Group 1 includes 12 of the 17 evaluated LRCs.

	Content	Connectivity	Community	Care
Frequently	56%	57%	42%	13%
Average	23%	14%	14%	13%
Rare	21%	29%	44%	74%

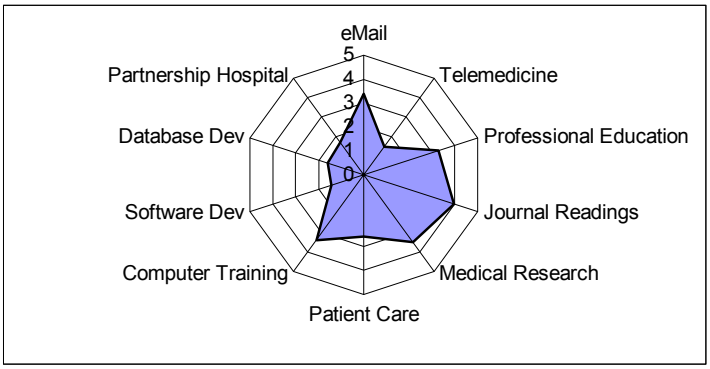
Table 2: 4C results for LRCs providing direct health care services to patients

2. Provide formal training to health professionals

The following LRCs were included in this category:

- Faculty of Medicine, Tirana University, Tirana, Albania (not available)
- National Center of Emergency Medicine, Tashkent, Uzbekistan
- Odessa State Medical University, Odessa, Ukraine
- Regional Center for Disaster Medicine, Vladivostok, Russia
- Second Tashkent Medical Institute, Tashkent, Uzbekistan (not available)

Total User Responses Radar Graph:



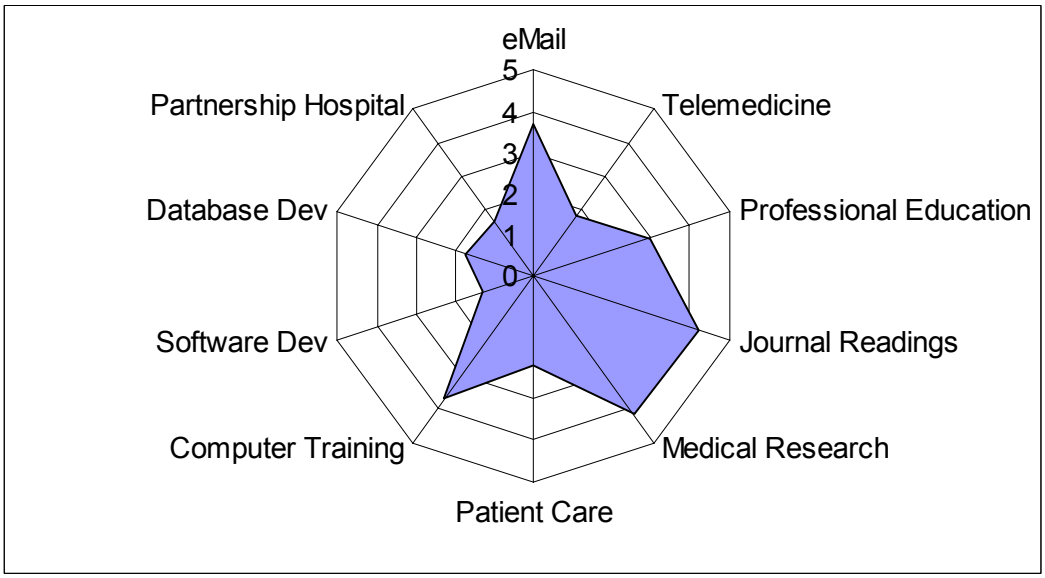


Figure 8: Radar Graph of LRCs providing formal training to health professionals (Group 2)

Comparisons of the two radar charts side by side indicates that the users at LRCs involved in formal training of health professionals have an increased ranking of email,

journal reading, medical research, and computer training services over the total response averages, with decrease in professional education and patient care. Group 2 includes 5 of the 17 evaluated LRCs.

	Content	Connectivity	Community	Care
Frequently	76%	57%	39%	10%
Average	16%	26%	8%	13%
Rare	9%	17%	52%	77%

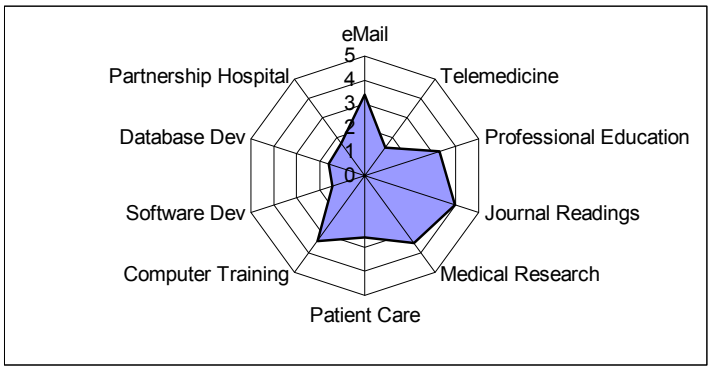
Table 3: 4C results for LRCs providing formal training to health professionals

3. Engage in biomedical research

The following LRCs were included in this category:

- Odessa State Medical University, Odessa, Ukraine
- Second Tashkent Medical Institute, Tashkent, Uzbekistan (not available)

Total User Responses Radar Graph:



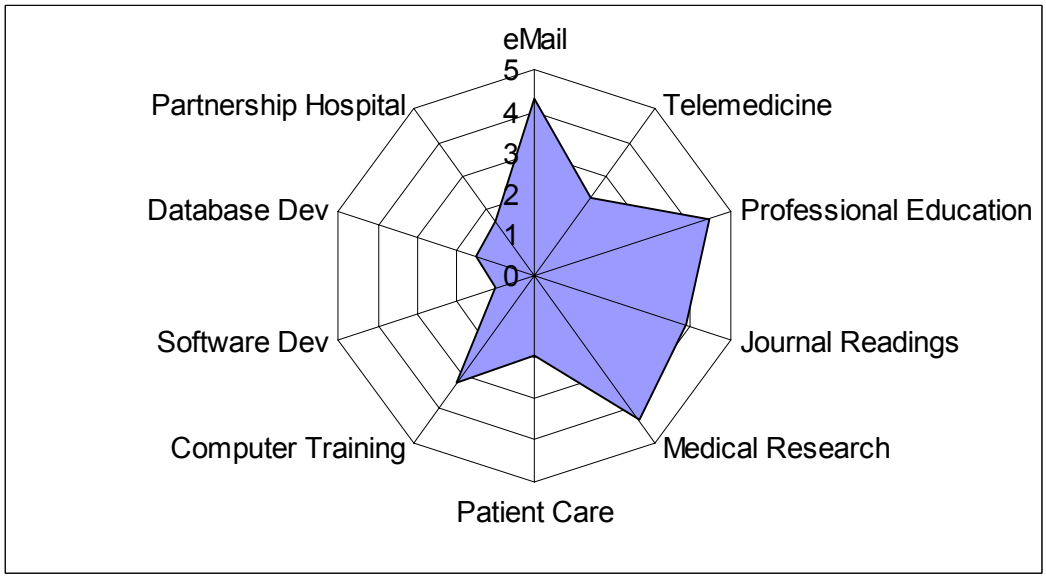


Figure 9: Radar Graph of LRCs engaged in biomedical research (Group 3)

The comparison of the two radar charts side by side shows the users at LRCs engaged in biomedical research have an increased ranking of email, professional education,

telemedicine and medical research over the total response averages. Group 3 includes 2 of the 17 evaluated LRCs.

	Content	Connectivity	Community	Care
Frequently	70%	81%	49%	5%
Average	27%	13%	4%	20%
Rare	3%	6%	47%	75%

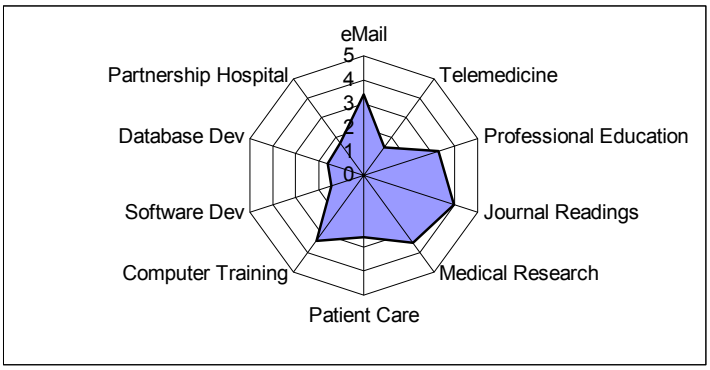
Table 4: 4C results for LRCs engaged in biomedical research

4. Determine health care policy and administering the health system for a geographic region

The following LRCs were included in this category:

- Institute of Public Health, Tirana, Albania (not available)
- Ministry of Health, Tirana, Albania
- National Center of Emergency Medicine, Tashkent, Uzbekistan

Total User Responses Radar Graph:



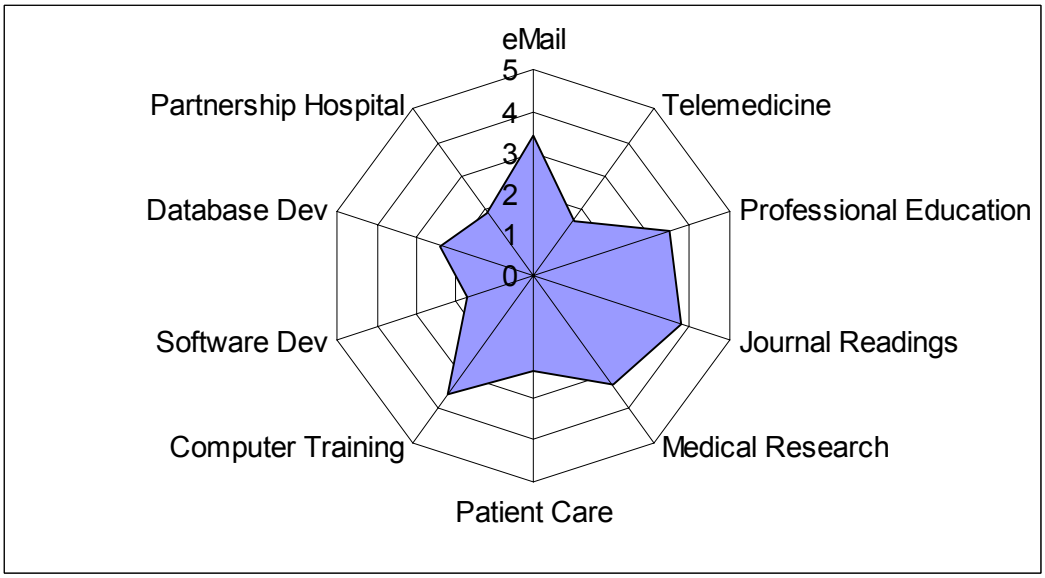


Figure 10: Radar Graph of LRCs determining health care policy and administering the health system for a geographic region

In comparing the two radar charts side by side, the users at LRCs engaged in determining health care policy and administering the health system for a geographic region show an

increase ranking for software and database development. Group 4 includes 3 of the 17 evaluated LRCs.

	Content	Connectivity	Community	Care
Frequently	60%	53%	39%	13%
Average	20%	19%	13%	11%
Rare	19%	28%	47%	76%

Table 5: 4C results for LRCs determining health care policy and administering the health system for a geographic region

'4Cs' Analysis

With the breakout of LRC responses into functional groups, the impact of the LRCs on their professional activities remains concentrated in content and community, reinforcing the LRC key model of a library with email. Below is the breakout of the four "C"s by groups.

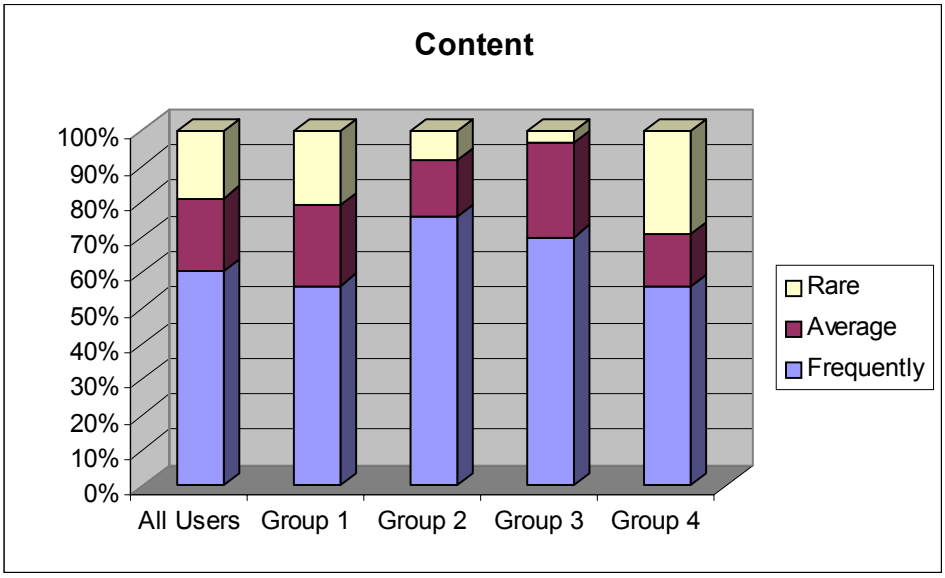


Figure 11: Graph of User's Responses in Content Area

	Frequently	Average	Rare
All Users	60%	20%	19%
Group 1	56%	23%	21%
Group 2	76%	16%	9%
Group 3	70%	27%	3%
Group 4	56%	15%	29%

Table 6: Results for Content Area

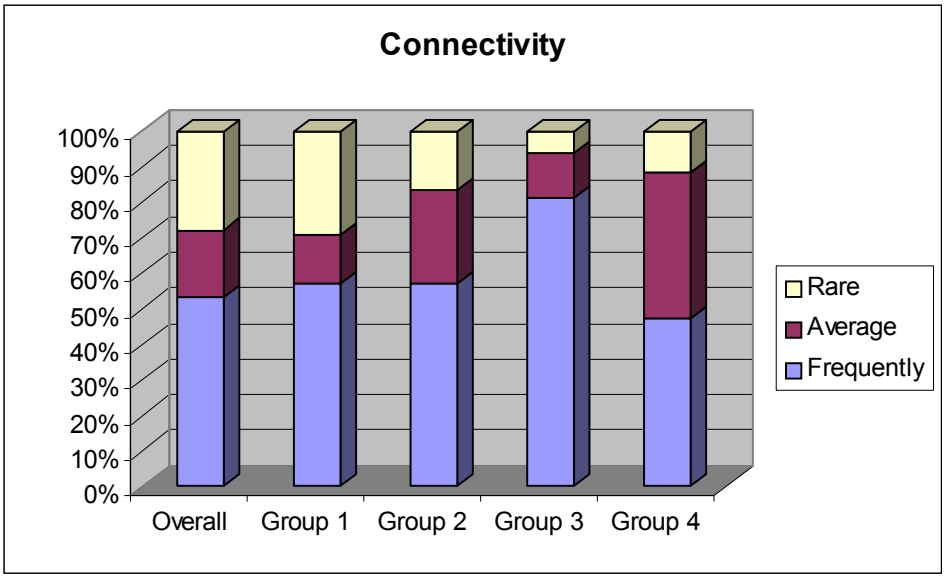


Figure 12: Graph of User's Responses in Connectivity Area

	Frequently	Average	Rare
Overall	53%	19%	28%
Group 1	57%	14%	29%
Group 2	57%	26%	17%
Group 3	81%	13%	6%
Group 4	47%	41%	12%

Table 7: Results for Connectivity Area

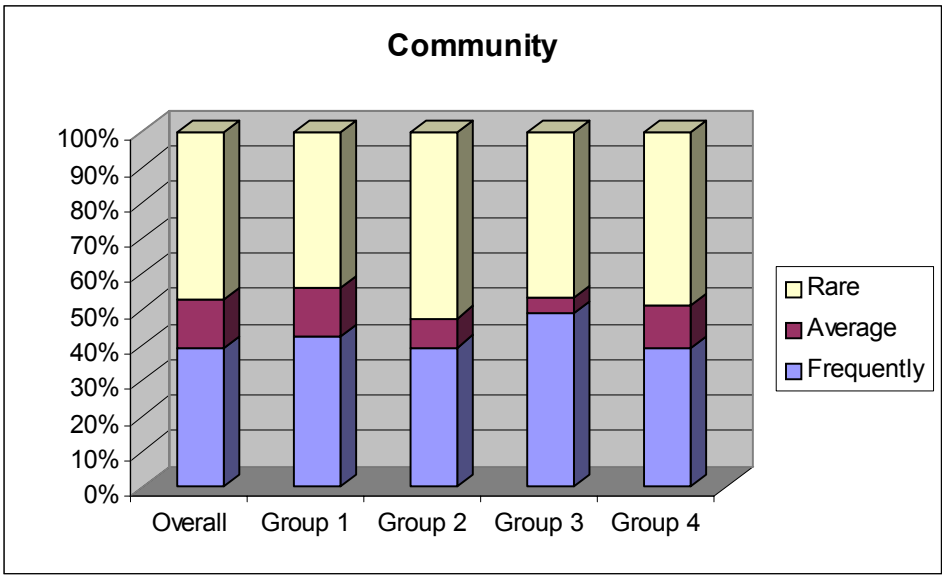


Figure 13: Graph of User's Responses in Community Area

	Frequently	Average	Rare
Overall	39%	13%	47%
Group 1	42%	14%	44%
Group 2	39%	8%	52%
Group 3	49%	4%	47%
Group 4	39%	12%	49%

Table 8: Results for Community Area

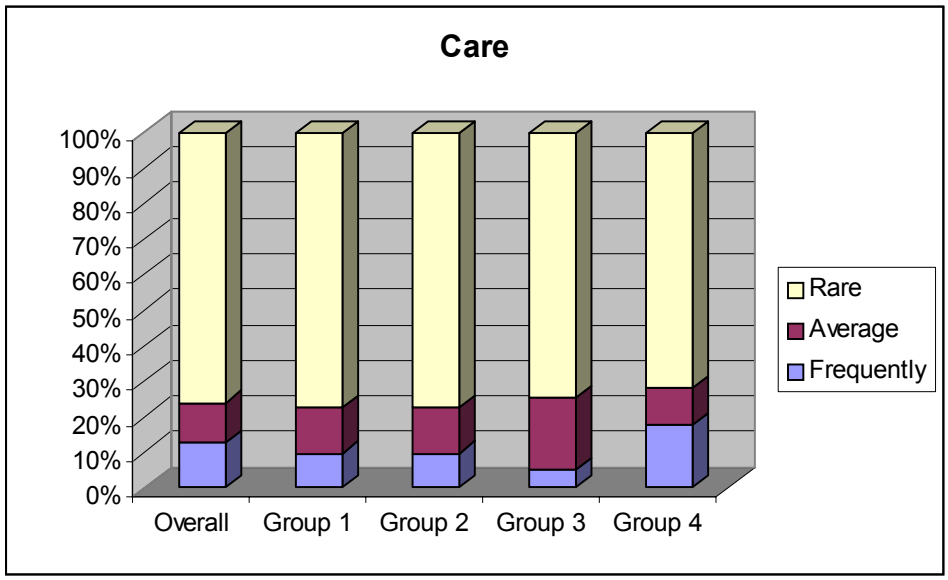


Figure 14: Graph of User's Responses in Care Area

	Frequently	Average	Rare
Overall	13%	11%	76%
Group 1	10%	13%	77%
Group 2	10%	13%	77%
Group 3	5%	20%	75%
Group 4	18%	10%	72%

Table 9: Results for Care Area

Analysis Summary

The Learning Resource Center (LRC) project remains a success. Over 90% of the interviewees agreed that the project has great advantages for the medical profession, their institution, and ultimately for patients. The project, as strongly reflected by both the user and info coordinator's surveys, provides a solution to the problem of access to modern and up-to-date medical knowledge in CEE and NIS medical institutions. These advantages allow for continued access to medical information and other medical resources.

The use of the LRC as a library, e-research and email center is common throughout the LRC program. Information gleaned from the Internet provides a basis and 'jump-start' for numerous improvements to institutional practices and procedures. During the interview process, users related patient cases where essential information was received and successfully administered through research and teleconsulting on the Internet (see

appendix B). As with the early expansion of the Internet within the western countries, the majority of initial adopters using the LRC are the young doctors and residents within an institution. The info coordinator and this core group serve the rest of the institution as a knowledge bank and 'agents of change'. This activity has been most successful where the administration has shown support to the efforts and especially when integrated into other IT initiatives within the institution.

While the LRC's role as a library, e-research and email center is predominant; the separate programs show a high degree of individualization and creativity. The most successful LRC sites were part of an overall IT program within the institution. The overarching program is creating an IT operation capability for the administration of the institution and to support staff needs (patient records, statistics, billing, communication, etc.) LRCs in this environment benefited from many of the common services provided (such as LAN support, multiple internet access lines, increases of trained personnel). Within these programs, interviews with the administrator and info coordinator indicated that the LRC program provided a catalyst role for starting and achieving their current program. The LRC info coordinator was often a partner and consultant for the IT program.

Other LRC programs reviewed during this study were stand-alone operations within their institutions. The type and quality of programs supported and the LRC impact varied significantly, based upon:

1. Physical access: To perform its function, the LRC must have access to the Internet, access to a computer and be accessible to staff itself. These factors place a boundary on the activities within the LRC and the possible results achieved. Successful LRCs reviewed during this study expanded these limits by:

   - Installation of a Local Area Network (LAN)
   - Additional Internet access through other grant/contracts (Open Society Institute/Soros)
   - Additional stand-alone computers (Partner's support, grants)
   - Volunteer staffers for LRC

   Problems with physical access directly limited the success of a LRC (poor modem lines, limited and restricted hours of operation)

2. Administration backing: Within the current environment of CEE/NIS health care, a successful LRC will have the backing of the administration. This provides both the resources and the influence necessary to create change and improvements within an institution. The level of support will determine the success of an LRC.

3. User commitment: For success, a LRC will require commitment from the user communities within the institution earned by providing 'customer services' to their needs. Successful LRCs provide not only for the current needs of their user community, but also future needs. During the interview process, a strong LRC generated knowledgeable users, which in turn, generated greater impact upon their institutions through the use of the LRC.

4. Info Coordinator: The role of an Info coordinator within a LRC is to increase the impact and use of IT and the Internet though out the institution. This means expanding the boundaries of the LRC by increasing physical access,

administrative backing and user commitment. One of the challenges is that there is always more work to be done than the time to perform it. The info coordinator's success in triaging the possible activities to focus on the primary goals is another boundary on the success of the LRC. Individual success of the info coordinator (good researcher, good publisher, good email support, etc) may not achieve the long-range goals of the LRC program. Info coordinators facilitate the operation of their LRC through use of tools, delegation of responsibility, and training.

To continue to improve, LRCs must push the boundaries of their program. The model of a LRC is of growth, i.e. the more users trained, more and varied use of the LRC. AIHA facilitates the growth of the LRCs by providing tools, hardware and software solutions, operation procedures, training, and community building services. AIHA monitors the success of LRC programs through required reporting and provides intervention and support for unsuccessful or failing LRCs.

Based upon observations during the visits to seventeen LRC, overall the program has a continuing positive impact on health outcomes within their institutions and within the general health care system in the CEE/NIS countries. In particular, as part of the LRC focus on increasing the availability, range, and quality of services provided by primary health care facilities, these projects provide better Maternal and Child Health services, which in turn will help improve worsening infant and maternal mortality rates. The targeted facilities include maternity homes in addition to outpatient facilities and hospitals.

While direct metrics on improvements in morbidity and mortality cannot be only attributed to LRC efforts, user interviews provide many anecdotal examples of such impact. In addition, based on observations during the visits and users comments, various materials gathered from the Internet or another LRC have been used as a basis for standard operating procedures or community outreach flyers, especially in youth and women health issues (such as drug use, women's health, domestic violence, family planning). Many examples of activities presented during the interview process have also been published in AIHA's quarterly reports and posted on their web site.

Suggested Improvements

In reviewing the progress of the LRCs, a number of program modifications and procedures came to light to improve both the delivery of services and impact of the centers.

1. Local area networks: All centers are challenged from a lack of connected computers to the Internet, reducing the number of users that can use the LRC. By providing a 'standard LRC' local area network, a single line may be shared by up to 5 users. This would reduce the bottleneck to use the Internet and allow greater access by the user base. It could be beneficial if AIHA could establish a 'model' version of a local area network using standard LRC configurations in the Washington office and provide the field with a 'cookbook' to create one in their LRC.
2. Offline Web Content: Since many LRC have more computers available than can connect to the Internet, important web content could be downloaded to CD. Users

could then use the CD as if it were the original web site and access the contents without tying up the modem line. Offline content could be captured in one location and then reproduced for distribution to many LRC. A special software application called a Web Spider is used to download complete web sites and all connecting pages to the local computer.

3. Offline Web Training Materials: As with the web content suggestion above, teaching materials for learning web browsing and searching could be created on CD and provided to each LRC. Currently, web training is live, using a web connection. By creating material to simulate the Internet, the available user time on the Internet would increase at each LRC.
4. English Training: English training in the LRC should concentrate on reading / writing skills. Within the US, there is a program called 'English as a Second Language' which may have prepared materials for training English in a variety of languages.
5. Standard Internet Bookmarks: Each LRC could be provided a bookmark file to identify and link to medical websites. AIHA could be a repository for the links and maintain the list for both English and Russian web sites of interest. As each LRC discovered useful links, they could submit them to Washington for inclusion.

Appendix A: AIHA's role in support of the LRCs

AIHA supports LRCs development and growth through:

- Training workshops: The AIHA organized a number of training workshops and conferences for CEE and NIS information coordinators. These workshops provided information coordinators with technical expertise in the use of information technology and in information management. Information coordinators also received training in business plan and grant writing to support their sustainability efforts. The workshops contributed to the creation of a sense of community among the information coordinators and encouraged the exchange of information about new technologies and successful information coordinator strategies.
- Publications: Publications, such as Common Health and Health Care Without Borders, highlight issues of health care and medical information technology in CEE and NIS. In particular, Health Care Without Borders highlights the activities of LRCs in different countries, including ambitious projects, innovative uses of information technology, and successful partnership activities.
- Mailing list and email: The use of a mailing list and email serves a similar function as the publications on a more informal level. Like the publications, the mailing list provides information coordinators with up-to-date information about medical information technology.
- English language classes: By providing English language instruction, the AIHA has enhanced communication with the LRCs and has helped to overcome language barriers and thus to reduce language barriers between change agents and adopters. At the same time, English language instruction has helped information coordinators to work more effectively, considering that much of the medical information on the Internet and in most medical databases on CD-ROMs is published in English.
- Well organized feedback processes: The AIHA has developed multiple and effective ways of soliciting feedback from the information coordinators about the LRCs and also of providing feedback to them about the overall development of the project. LRC topics," written descriptions of a software program, an Internet resource, or a particular use of technology at an LRC, provide not only feedback to the AIHA about the activities of the LRCs but also allow the AIHA to feed back this information to information coordinators. This practice facilitates the horizontal exchange of information among information coordinators. At the same time, the AIHA provides information coordinators with feedback about the overall development of the LRC project in all regions. "LRC project News" is sent out to information coordinators on a regular basis, providing them with current information about new developments, activities, and funding.
- AIHA Web Page Support: Provided a shared location for individual LRC to share and learn about activities and successes within the program, as well as a tool for coordination and dissemination of information to the program.

Appendix B - LRC Site Visit / User Survey Results

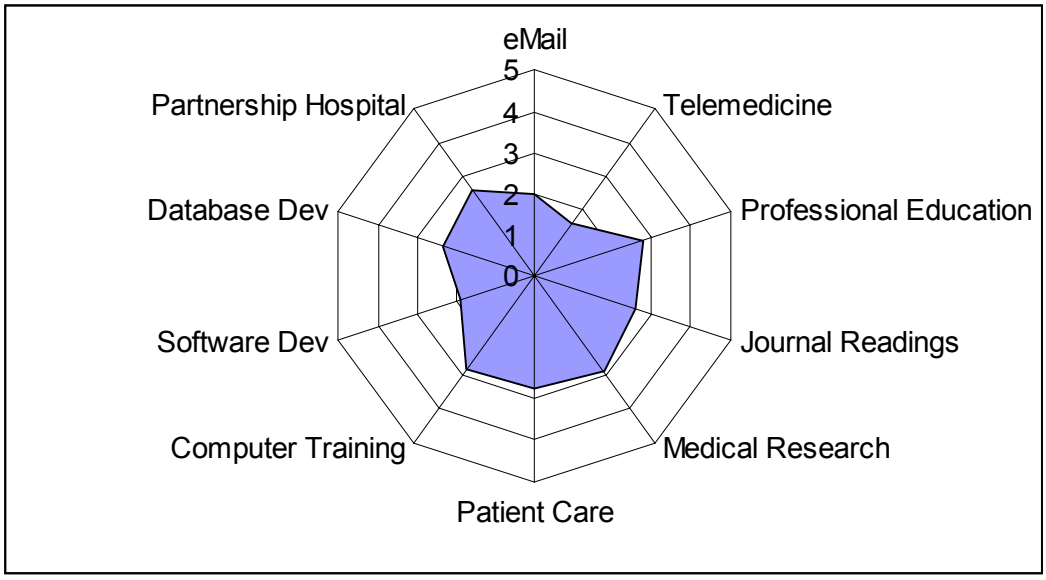
Korsakov Rayon Hospital, Sakhalin Island, Russia

Information Coordinator: Oleg Godyna, Epidemiologist
Pavel Sergeev, Engineer
Chief Physician: Alla Lyubimova
Anatoly Burdasov, Deputy Chief Physician

Staff: Natalia Kharchenko, Physician, Asthma Project Coordinator
Irina Kukharenko, Economist, Planning and Analysis Dept.
Olga Komar, Adolescent Center Director
Tatyana Melnik, Nurse
Irina Popova, Chief Nurse, Nursing Program Director
Anatoly Khitrin, Infectiologist

Active US Partnership
Baylor College of Medicine
Houston, TX United States
Sara Rozin
Project Coordinator
srozin@bcm.tmc.edu

User Survey Results:



Example LRC Activities: Raisa Cherkashina of the Korsakov Rayon Hospital and Polyclinic in Russia has recently begun helping her colleagues prepare teleconsultation requests. Using the LRC's scanner, Raisa is preparing photos, which she is sending out with the case histories by e-mail. Physicians at the hospital sent out two teleconsultation requests in January. One of these requests-for a patient with lymphangioma of the upper

lip-received a response from physicians at the Institute of Oncology and Radiology in Bishkek, who advised the application of external radiotherapy.

The information coordinator at Korsakov Rayon Hospital and Polyclinic in Russia began publishing an LRC newsletter in July. The newsletter, which is going to be published twice a month, includes articles and excerpts providing the latest medical information on selected topics in each issue. It also announces new resources at the LRC and lists the various services (including training and information requests) available to all staff.

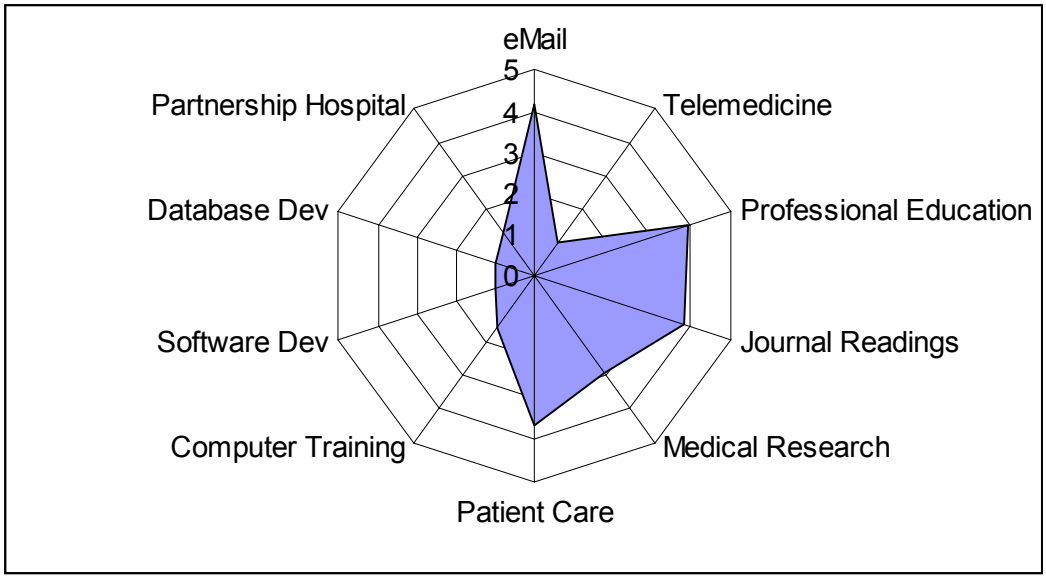
Hospital #2, Vladivostok, Russia

Information Coordinator:	Alexander Dubikov, Rheumatologist, Chief of Rheumatology Dept
Chief Physician:	Sergey Novikov
	Irina Klokova, Deputy Chief Physician
Staff:	Alexander Lishmanov, Chief of Information Systems Dept.
	Igor Istomin, Chief of Oncology Dept.
	Pavel Ivanov, Chief of Radiology Dept.
	Olga Zinkovskaya, Rheumatologist
	Yevgeny Nikitenko, "Technology Partner", ISP Provider
Graduated US Partnership	
	Medical College of Virginia, VA Commonwealth University - Richmond Ambulance Authority EMS Center Richmond, VA United States

Jerry Overton

Executive Director
joverton@richmond.infi.net

User Survey Results:



Example LRC Activities: Aleksandr Dubikov at Vladivostok City Hospital No. 2 recently implemented practice guidelines developed by physicians at the Duke University Medical Center in order to limit the use of expensive anesthesia drugs when acceptable lower-cost alternatives are available. Implementation of these practice guidelines has resulted in a reduction of costs per case from $58 to $34, corresponding to annual savings of $550,000.

The City Clinical Hospital #2 in Vladivostok, Russia has revised its practice of defibrillation paddle placement during cardiac resuscitation based on evidence-based resources found through the LRC. Literature reviews in this area revealed that most doctors, irrespective of grade or specialty, incorrectly place the defibrillation paddles when performing cardiac resuscitation, which results in a greater percentage of current passing through non-cardiac tissue, thus reducing the chances of successful defibrillation. The newly adopted guidelines come from the International Liaison Committee on Resuscitation..

Physicians at City Hospital No. 2 in Vladivostok have been using the Cochrane Database of Systematic Reviews and other sources to study data about the effects of beta-blockers on mortality among high-risk and low-risk patients after myocardial infarction. After thorough analysis and review, the physicians have started using beta-blockers for post-operative patients with high risk of acute coronary insufficiency.

Aleksandr Dubikov of City Hospital No. 2 in Vladivostok has been researching the role and use of macrolides for treating community respiratory infections such as community-acquired pneumonia (CAP). The research suggests that choice of therapy must take into account the most common pathogens, age, and comorbidities. The American Thoracic Society recommends macrolides as monotherapy for patients with CAP who have no comorbid disease and are younger than 60. Macrolide therapy may be particularly effective because new studies show that the most common pathogens for outpatient CAP are atypical, such as Mycoplasma pneumoniae and Chlamydia pneumoniae.

Aleksandr Dubikov of Vladivostok City Hospital No. 2 has been using Internet Relay Chat (IRC) to confer with colleagues in Moscow about antibiotic resistance and its effects on long-term care, a critical issue for his hospital.

Evgenii Pustavalov of the Vladivostok EMS Training Center is working on developing a database to help in the registration and systematization of EMS services throughout the entire Primorski Krai region.

Traumatologists at Vladivostok City Hospital No. 2 recently came across a study, which suggests that alendronate sodium, an osteoporosis drug, may be effective in helping to relieve pain and disability associated with vertebral fractures. Staff now expect that use of alendronate therapy will result in significant reductions in the number of days patients will be constrained by bed rest and limited activity due to back pain.

Using data from the U.K. Prospective Diabetes Study (UKPDS), physicians at Vladivostok City Hospital No. 2 have begun to implement American Diabetes Association (ADA) recommendations for management of type 2 diabetes. According to Alexander Dubikov, until about four years ago, sulphonylureas was the only type of oral anti-diabetic agent available on the market. Once patients failed this therapy, the only pharmacological alternative was insulin treatment. Today, there are multiple options for initial monotherapy, as well as combination therapy, which are successful in improving blood glucose control. Besides the obvious advantage to combination therapy, in terms of possible additive or synergistic effects to reduce blood glucose levels, there is an additional important concept that emerges from the availability of multiple drugs: the concept of mechanism-specific treatments

Alexander Dubikov from Vladivostok City Hospital No. 2 has developed a course on evidence-based practice for staff at the hospital. Course lectures, which are given once each week, are designed to give staff at the hospital an understanding of the rationale for an evidence-based approach to clinical practice and to enable staff to critically appraise articles about diagnosis, prognosis, and therapy.

Physicians at Vladivostok City Hospital No. 2 recently attended an on-line symposium on "Recent Novel Therapies in the Treatment of Acute Coronary Syndromes." Information from the symposium was also disseminated among physicians at the hospital.

ALEKSANDR DUBIKOV (aihavlad@online.vladivostok.ru) and several of his colleagues from the City Hospital No. 2 in Vladivostok, Russia participated in an on-line Web conference on the subject of "New approaches in the treatment of Helicobacter Pylori." The conference allowed the Vladivostok physicians to learn about evidence-based courses of treatment of Helicobacter infection and share their own opinions and experiences regarding the cost-effectiveness of various treatments with other specialists in the field. Aleksandr also has been using evidence-based medicine literature to evaluate the effectiveness of using sandostatin compared to other anti-enzyme drug therapies. (December 1997)

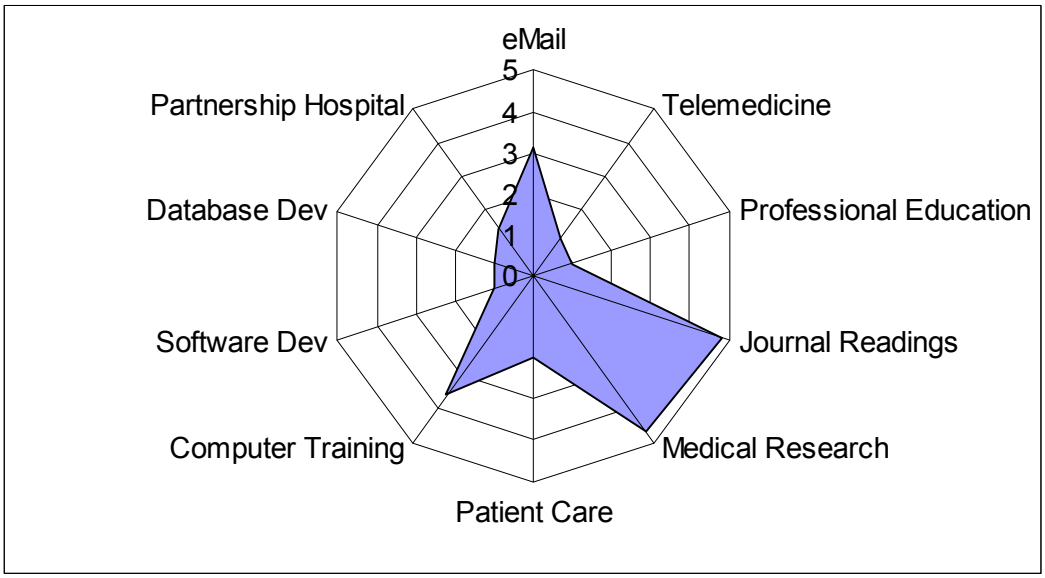
Regional Center for Disaster Medicine, Vladivostok, Russia

Information Coordinator:	Vladimir Ivaschuk, Pediatrician
Chief Physician:	Alexander Partin
Staff:	Mikhail Krotenok, Disaster Medicine Specialist
	Yevgeny Moiseenko, Traumatologist
	Yelena Shataeva, Resuscitation Specialist
	Vladislav Kostylev, Chief of Training Center
Graduated US Partnership	
	Medical College of Virginia, VA Commonwealth University - Richmond Ambulance Authority EMS Center Richmond, VA United States

Jerry Overton

Executive Director
joverton@richmond.infi.net

User Survey Results:



Example LRC Activities:

Pereyaslavka Rayon Hospital, Khabarovsk Region, Russia

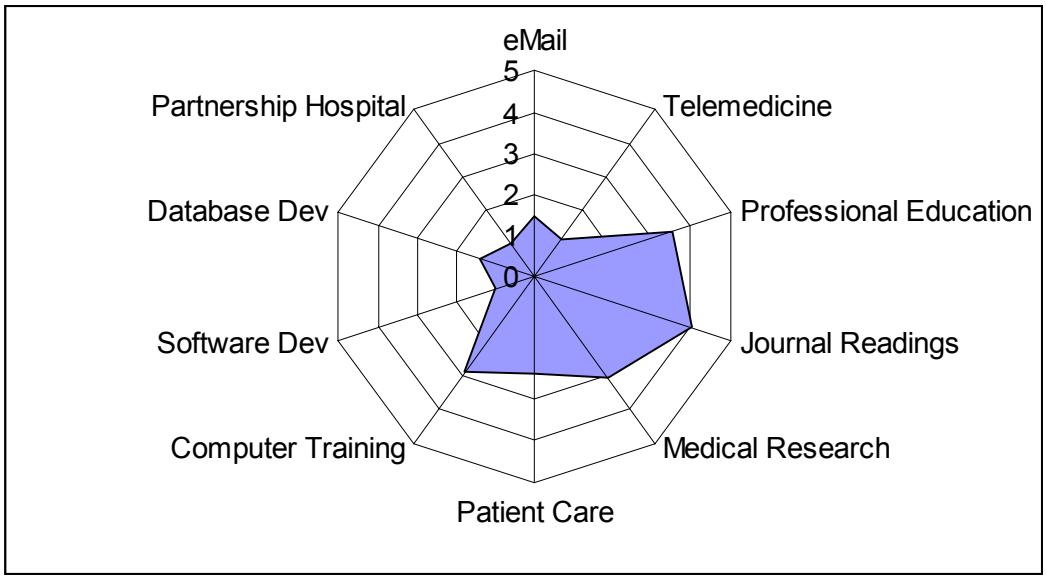
Information Coordinator:	Yevgeny Asachenko, Deputy Chief Physician
	Antonina Goryunova, Nurse
	Viktoria Zubanenko, Assistant
Chief Physician:	Igor Zubanenko
Staff:	Yelena Poplavskaya, Gynecologist
	Petr Razumenko, Chief of Blood Transfusion Dept.
	Galina Andrukhovich, Pharmacist

Tatyana Pogodina, Neonatologist
Sergey Schetkin, Ambulance Physician
Nikolay Beskhlebny, Ambulance Physician
Yevgenia Zinchuk, Obstetrician-Gynecologist

Active US Partnership

University of Kentucky
Lexington, KY United States
Elizabeth Schulman
Assistant Professor
eschulm@uky.edu

User Survey Results:



Example LRC Activities: Antonina Goryunova from the LRC at Pereyaslavka Rayon Hospital and Polyclinic in Russia has been providing her colleagues with recommendations and guidelines on the use of central venous catheters as well as with access to databases on neurological diseases and medicines. She has also introduced an interactive software program to provide training on diabetes.

The information coordinator at Pereyaslavka Rayon Hospital and Polyclinic in Russia has been providing staff from various departments with information to help them update their treatment methods. For gynecologists, information about drug therapy for treating somatic diseases in pregnant women has led to new approaches being used to treat these conditions at the hospital. Similarly, surgeons at the hospital have started using drugs that affect the metabolism of cartilage as a conservative treatment for osteoarthrosis in large joints. The information coordinator also helped a urologist find information on the use of pyrogenal and T-activin to treat chronic prostatitis.

Second Tashkent Medical Institute, Tashkent, Uzbekistan

Information Coordinator: Allonur Saidov, Department of Pathophysiology (absent)

Ravshan Utyanyshev, Scientific Lab, Assistant InfoCoordinator
Venera Abdumavlyanova, Research Librarian
Chief Physician: Khamid Karimov, Rector
Staff: Alisher Makhkamov, Dept of General Medical Practice

Shakhzod Zakirkhanov, Surgery Resident

Stalina Kasymova, Dept of Biochemistry, Professor
Jasur Khikmatov, 5th-year Medical Student

Graduated US Partnership

University of Illinois Chicago Hospital - UIC Perinatal Center M/C 808
Chicago, IL United States
Fran Jaeger, MSW, DrPH
Administrator, Perinatal Center
fjaeger@uic.edu

User Survey Results:

Example LRC Activities: The Second Tashkent State Medical Institute has signed a contract with a local company "Nuron - DC" to create a local area network with direct Internet connectivity. The contract provides for a high-powered network server which will provide communications access to over 300 workstations at the Institute--including all departments, laboratories and clinics. The contract will also provide equipment for setting up an electronic library. Dr. Khamid Karimov, Rector of the Institute, is making the investment in order to expand the capabilities of information technology for staff and students of the Institute.

In April, the Second Tashkent State Medical Institute, in collaboration with "Infotex - XXI", a local company, created a test laboratory for telemedicine at the Central Science Research Laboratory. The laboratory will work on improving training programs and medical science through distance learning and communication. In August of this year, they are planning to initiate a project called "Telemedicine in Fergana" by setting up a similar center at the Institute's affiliate in the Fergana Valley region.

In February, the Second Tashkent State Medical Institute, published a series of five manuals, including one on the Internet and distance education for physicians and others on grant-writing and business plan development. The manuals were published in collaboration with "Rustam and Sukhrob Co." in its series of textbooks for medical education, and they have been adopted by the Academic Councils of the First and Second Tashkent State Medical Institutes as well as the Institute of Pediatrics for postgraduate courses on "Market Economics and Medicine." Five thousand copies of the manuals have been distributed among medical institutions and universities throughout Uzbekistan.

Staff at the Second Tashkent State Medical Institute in Uzbekistan are frequently using the Medi.ru (www.medi.ru) Web site to find information on drugs, pharmaceutical companies, medical publishers, on-line medical journals, and more.

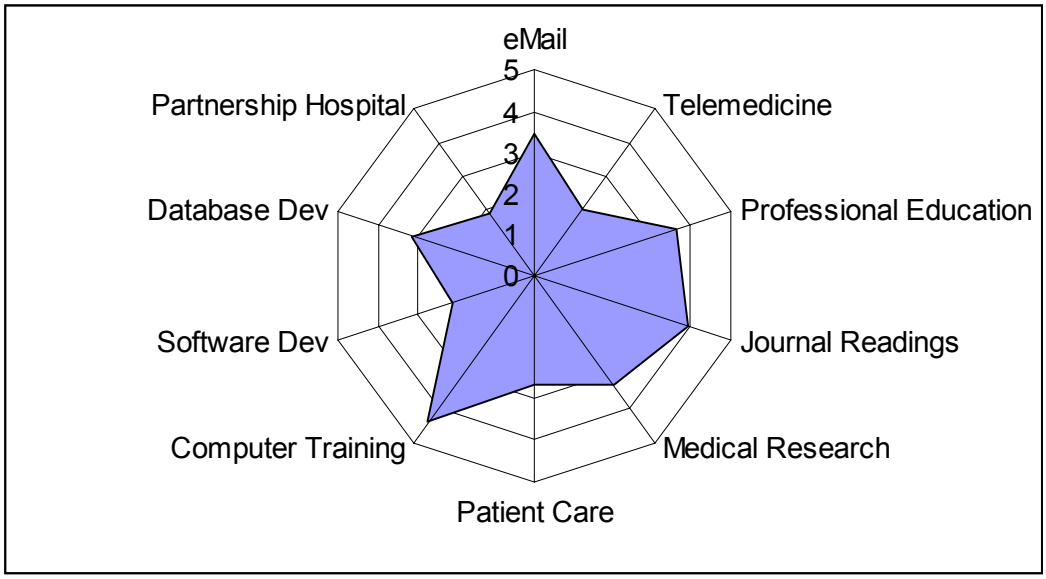
National Center of Emergency Medicine, Tashkent, Uzbekistan

Information Coordinator:	Bobur Shukurov, Dept. of Emergency Surgery
Chief Physician:	Abdukhakim Khajibaev, Director
	Ravshan Asamov, Deputy Director
Staff:	Narkhoja Sametdinov, Dept. of Emergency Surgery
	Bakhadyr Rakhimov, Anesthesiologist-Resuscitation
Specialist	
	Irina Khojaeva, Dept. of Critical Care
	Yelena Rezontova, Dept. of Critical Care
	Guzal Sulaimanova, Dept. of Diagnostics and Treatment
	Ildar Muslimov, Resident, Dept. of Anesthesiology and Resuscitation
Active US Partnership	

Grady Health System

Atlanta, GA United States
Laura Hurt
Director, Medical Surgical Nursing
RN
tblnsg@igc.org

User Survey Results:

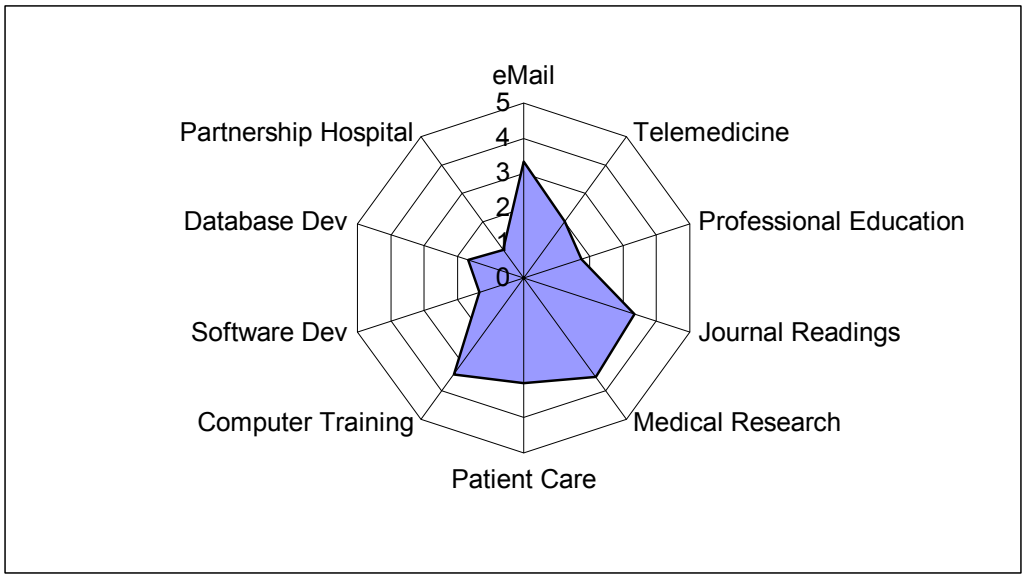


Example LRC Activities:

Polyclinic #8, Baku, Azerbaijan

Information Coordinator:	Azer Abdullaev, Dermatologist Tarana Abbasova, Infectiologist
Chief Physician:	Rena Alekperova Saadat Makhmudova, Partnership Coordinator
Staff:	Bagira Elakha, Rheumatologist Ragima Ragimova, Laboratory Assistant Samira Jalilova, Ophthalmology Nurse Zeinab Nurieva, Health Promotion Nurse Sevinj Salimova, Registration/Check-in
Active US Partnership	Oregon Health Sciences University - Dept. of Family Medicine Portland, OR United States Steve Kliewer Director of Community Medicine and kliewers@ohsu.edu

User Survey Results: Seventeen users of the LRC returned survey forms. The primary use of the LRC was for training on computer skills, continuation of professional education, professional development and studing English. The users' responses focused upon "improving professional qualifications", "reading professional journals" and "improving my computer skills"

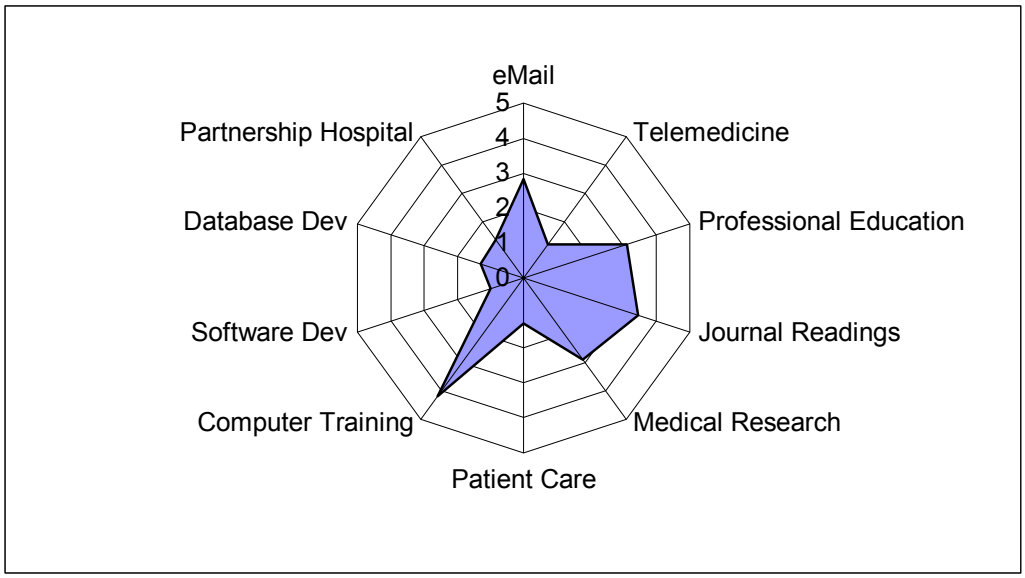


Example LRC Activities: Physicians from Polyclinic #8 in Baku completed a practice standard review on the use of antibiotics in the treatment of acute bronchitis. Having analyzed the literature found through the LRC, the committee of polyclinic physicians came to the realization that current methods employed at the institution do not comply with the latest evidence-based approaches and require a thorough reevaluation. The committee is currently working on the plans to make institution-wide changes in the treatment of acute bronchitis with antibiotics.

Joint Hospital #6, Baku, Azerbaijan

Information Coordinator:	Vagif Nabiev, Resuscitation Specialist Sevinj Velieva, Nurse
Chief Physician:	Rafael Mekhtiev Nazim Iderim-zade, Partnership Coordinator
Staff:	Ainur Safieva, Surgeon Lala Alieva, Pediatrician Mehbara Shahbazova, Nurse Ainur Mamedova, Resident, Anesthesiology
Active US Partnership	Virginia Commonwealth University - Medical College of Virginia David Marsland, MD Chair, Department of Family Practice Richmond, VA United States dmarslan@hsc.vcu.edu

User Survey Results: Seven users of the LRC returned survey forms. The primary use of the LRC was for professional development and medical research. The users' responses focused upon "continue my professional education", "Researching general medical information sources" and "improving my qualifications"



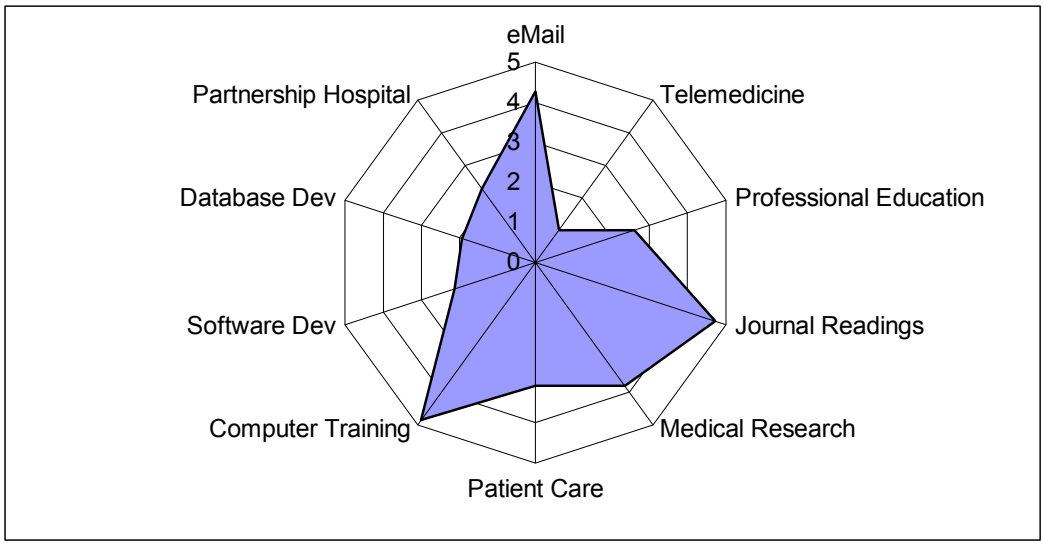
Example LRC Activities: Pediatricians and cardiologists from the Joint Clinical Hospital No.6 in Baku, Azerbaijan, regularly use LRC resources to prepare presentations to inform other practicing physicians about latest diagnostic and treatment data. Two pediatricians at the hospital collected information from the Internet and CD-ROMs to create presentations on bronchial asthma and rheumatism. The cardiologist, based on

materials found through the LRC, conducted a seminar for his colleagues to introduce new medications and US treatment protocols for ischemic heart disease.

Mir-Kasimov Hospital, Baku, Azerbaijan

Information Coordinator:	Samira Khidirova, Nurse
	Azad Akhmedov, Physician
	Sevda Guseinova, Physician
Chief Physician:	Vagif Jafarov
Staff:	Nakhayat Mamedova, Chief Nurse
	Larisa Musaeva, Nurse
	Sevile Zeinalova, Physician
	Yegana Ruzaeva, Nurse
	Tarana Makhmarrzaeva, Nurse
	Bahar Verdieva, Chief Nurse
	Farengiz Suleimangizi, Chief Nurse
	Ilgar Aliev, Programmer
Active US Partnership	
	Baylor College of Medicine
	Houston, TX United States
	Sara Rozin
	Project Coordinator
	srozin@bcm.tmc.edu

User Survey Results:

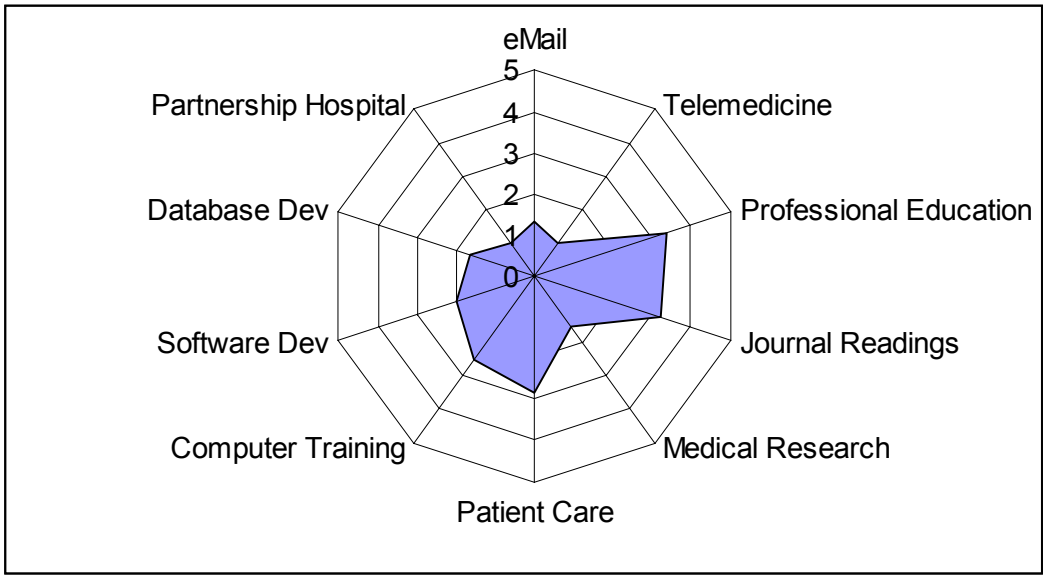


Example LRC Activities:

Odessa Sea Port Polyclinic, Odessa, Ukraine

Information Coordinator:	Nikolai Konyukhov, Ultrasound Diagnostics Specialist
	Alexey Gorishniy, Network Administrator
Chief Physician:	Vladimir Petrov
Staff:	Sergey Bulatov, Cardiologist
	Victor Pakhomenko, Edoscopic Specialist
	Anna Gorishnyaya, Endocrinologist
	Svetlana Chadina, Nurse
Active US Partnership	
	Boulder Community Hospital
	Boulder, CO United States
	Barbara Fisher, M.S.N., M.H.A., F.A.C.H.E.
	Vice President
	bfisher@bch.org

User Survey Results:



Example LRC Activities:

Odessa Oblast Hospital, Odessa, Ukraine

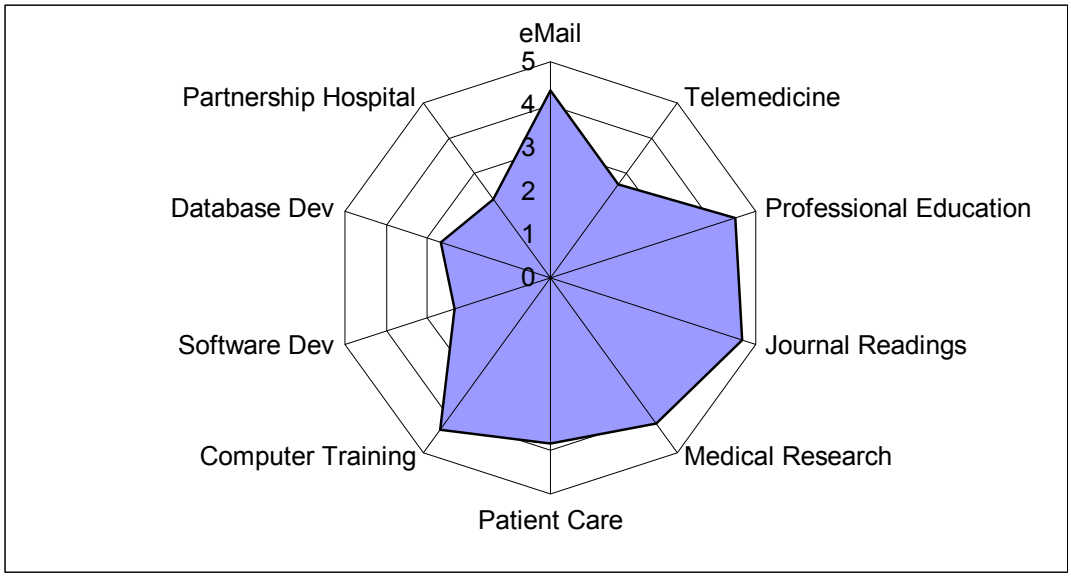
Information Coordinator:	Grigory Tyapkin, Anesthesiologist
Chief Physician:	Nelli Gozhenko
Staff:	Ruslan Bedran, Neurosurgeon
	Oleg Golovchenko, Anesthesiologist
	Diana Makushkina, Nurse
	Gleb Kirdoglo, Traumatologist
	Vladislav Kushakovsky, Anesthesiologist

Alexander Berzoi, Mammologist

Graduated US Partnership

Coney Island Hospital
Brooklyn, NY United States
James Alexander, MD
Project Coordinator
jwalexand@igc.org

User Survey Results:



Example LRC Activities:

Odessa State Medical University, Odessa, Ukraine

Information Coordinator: Yuri Vorokhta, Dept. of Preventive Medicine
Liza Scherba, Dept. of Preventive Medicine

Chief Physician: Vladimir Kolodenko, Head, Dept. of Preventive Medicine

Staff: Oleg Scherba, Medical Sonographer
Aditya Joshi, 6th-year Medical Student

Active US Partnership

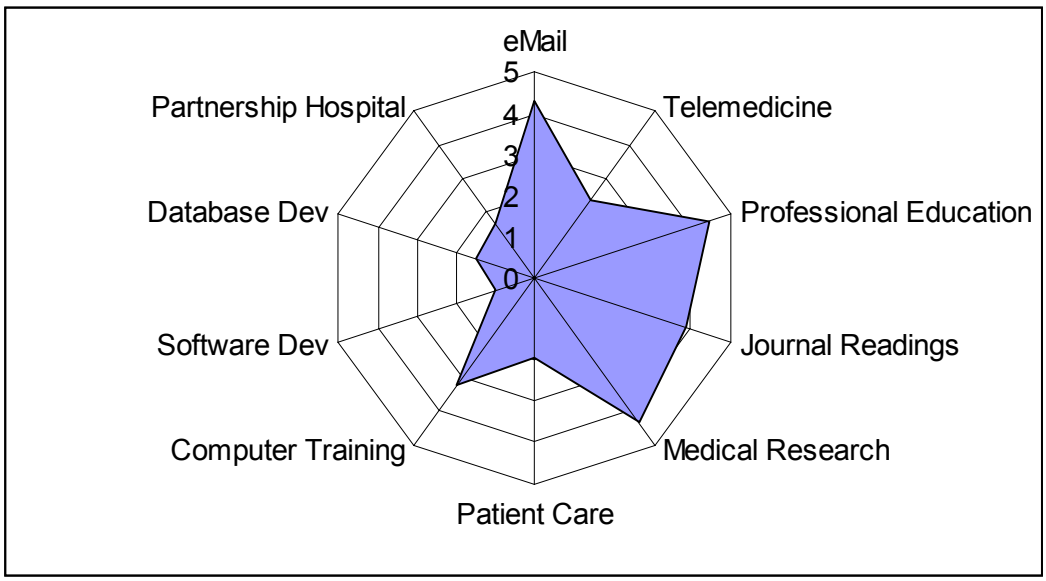
Boulder Community Hospital
Boulder, CO United States
Barbara Fisher, M.S.N., M.H.A., F.A.C.H.E.
Vice President
bfisher@bch.org

Graduated US Partnership

Spectrum Health - Butterworth Hospital
Grand Rapids, MI United States
Judy Van Dam
Project Director

jvandam@iserv.net

User Survey Results:

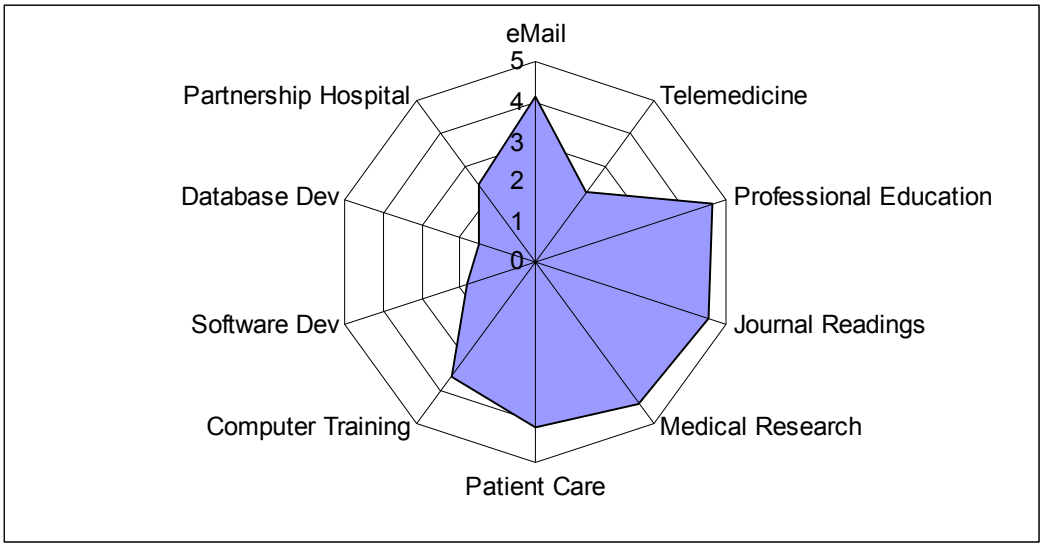


University Hospital Center, Tirana, Albania

Information Coordinator: Miranda Zhegu
Chief Physician: Effimika Kono, Vice Director for Economics
Staff: Andi Qirjazi, Network Administrator
Andi Kacani, Resident, Cardiac Surgery
Sokol Xhepa, Vascular Surgeon
Dorela Haxhiymeri, Resident, Intensive Therapy and Anesthesiology

Graduated US Partnership
Spectrum Health - Butterworth Hospital
Grand Rapids, MI United States
Judy Van Dam
Project Director
jvandam@iserv.net

User Survey Results:



Example LRC Activities:

Communications And Information Exchange

Based on a request from the otolaryngology department for information about hearing aids, information coordinator from the University Hospital Center in Albania, Tirana found a specialized Web site www.oticomus.net. After one of the department physicians contacted a representative of Oticomus-a firm in Padova, Italy-the company initiated shipment procedures to send free hearing aids to a group of Albanian children with congenital hearing loss.

Internet Consultations

A doctor from the ophthalmology department at the University Hospital Center "Mother Theresa" in Tirana, Albania, had a patient with severe diabetic retinopathy and macular edema. With the help of the hospital's information coordinator, Miranda Zhegu, she communicated by e-mail with a professor of retinology in the United States and soon received precise instructions on how to treat the patient using laser photocoagulation.

In February, a doctor from Ophthalmology Department at University Hospital Center in Tirana communicated with several NGOs in the USA and with the Ellex Laser Production Firm in Australia regarding problems they had had using their NdYAG Laser. After an exchange of 3 or 4 e-mail messages, all of the problems were solved and the laser was again operational.

The University Hospital Center "Mother Teresa" in Tirana, Albania recently won a grant from the Soros Foundation to install a local area network at the hospital and to provide an Internet connection through the network. The LRC, which now includes four networked computers, moved to its new office in March.

During this quarter, a young doctor from otorhinolaryngologic department at the University Hospital Center "Mother Theresa" in Tirana asked the information coordinator to help her to contact a hematology clinic abroad about a 14-year-old patient diagnosed

with Angiophybroma juvenile of nasopharynge. Through the Internet, they were able to communicate with the Onco-Hematological Clinic of the "S.Chiara" Hospital in Pisa, Italy. The physician consulted by e-mail and by telephone for over a week in order to make arrangements for treatment.

In June and July,2001 an outbreak of Congo Crimean hemorrhagic fever occurred in the northern regions of Albania. A total of 8 cases were identified, with one of the patients being admitted to the Infections Disease Department of the University Hospital Center in Tirana, Albania. In order to have a wider view of the epidemiological situation in the region, the Hospital Center LRC conducted a search through the CDC and WHO weekly epidemiological update Web sites. Through these sites the staff learned that the outbreak was occurring on a larger scale, over 80 cases, in neighboring Kosovo. The LRC also conducted a literature review on Congo Crimean hemorrhagic fever to help in the treatment of the patient. The findings of this research as well as data drawn from the patient's clinical chart are being used to write a paper that will be presented at the Annual National Conference, which will be held in Tirana in October.

Faculty of Medicine, Tirana University, Tirana, Albania

Information Coordinator:	Eneida Mjeshtri, Librarian
Chief Physician:	Bajram Hysa, Chancellor
Staff:	Rudolf Zaharia, Professor, Dept. of Public Health
	Fatma Petrela, Eastern Affairs
	Evda Vevecka, Vice Dean
Graduated US Partnership	
	New York University - Public Administration
	New York, NY United States
	Charles Breecher
	Professor of Public Administration
	charles.brecher@wagner.nyu.edu

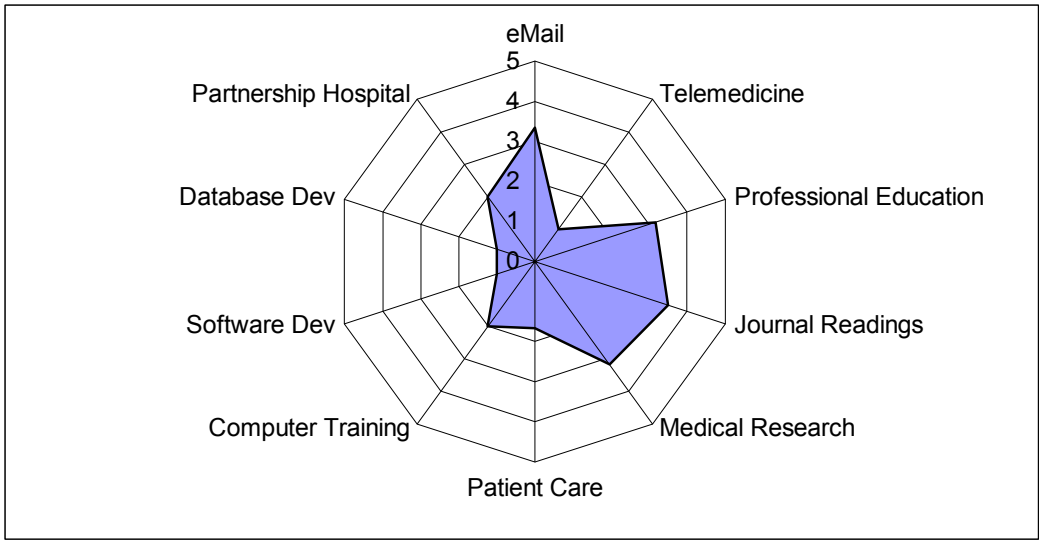
User Survey Results: No Survey Forms turned in

Ministry of Health, Tirana, Albania

Information Coordinator:	Silvana Novi, Infectiologist
Chief Physician:	Fatmir Brahimi, Director, Hospital Department
Staff:	Ehad Mersini, Chief, Medical Programs Sector
	Maksim Bozo, Pediatrician, Admin Sector
	Vasil Teta, Epidemiologist
	Pronvera Shehu, Biologist
Graduated US Partnership	
	New York University - Public Administration
	New York, NY United States

Charles Breecher
Professor of Public Administration
charles.brecher@wagner.nyu.edu

User Survey Results:



Institute of Public Health, Tirana, Albania

Information Coordinator:	Gledjona Tola
Chief Physician:	Silva Bino, Director
Staff:	Cenko Fabian, Epidemiologist, Vaccination Program Coordinator
	Artan Bejo, Microbiologist, Bacterial Lab
Graduated US Partnership	
	New York University - Public Administration New York, NY United States Charles Breecher Professor of Public Administration charles.brecher@wagner.nyu.edu

User Survey Results: No survey results turned in

Women's Wellness Center, Tirana, Albania

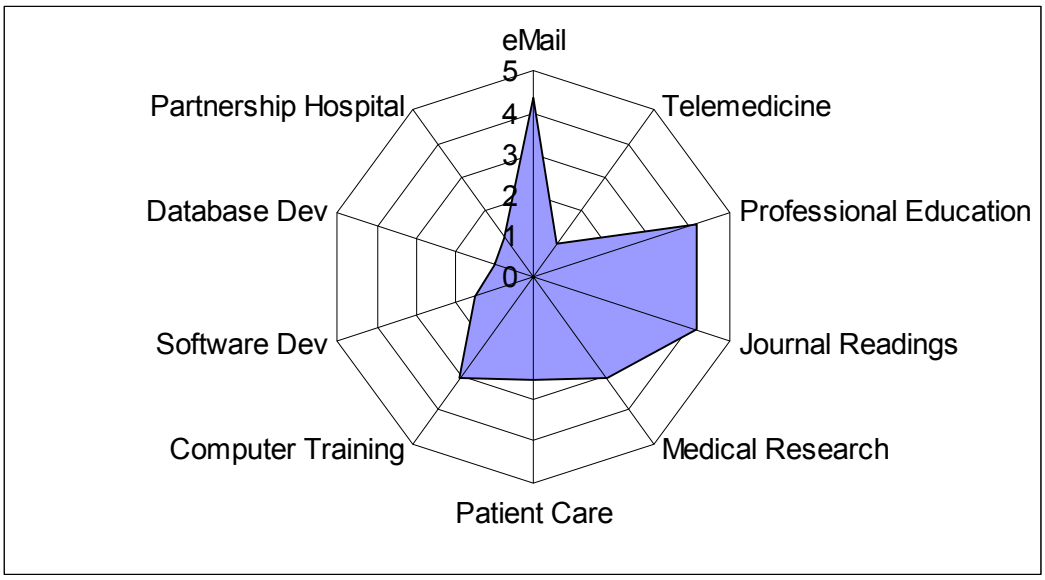
Information Coordinator:	Robert Qirko, Resident, Obstetrics and Gynecology
Chief Physician:	Halim Kosova, Director, University Maternity Hospital
Staff:	Nderim Horeshka, Resident, Obstetrics

Julian Habibaj, Resident, Gynecology

Active US Partnership

National Perinatal Information Center
Providence, RI United States
David Gagon
President
dgagnon@npic.org

User Survey Results:



Example LRC Activities:

Robert Qirko, information coordinator from the Women's Wellness Center in Tirana, Albania, together with his colleagues organized a Women's Education Project for female patients at the clinic. Through this project, women are able to attend special topic classes related to women's health and to use LRC computers and medical CD-ROMs. In addition to patient education efforts, the LRC has helped to institute computerized patient data sheets, originally introduced by the US partners. The electronic version of the data sheet, located on the reception desk's computer, is not only more convenient than a handwritten version, but is also used to collect monthly data for patients and physicians.

Appendix C: LRC Survey Form – AIHA Assessment 2001

As part of the review of the Learning Resource Center, would you complete this form? Please use the blank lines for any additional uses of the LRC for during the past year.

How frequently is the Learning Resource Center used for: (1 = very frequently; 5 = never)		
1.	eMail	1 • 2 • 3 • 4 • 5
2.	Telemedicine Consultations	1 • 2 • 3 • 4 • 5
3.	Continuing Professional Education	1 • 2 • 3 • 4 • 5
4.	Reading Medical & Professional Journals	1 • 2 • 3 • 4 • 5
5.	Researching General Medical Resources	1 • 2 • 3 • 4 • 5
6.	Researching Specific Patient Problems	1 • 2 • 3 • 4 • 5
7.	Contacting Partnership Hospital	1 • 2 • 3 • 4 • 5
8.	Training on Computer Skills	1 • 2 • 3 • 4 • 5
9.	Software Development	1 • 2 • 3 • 4 • 5
10.		1 • 2 • 3 • 4 • 5
11.		1 • 2 • 3 • 4 • 5
12.		1 • 2 • 3 • 4 • 5

Also, would you complete the following questions:

1. What are the main reasons for the Learning Resource Center at your site?

2. What are the most common uses the Learning Resource Center?

3. During the past year, how has the Learning Resource Center changed?

4. During the next year, how will the Learning Resource Center change?

5. During the next year, how will the Learning Resource Center change?

Appendix D: Анкета для пользователей – оценка AMCЗ 2001 г.

Этот опрос является составной частью обзора деятельности вашего Центра учебных ресурсов. Пожалуйста, заполните прилагаемую анкету. В свободных графах укажите, для каких еще целей вы использовали Центр учебных ресурсов в течение минувшего года.

Как часто вы используете Центр учебных ресурсов для следующих целей: (1 = очень часто; 5 = никогда)		
1.	Переписка по электронной почте	1 • 2 • 3 • 4 • 5
2.	Телемедицинские консультации	1 • 2 • 3 • 4 • 5
3.	Продолжение профессионального образования	1 • 2 • 3 • 4 • 5
4.	Чтение медицинских и профессиональных журналов	1 • 2 • 3 • 4 • 5
5.	Исследование общих медицинских ресурсов	1 • 2 • 3 • 4 • 5
6.	Исследование проблем в связи с конкретными пациентами	1 • 2 • 3 • 4 • 5
7.	Контактирование с партнерской больницей	1 • 2 • 3 • 4 • 5
8.	Обучение навыкам работы с компьютером	1 • 2 • 3 • 4 • 5
9.	Разработка программного обеспечения	1 • 2 • 3 • 4 • 5
10.	Разработка баз данных	1 • 2 • 3 • 4 • 5
11.	Другое:	1 • 2 • 3 • 4 • 5
12.	Другое:	1 • 2 • 3 • 4 • 5

Ответьте также на следующие вопросы:

6. Каковы ваши служебные обязанности?

7. Каковы ваши основные мотивы для пользования Центром учебных ресурсов?

8. Для каких целей вы чаще всего используете Центр учебных ресурсов?

9. К какой еще информации или приложениям вы хотели бы иметь онлайновый доступ?

10. Есть ли у вас другие замечания или предложения?

Appendix E: eHealth-related information resources.

eHealth-Related Publications and Newsletters

Most of the following publications are free but some are only available by subscription.

E-Care Management News (www.bhtinfo.com/newsletter.htm)

eHealth Reports (ehealth.chcf.org/)

eHealthcarebusiness.com (www.ehealthcarebusiness.com/cda/HomePage.asp)

E-Healthcare Connections (www.ehealthcareconnections.com)

eHealthcare News (www.muhealth.org/~news/eHealth/4_2000.shtml)

eHealthcare Strategy & Trends (www.strategichealthcare.com/ehealth.html)

Healthcare Informatics Magazine (www.healthcare-informatics.com/index.htm)

iHealthcare Weekly (www.ihealthcareweekly.com)

Interactive Healthcare Report (info2.graphiced.com/products.html)

Internet Healthcare Strategies (www.corhealth.com/IHS.html)

Medical Computing Today (www.medicalcomputingtoday.com/index.html)

Medicine on the Net (www.corhealth.com/motn/MOTNHome4.asp)

TelehealthNet (telehealth.net/interviews/)

Telehealthonline (telehealth.calhealth.org)

Telemedicine Today (www.telemedtoday.com)

The Informatics Review (www.informatics-review.com)

Wit SoundView's Wisdom on eHealth (www.witsoundview.com/research/reports_industry.jsp?Industry=ehealth&Name=eHealth)

WR Hambrecht & Co (www.wrhambrecht.com/research/coverage/ehealth/index.html)

Peer-Reviewed Journals that Frequently Publish eHealth-Related Articles

Many of these online journals require a subscription for full text access.

American Journal of Preventive Medicine (www.meddevel.com/site.mash?left=/library.exe&m1=1&m2=1&right=/library.exe&action=home&site=AJPM&jcode=AMEPRE)

British Medical Journal (www.bmj.com)

Bulletin of the Medical Library Association (www.mlanet.org/publications/bmla/index.html)

Computers in Biology and Medicine (www.elsevier.nl/inca/publications/store/3/5/1/)

Health Affairs (www.healthaffairs.org)

International Journal of Medical Informatics (www.elsevier.co.jp/inca/publications/store/5/0/6/0/4/0/)

Journal of Health Communication (www.aed.org/JHealthCom/)

Journal of Informatics in Primary Care (www.phcsg.org.uk/informatics/index.htm)

Journal of Medical Internet Research (www.jmir.org/index.htm)

Journal of the American Medical Association (jama.ama-assn.org)

Journal of the American Medical Informatics Association (www.jamia.org)

Medical Informatics and the Internet in Medicine (www.tandf.co.uk/journals/frameloader.html?

http://www.tandf.co.uk/journals/tf/14639238.html)

Medscape General Medicine (www.medscape.com/Medscape/GeneralMedicine/journal/public/mgm.journal.html)

Directories of eHealth-Related Conferences and Meetings

www.amia.org/resource/conf&meetings/f2.html

www.telemedtoday.com/website99/portals/conference_calendar.htm

www.ehto.org/ikb/events/telehealth.net/calendar/events/Telemed.html

www.medicalcomputingtoday.com/0listconcal.html

Appendix F – Foundations

Foundations with explicit interest in information and communication technology issues.

The following are examples of foundations that have an explicit interest in funding projects related information and communication technology according to published materials. Many of these, especially the corporate foundations, are specifically focused on the use of emerging technologies to improve education, but some also have an interest in eHealth areas. The descriptions of the following foundations are verbatim or slightly edited versions of text from their Web sites or the Foundation Center Web site (www.fdncenter.org).

Independent Foundations

Alfred P. Sloan Foundation (www.sloan.org)

> The Sloan Foundation has several initiatives to promote science and technology education. The Goal of their Public Understanding of Science and Technology program is to "enhance people's lives by providing a better understanding of the increasingly scientific and technological environment in which we live." Their Learning Outside the Classroom initiative seeks to "make higher education and training anytime and anywhere for anyone who is motivated to seek it." Grants have gone to institutions of higher education to encourage their use of Asynchronous Learning Networks, which make possible access to remote learning resources such as instructors, fellow students, text, and software.

Benton Foundation (www.benton.org)

> The Benton Foundation seeks to "shape the emerging communications environment in the public interest… Benton initiates projects in three interdependent areas:
>
> > 1.Defining and promoting public policies that support the public interest services and capacities of new media;
> >
> > 2. Helping nonprofit organizations use communications tools and strategies to be information providers and social advocates; and
> >
> > 3.Creating knowledge centers in the new media that are trusted sources and guides to nonprofit information and action."

Bill & Melinda Gates Foundation (www.gatesfoundation.org)

> The Foundation is "dedicated to sharing the promise of new technologies with all citizens." It has three focus areas: Education, Libraries, and Public Access to Information. These programs seek to improve teaching and learning, enhance access to technology through libraries, and increase access points to the Internet and resources for computer based solutions.

California Healthcare Foundation (www.chcf.org)

> The Foundation has several focuses including managed care, the uninsured, health policy and regulation, health care quality, and public health. "Grants focus on areas where the Foundation's resources can initiate meaningful policy recommendations, innovative research, and the development of model programs." The foundation has sponsored several analyses of privacy issues related to health

Web sites, a series of reports on the future of eHealth, and an "eHealth Reports" feature on their Web site.

California Wellness Foundation (www.tcwf.org)

The California Wellness Foundation seeks to "improve the health and well-being of the people of California through health promotion and disease prevention programs." The Foundation concentrates its grantmaking activities in five areas: community health, population health improvement, teenage pregnancy prevention, violence prevention, and work and health. They have funded IT-related projects.

Canyon Research (www.canyonresearch.org)

This San Diego-based foundation "supports research and education projects that focus on innovative computer-related communications technology, public communications policy, and domestic communications regulatory issues. The Foundation seeks to advance communications research and education."

Case Foundation (no Web site)

Established by A O L chief executive Steve Case and his wife, Jean. Provided $10 million to start up PowerUp, which is a partnership of more than a dozen nonprofit organizations, major corporations and federal agencies, to give underserved children access to technology and guidance on how to use it. It is focused on schools and community centers.

Community Technology Foundation of California (www.zerodivide.org)

Founded in 1998 by 134 community organizations and Pacific Bell (now part of SBC Communications), this community foundation "works to meet the needs of California's underserved communities for full and equal access to basic and advanced telecommunications services, and their needs for knowledge carried by these services."

J.C. Downing Foundation (www.jcdowning.org)

The San Diego-based J.C. Downing Foundation supports efforts and projects in five program areas: Education and Human Development, Environmental Research and Preservation, Fine Arts, Sports and Athletics, and Technology and Communication.

John and Mary R. Markle Foundation (www.markle.org)

The Foundation "promotes the development of communications industries that address public needs." Most of the Foundation's current work is through following programs: Public Engagement through Interactive Technologies, Policy for a Networked Society, Interactive Media for Children, and Information Technologies for Better Health.

Kellogg Foundation (www.wkkf.org)

The Kellogg Foundation seeks to "increase and ensure equal access to information and electronic media. This includes support for professions education and policy issues surrounding intellectual property rights and privacy. Priorities include building the human capacity to strengthen community on-line communication systems in health, education, rural development, and the non-profit sector. Special

attention will be focused on disenfranchised populations, especially among the young."

Nathan Cummings Foundation (www.ncf.org)

The Foundation's Health Program is committed "to improving the quality of life at its beginning and at its end by supporting humane patient-centered care that provides comfort and caring, as well as cure. The Foundation is concerned about patient/provider communication, patient empowerment, and the importance of family and community in nurturing new life and in facing death." The foundation was instrumental in raising the salience of Y2K readiness to health care institutions.

Paul G. Allen Virtual Education Foundation (www.paulallen.com/foundations/)

The Bellevue, Washington-based foundation seeks "to advance the development and growth of online learning especially distance learning that eliminates dependence upon face-to-face contact as the primary context for learning. The foundation primarily funds projects to produce digital content for education, including, but not limited to, multimedia instructional materials and instructional software. Grants support the design, testing and production of digital materials. The foundation also supports projects focused on the evaluation of online education in practice."

Waitt Family Foundation (www.waittfoundation.org)

The Waitt Family Foundation, created by the founder of Gateway Computer Company, is "dedicated to eliminating the wide gulf between those who have Internet access and those who do not by providing quality learning experiences through the PowerUp program and online resources." It is providing up to 50,000 computers and Internet appliances for the next three years to PowerUP. The Waitt Family Foundation Technology Resource Center was established "to research and develop programs that will provide communities with the ability to participate in today's information-driven society."

Corporate Foundations

ADC Foundation (www.adc.com/main_template/1,1034,25,00.html?contcat=0)

This foundation seeks to support innovative educational programs and organizations that "prove the future of society by supporting excellence in science and technology education" and "expand telecommunications access for the disadvantaged."

AOL Time Warner Foundation (www.aoltimewarnerfoundation.org)

The AOL Time Warner Foundations' mission is "to use online technology to benefit society, improve the lives of families and children, and empower the disadvantaged." They focus their giving in five core areas: the Digital Divide, Civic Engagement, Kids/Family/Education, Philanthropy, and Healthcare. Its health care initiative seeks to "improve access to and make health information and services more widely available… especially to senior citizens – and build interest and capacity among healthcare providers to use the medium."

AT&T Foundation (www.att.com/foundation/index.html)

> The foundation invests in three areas: Education, Civic & Community Service, and Arts & Culture. "Bringing the benefits of technology and employee engagement to the customer and the local communities where we have a presence is what we're all about… many of the programs we fund are tied to inventive uses of technology and the spirit of volunteerism."

BellSouth Foundation (www.bellsouthcorp.com/bsf/index.html)

> The BellSouth Foundation seeks to improve outcomes and stimulate active learning for students in elementary and secondary education in Alabama, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, and Tennessee. The foundation has awarded numerous grants related to use of technology in education. It also sponsors a health and education initiative.

Compaq Computer Corporation (www5.compaq.com/corporate/community/index.html)

> Compaq "provides technology, product and cash contributions, and encourages employee involvement in programs that align with the theme: Investments and Innovations through Technology...Enhancing Education and Strengthening Communities… we can help schools and organizations realize the full potential of technology as a tool to enhance their programs and business operations."

Digital Blackboard Foundation (formerly Washington Software Foundation) (www.wsf-wa.org/about/)

> The foundation supports "revolutionary teachers who open opportunities for students and close the education gap in schools and communities at risk. We incorporate classroom technology into new educational practices, leveraging what works in the classroom to help these teachers improve kids' performance."

eBay Foundation (www.pages.ebay.com/community/aboutebay/foundation/history.html)

> Established in June 1998, the eBay Foundation's primary focus has been to support organizations that provide hope, tools and direction to assist people in reaching their full potential through the creative application of technology.

Intel Corporation & Foundation (www.intel.com/intel/community/index.htm)

> The focus of Intel's giving and outreach programs is on bettering education, supporting Intel communities, improving life with technology, and protecting the environment. The Intel Foundation funds programs which "advance math, science and engineering education, promote women and under-represented minorities entering science and engineering careers, and increase public understanding of technology and its impact on contemporary life."

MCI Worldcom (www.wcom.com/marcopolo/)

> Along with six national nonprofit organizations, MCI Worldcom has sponsored the MarcoPolo program that "provides no-cost, standards-based Internet content for the K-12 teacher and classroom, developed by the nation's content experts. Online resources include panel-reviewed links to top sites in many disciplines, professionally developed lesson plans, classroom activities, materials to help with daily classroom planning, and powerful search engines."

Microsoft Corporation (www.microsoft.com/giving/default.htm)

The Microsoft Corporation makes grants of cash, software, and technical support to nonprofit organizations worldwide "to help bring the benefits of information technology to people and communities."

NEC Foundation of America (www.nec.com/company/foundation/)

The NEC Foundation of America "makes cash grants to nonprofit organizations and programs with national reach and impact in one or both of the following arenas: science and technology education, principally at the secondary level, and/or the application of technology to assist people with disabilities."

Oracle Corporation (www.oracle.com/corporate/giving/community/index.html)

The Oracle Corporation contributes funds directly to environmental protection; endangered animal protection; medical research; and K-12 math, science, and technology educational programs.

Pacific Bell Foundation (www.pacbell.com/About/NewsCenter/0,1119,,00.html)

The Pacific Bell Foundation is dedicated to "preparing people from all cultures to participate in the economic, social and civil life of their communities by improving the quality of public education, providing access to technology, and building the capacity of community-based organizations" in California and Nevada. It has supported initiatives on the digital divide and other technology issues.

Verizon Foundation (formerly Bell Atlantic Foundation) (foundation.verizon.com/)

The foundation focuses on the following areas: Literacy, Digital Divide, Workforce Development, Community Technology Development, and Employee Volunteerism.

Foundations with Interest in International Technology Issues

Engineering Information Foundation (www.eifgrants.org/index.html)

The foundation's mission is "to improve worldwide engineering education and practice through information technology and the recruitment of women." They support " developmental projects, instructional projects, and training programs in engineering education and research… these currently include the availability and use of published information, women in engineering, and information access in developing countries."

Ford Foundation (www.fordfound.org)

Cosponsors the Project for Information Access and Connectivity, Wired for Information in Africa with the Rockefeller Foundation.

Mitchell Kapor Foundation (www.mkf.org)

The founder of Lotus Development Corporation created this California-based foundation. Their Program on the Impact of Information Technology is "focused on the ways in which the Internet and other contemporary computing and communications technologies are transforming the social, cultural, and economic landscape, e.g. the effects of economic globalization enabled by the Internet and the creation of a "digital divide". Areas of interest include the impact of

information technology on economic and social equity; community; the workplace; privacy and identity; and health and the environment."

Rockefeller Foundation (www.rockfound.org)

The Foundation's Communication For Social Change program "will foster the most effective, innovative practices of communication for development in the public and nonprofit arenas to accelerate the pace of positive change for people who are poor and excluded. The program will build processes to ensure that communication planning is essential to all Foundation program work, test methods to train grantees working with poor people to advance communication for social change, and develop evaluation and measurement methods to quantify the effectiveness of our work."

Soros Foundation (www.soros.org/internet/index.html)

Within the Soros Foundations Network, many of the programs focus on Central and Eastern Europe and the former Soviet Union. The foundation has funded grants related to e-mail connectivity; infrastructure and connectivity in Central and Eastern Europe; and Internet policy work. "In 2000, the program was overhauled to reflect the evolution of the Internet and changes on the ground. The program now concentrates on organizational capacity building and Internet policy work and has a primary focus in the areas of independent media, human rights and Internet policy."

Appendix G - Other nonprofit organizations with major eHealth-related activities.

The following are examples of non-profit organizations that have major eHealth related activities according to published materials. The following descriptions are verbatim or slightly edited versions of text from their Web sites.

Alliance of Medical Internet Professionals (www.amip.org)

> A new member organization formed to "connect Medical Internet Professionals world-wide, to improve the quality of healthcare to people around the globe, and to discover innovative methods for employing Internet technology in the practice of medicine."

American Medical Informatics Association (www.amia.org)

> A major, longstanding membership organization "dedicated to the development and application of medical informatics in the support of patient care, teaching, research, and health care administration. Members include physicians, nurses, educators, computer and information scientists, biomedical engineers, medical librarians, and academic researchers."

British Healthcare Internet Association (www.BHIA.org)

> An individual membership association based in Great Britain that "promotes the advancement of healthcare through the application of Internet technologies and the Bill of Rights of the Internet."

California Telehealth & Telemedicine Center (www.telehealth.calhealth.org)

> The mission of the organization is to "promote the use of new information and communication technologies as tools to improve and expand access to health services and information in California's medically underserved communities." Provides grants to community eHealth technology projects.

Center for Technology and Democracy (www.cdt.org)

> A nonprofit organization that seeks to "conceptualize, develop, and implement public policies to preserve and enhance free expression, privacy, open access, and other democratic values in new communications media." Has sponsored reports on online privacy and content issues.

Digital Divide Network (www.digitaldividenetwork.org)

> The organization "facilitates the sharing of ideas, information and creative solutions among industry partners, private foundations, nonprofit organizations and governments interested in the digital divide issues."

Digital Partners (www.digitaldivide.org)

> A nonprofit institute that seeks to "catalyze investments in technology content and infrastructures needed by the poor, and fosters collaborations between digital entrepreneurs and nonprofit leaders to help the poor achieve self-sufficiency."

eHealth Institute (www.ehealthinstitute.org)

> A nonprofit organization that seeks to "enhance the capacity of people to access and utilize eHealth resources, improve the state of knowledge and

public understanding of eHealth-related issues, and improve the quality and effectiveness of eHealth resources."

eHealthcare Association (www.workgroup.org/ethics/ethics_teha.htm)

This member association represents "healthcare Internet content, connectivity and commerce companies. It provides representation and advocacy, networking and information for its members."

Health Internet Ethics (Hi-Ethics™) (www.hiethics.org)

An alliance of major eHealth information providers, mostly commercial, formed to develop an ethical code of conduct for developers focusing on content, advertising, privacy issues, and commerce.

Health on the Net Foundation (www.hon.ch)

A Swiss nonprofit organization whose mission is to "guide healthcare consumers and providers to sound, reliable medical information and expertise." They established the HON Code of Conduct for health Web sites.

Health Privacy Project (www.healthprivacy.org)

Based at Georgetown University, it is dedicated to "raising public awareness of the importance of ensuring health privacy in order to improve health care access and quality, both on an individual and a community level." They have authored several reports on online privacy of health information.

Internet Health Alliance (www.internethealthalliance.org)

A nonprofit member organization that seeks "to accelerate the adoption of Internet in healthcare by delivering national visibility to the common interests of leaders in the healthcare and technology communities."

Internet Healthcare Coalition (www.ihealthcoalition.org)

A nonprofit association representing "a variety of individuals and institutions interested in healthcare on the Internet." They have proposed a voluntary code of ethics for health Web sites, and host an annual meeting.

Internet Policy Institute (www.internetpolicy.org)

A nonprofit think-tank focused on the "economic, social, and policy issues related to the global development and use of the Internet." It is funded by a consortium of large IT corporations.

Internet Society (www.isoc.org)

A professional membership society with more than 150 organizational and 6,000 individual members in over 100 countries. "It provides leadership in addressing issues that confront the future of the Internet, and is the organization home for the groups responsible for Internet infrastructure standards, including the Internet Engineering Task Force and the Internet Architecture Board."

Institute for the Future (www.iftf.org)

> A nonprofit research firm "specializing in long-term forecasting, alternative futures scenarios, and the impacts of new products and next-generation technologies on society and business" [and health].

Medical Library Association (www.mlanet.org)

> A national professional member organization "dedicated to improving the quality and leadership of the health information professional in order to foster the art and science of health information services." Has posted reviews of eHealth sites.

Microsoft Healthcare Users Group (www.mshug.org/about/index.asp)

> An independent, nonprofit organization that serves "the needs of information systems developers and users in the healthcare industry. It is funded by individual and corporate membership dues and is not affiliated with Microsoft Corporation."

World Wide Web Consortium (W3C) (www.w3.org)

> Founded by Tim Berners-Lee, inventor of the Web. The Consortium develops "interoperable technologies (specifications, guidelines, software, and tools) to enhance use of the Web for information, commerce, communication, and collective understanding. It has developed more than 20 technical specifications for the Web's infrastructure."

Appendix H Web Site Support for eHealth Content, Connectivity, Community and Care Model

Content – Consumer focused		
A Doctor in Your House.com	www.adoctorinyourhouse.com	Celebrity-driven health content
AccentHealth	www.accenthealth.com	Provides online health content and kiosks produced with CNN
adam.com	www.adam.com	Nasdaq: ADAM; Licenses health content
Alternative Medicine	www.alternativemedicine.com	Database of alternative medicine information
AmericasDoctor.com	www.americasdoctor.com	Connects patients with physicians for content and advice
AllHealth	http://www.allhealth.com/	Health channel of iVillage (Nasdaq, IVIL)
Asimba.com	www.asimba.com	Fitness and sport site
Babycenter.com	www.babycenter.com	Pregnancy and babies site
Biospace.com	www.biospace.com	Biotech community
CaregiverZone	www.caregiverzone.com	Resources for providers of remote care
DiscoveryHealth.com	www.discoveryhealth.com	Part of the Discovery Network
drDrew.com	www.drdrew.com	Focuses on teenagers and young adults
drkoop.com	http://www.drkoop.com/	Nasdaq: KOOP; Partnerships with GO and AOL
eDiets.com	www.ediets.com	Personal diet information and community
eNutrition	www.enutrition.com	Healthy living site
GetFit.com	www.getfit.com	Personalized fitness and training tools
Health A to Z	http://www.healthatoz.com/	Owned by Medical Network Inc.
HealthAnswers.com	http://www.healthanswers.com/	Health news and answers from healthcare professionals
HealthCentral.com	http://www.healthcentral.com/	Nasdaq: HCEN; Relationship with Dr. Dean Edell
HealthExtras	http://www.healthextras.com/	Nasdaq: HLEX; Medical and disability membership programs
Healtheon/WebMD	http://www.webmd.com/	Nasdaq: HLTH; Consumer Health Channel
HealthScout	www.healthscout.com	Personalized health news
HealthStreet	www.healthstreet.com	Physician and care locator service
HealthyIdeas	www.healthyideas.com	Prevention and fitness tools
Helios Health	www.helioshealth.com	Consumer Web presence in provider offices
InteliHealth	http://www.intelihealth.com/	Joint Venture between Aetna and Johns Hopkins
Lifescape.com	http://www.lifescape.com/	Mental and behavioral health site
Mayo Clinic	www.mayohealth.org	Mayo Clinic's consumer health site

MedicineNet.com	http://www.medicinenet.com/	Content generated by physicians
MediConsult	http://www.mediconsult.com/	Nasdaq: MCNS; Health and medical information for patients
Medscape	http://www.medscape.com/	Nasdaq: MSCP; CBS HealthWatch in conjunction with CBS
OnHealth	http://www.onhealth.com/	Nasdaq: ONHN; Ranked #1 in unique visitors for Dec by MDMX
ParenthoodWeb	www.parenthoodweb.com	Parenting, pregnancy and family health site
PersonalMD.com	http://www.personalmd.com/	Personal health resources and medical records
RealAge.com	www.realage.com	Promotes optimum health and longevity
Salutia	www.salutia.com	Spanish and Portuguese health portal
Surgery.com	www.surgery.com	Plastic surgery site
ThirdAge	www.thirdage.com	Focuses on adults in mid-40s and 50s
Thrive Online	http://www.thriveonline.com/	A health venture of AOL and Time, Inc.
Content - Physician-focused		
Beansprout Networks	http://www.beansprout.com/	Portal for pediatricians and child care providers
HealthGate	http://www.healthgate.com/	Nasdaq: HGAT; Health information for physicians
Healtheon/WebMD	http://www.webmd.com/	Nasdaq: HLTH; Physician health channel
HealthOnline	http://www.healthonline.com/	Web sites for providers and hospital networks
HealthStream	http://www.healthstream.com/	Online healthcare education for physicians
Medscape	http://www.medscape.com/	Nasdaq: MSCP; Editor is former editor of JAMA
Physician's Online	http://www.po.com/	Acquired by Mediconsult (Nasdaq: MCNS)
Salu.net	http://www.salu.net/	Web sites and networks for small physician groups

Content -	***Business-focus***	
CVS.com	www.cvs.com	Internet initiative of CVS (NYSE: CVS)
DrugEmporium.com	www.drugemporium.com	Internet initiative of Drug Emporium (Nasdaq: DEMP)
Drugstore.com	www.drugstore.com	Nasdaq: DSCM; Pharmacy, health and wellness products
eHealthInsurance.com	http://www.ehealthinsurance.com/	Health insurance
Eve.com	www.eve.com	Beauty products

Gazoontite.com	www.gazoontite.com	Allergy products
HealthAxis.com	www.healthaxis.com	Health insurance
HealthQuick	www.healthquick.com	Pharmacy, health and wellness products
Healthshop	www.healthshop.com	Natural health products
InsWeb	www.insweb.com	Nasdaq: INSW; Insurance
Medsite	http://www.medsite.com/	Offers medical commerce and information
More.com	www.more.com	Pharmacy, health and wellness products
MotherNature.com	www.mothernature.com	Nasdaq: MTHR; Pharmacy, health and wellness products
SelfCare	http://www.selfcare.com/	Health and wellness
PlanetRx	www.planetrx.com	Nasdaq: PLRX; Pharmacy, health and wellness products
Quotesmith.com	www.quotesmith.com	Nasdaq: QUOT; Insurance
Rx.com	www.rx.com	Pharmacy, health and wellness products
Vitamins.com	www.vitamins.com	Nutraceuticals
VitaminShoppe.com	www.vitaminshoppe.com	Nasdaq: VSHP; Nutraceuticals and personal care products
Content - Business-to-business		
BenefitMall	www.benefitmall.com	Benefits exchange for small businesses
Channelpoint	www.channelpoint.com	Streamline purchase of insurance online
Chemdex	www.chemdex.com	Nasdaq: CMDX; Life sciences/ medical supplies exchange
Consensus Health	www.consensushealth.com	Chiropractic and acupuncture offerings
Cranespharmacy.com	www.cranespharmacy.com	Pharmacy solutions
DentalXChange	www.dentalxchange.com	Dental office resources and commerce
eBenefits	www.ebenefits.com	HR solutions to small businesses
eBenX	www.ebenx.com	Nasdaq: EBNX; Group health insurance benefit solutions
eDentalStore.com	www.edentalstore.com	Dental office resources and commerce
e-Dr. Network	www.e-dr.com	Eyecare office resources and commerce
eLabsEurope	www.elabseurope.com	Life scientist resources
Embion	www.embion.com	Medical supplies exchange
Employease	www.employease.com	HR solutions to small and midsize businesses
ESurg	www.esurg.com	Medical supplies exchange

Global HC Exchange	www.ghexchange.com	Medical supplies exchange
LifeTecNet	www.lifetecnet.com	Commerce for life sciences
MedChannel	www.medchannel.com	Medical supplies exchange
Medibuy.com	www.medibuy.com	Medical supplies exchange
MedicalBuyer.com	www.medicalbuyer.com	Part of Cimtek Commerce; Medical supplies exchange
Neoforma.com	www.neoforma.com	Nasdaq: NEOF; Medical supplies exchange
Net32	www.net32.com	Dental office resources and commerce
OmniCell	http://www.omnicell.com/	Pharmacy and procurement solutions
RDental	www.rdental.com	Dental office resources and commerce
SciQuest.com	www.sciquest.com	Nasdaq: SQST; Scientific products exchange
TechRx	http://www.techrx.com/	Pharmacy software solutions

Connectivity		
@outcome	www.atoutcome.com	Software applications for providers
Abaton.com	www.abaton.com	Acquired by McKesson HBOC (NYSE: MCK)
AHT Corporation	www.ahtc.com	Electronic lab results and prescription ordering
Axolotl	www.axolotl.com	Subsidiary of AccentHealth; Clinical messaging
Asterion.com	www.asterion.com	Application services for providers and payers
Athenahealth	www.athenahealth.com	Physician practice management solutions
Clinical Web	http://www.clinicalweb.com/	Healthcare connectivity for providers
CareData.com	www.caredata.com	Nasdaq: CDCM; Decision support software
CareInsite	www.careinsite.com	Nasdaq: CARI; Medical Manager owns 72%
Claimsnet.com	www.claimsnet.com	Nasdaq: CLAI; Online claims processing
Cybear	http://www.cybear.com/	Nasdaq: CYBA; Provider practice management
Dendrite	www.dendrite.com	Nasdaq: DRTE; Sales software for pharmas
Digital Medical Systems	http://www.digimed.com/	Secure delivery of Web-based applications
Elixis	www.elixis.com	Charting tools and electronic medical records (EMR)
GlobalMedic	http://www.globalmedic.com/	Self-care tools
Healinx	www.healinx.com	Physician-patient communications
Healtheon/WebMD	http://www.healtheon.com/	Nasdaq: HLTH; physician and consumer portal

HealthMagic	http://www.healthmagic.com/	Health management tools and platforms
HEALTHvision	http://www.healthvision.com/	Connectivity solutions for local delivery systems
InfoMiners	www.infominers.com	Decision support system for managed care
iTrust	www.itrust.net	Solutions for Provider Practice Management
Kinetra	www.kinetra.com	Formerly IMS Medacom; JV between EDS and Eli Lilly
KnowMed	http://www.knowmed.com/	Electronic Medical Records (EMR)
MedicaLogic	http://www.medicalogic.com/	Nasdaq: MDLI; Electronic Medical Records (EMR)
Medivation	http://www.m-vation.com/	Web-based tools for providers
Navimedix	www.navimedix.com	Provider solutions for dealing with managed care
Passport Health	http://www.passporthealth.com/	ASP for insurance information
PointShare	www.pointshare.com	Solutions for providers and payers
Provider Solutions	www.providersolutions.com	Partnering with IBM to deliver provider solutions
RxCentric.com	www.rxcentric.com	Physician detailing for pharmas
Sirius	http://www.siriustech.com/	Electronic Medical Records (EMR)
Skila	www.skila.com	Intelligence solutions for pharmas and biotech
SmartTalk.com	www.smarttalk.com	Electronic communication and messaging
Softwatch	www.softwatch.com	Customer relationship management software
The TriZetto Group	http://www.trizetto.com/	Nasdaq: TZIX; An ASP for providers and payers
ValuMed Systems	www.valumed.com	Collaborative medical management
Vasona Systems	www.vasona.com	ASP for payers and providers
XCare.net	http://www.xcare.net/	Customized business portals and applications
W3Health	http://www.w3health.com/	Connectivity for providers and plans

Care		
Avandel	www.avandel.com	Catastrophic risk management
Cancerfacts.com	www.cancerfacts.com	Support software for disease management
CardioWorx	www.carioworx.com	Cardiovascular focused disease management
Caresoft/ The Daily Apple	www.caresoft.com	Disease management and communities
Centromine	www.centromine.com	Behavioral healthcare software

Confer	www.confer.com	Clinical care management solutions
Diabetes Well	www.diabeteswell.com	Diabetes disease management
e-Medx	www.emedx.com	Sports medicine and orthopedic information
Health Hero	www.heatlhhero.com	Technology enabler for disease managers
Healtheheart	www.healtheheart.com	Cardiovascular disease management
LifeChart Network	www.lifechart.com	Disease management tools
LifeMasters	www.lifemasters.com	Patient support and disease management
Metrika	www.metrika.com	Patient monitoring systems for chronic diseases
Oncology.com	www.oncology.com	Cancer management resources and community
Patient Infosystems	www.healthdesk.com	Nasdaq: PATI; Disease management solutions
WellMed	www.wellmed.com	Personal health tools and content
Clinical Trials		
Axio Research	http://www.axioresearch.com/	Biostatistics and clinical trial planning and development
Clinmark	http://www.clinmark.com/	Online clinical research community
NextPhase	http://www.nextphase.com/	Technology and process enabler for clinical trials
Pharsight	http://www.pharsight.com/	Clinical trial design, modeling and simulation
Phase Forward	http://www.phaseforward.com/	Clinical trial data collection and management
PHT	http://www.phtcorp.com/	Technology and tools for clinical trial research
Drug Discovery/Bioinformatics		
DoubleTwist.com	www.doubletwist.com	ASP for life scientists
GeneSage	www.genesage.com	Consumer genetic screening
GeneSolutions	www.genesolutions.com	Owned by Hyseq (Nasdaq: HYSQ); Genomic resources
Ingenuity Systems	www.ingenuity.com	Bioinformatics tools
NetGenics	www.netgenics.com	Drug discovery and crop science research
Physiome	www.physiome.com	Models for pharmaceutical research
Spotfire	www.spotfire.com	Leading visualization software provider for life sciences
TeleRadiology		

Auntminnie.com	www.auntminnie.com	Radiology portal with specialized content and community
eMed Technologies	http://www.emed.com/	Leading provider of medical imaging workflow solutions
Imagemedical.com	http://www.imagemedical.com/	Providing Internet-based image management solutions
Radiology.com	http://www.radiology.com/	Radiology portal with specialized content and community

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