Abstract— In the last years, remote support systems have become more common, also called e-health systems. It is clear the introduction of these systems have created a significant improvement regarding quality of life of several segments of our society such as elderly people, disabled people, patients-physicians communications ... The changes of the health area, oriented towards greater equity in service supply increased concern about the effectiveness and usefulness of health technologies, have contributed to place telemedicine as a tool for improving health care. Therefore, this chapter provides an overview of some of these systems, the various technology platforms that host them and the expected future and evolution of these systems.

Keywords- Remote Systems, Telemedicine, Computer aided diagnosis, rehabilitation.

I. INTRODUCTION

Remote Assistance is not a new concept, in fact, we have been hearing about it, and expected benefits, for years. Telemedicine systems that would help to improve substantially the response capacity of local health centers in remote and scattered populations and a more effective exchange of clinical, administrative and staff training Technology improvements and the development of videoconferencing systems have made them a highly desired resource for public and private healthcare, and of course, for potential users and patients.

Videoconference systems are playing an important role in health systems by enabling better and more natural communications. People self-monitoring at home or having video consultations were satisfied with their experience, but there it is not yet much objective evidences to show the effects on health outcomes or costs of many expensive uses of technology. When enterprises develop these systems, or hospitals want to apply them, is necessary to reach a compromise among costs, needs and latest technology

The advances in communication technologies, new needs of the patients and physicians, new sensors...make that nowadays Telemedicine Systems are an alternative options to cover not only remote patients’ needs, administrative information and requirements of all population also.

Examples of telemedicine services are as follows[1][2][3]:

- Telemonitoring of biological variables: blood pressure, pulse, blood glucose, spirometry, electrocardiogram, ....
- Semi-automated analysis of monitoring data, supported by artificial intelligence, which helps the doctor to detect exacerbations of the disease before symptoms appear.
- The continuous follow-up of patients at home, without the use of large financial and human resources.
- The possibility of making home visits less frequently and with less specialized staff, as the patient can receive remote assistance from the hospital if necessary.
- Cost control in health care, as a result of less demand for home visits and a reduced number of hospitalizations.
- e-Learning, supported by multimedia technologies.
- Call centers and specialized centers for management services.
- The constant follow-up of patients by nurses, either by telephone, videoconference or using text-based messages.

But the authors have some experience developing e-Health systems for the following specialties:

- Tele-Radiology. Radiology module plays vital role in lot many disciplines i.e. Oncology, Gynecology, Neurology etc, as it provides significant details about the patients organ or affected part of a body through various investigations. It can capture the DICOM still and moving images directly from the DICOM enabled machines connected PC
- Tele-Otolaryngology. It provides the possibility of sending audio or image records to be analyzed remotely by an specialist or by a computer and specialist (Computer Aided Diagnosis).
- Tele-Dermatology. It provides the transmission of a close-up picture of a patch of diseased skin for remote diagnosis.
Current article goal is to provide, with optimal flexibility and ease of use, a new way to manage different diseases, both for medical services and patients, using the technologies that surround us. That deal with applications for health, since they rely on technology to make everyday better.

The following secondary aims underlie this main objective:

- Define the facilities given by the application
- Review national / international case studies and developments.
- Evaluate multiplatform possibilities (cell phones, PC…)
- Describe the design and development of an Internet based videoconference system.
- Increase the knowledge of ICT Applications by medical professionals

II. BACKGROUND

Latest telemedicine models are focusing more on improving patient care regarding patients and family involvement in clinical disease monitoring, communication between physician and patient, avoiding unnecessary travel and diving into new ways of understanding patient care and medical attention.

To speak 100% about Telemedicine and perceive its impact, applications that meet the following requirements are necessary:

- To be an integrated system in Health Care Services
- To be supported by friendly and robust software
- To be able to adapt flexibly to the functional requirements, determined by medical specialists
- To allow online and offline consultations
- To have multispecialty workstations

Telemedicine systems usually imply a significant improvement of care quality:

- Allowing access to isolated areas
- Bridging the distance barrier
- Reducing waiting lists
- Facilitating the training of doctors
- Doing more efficient Primary Attention

Telemedicine systems also improve system efficiency:

- Optimizes and coordinates health care resources
- Faster results
- Reduced time and cost in patient transportation
- Reduced time and cost in doctors, specialists, etc. transportation

Figure 1 shows Telemedicine System Architecture. As it can be seen, the communications though Internet makes possible all previous mentioned requirements.

Next subsections show a review of national and international success cases in medical systems, and some commercial products that can cover some of the communication needs between doctor and patients.

A. National and International Case Studies

Although there are many telemedicine systems, it is far from being an established practice in clinics and care proceedings. In Spain the most advanced regions incorporating them into their health services are Madrid, Catalonia, Extremadura, and Aragon.

1. VIHrtual Hospital Project [4]: Telemedicine Service for comprehensive HIV/AIDS patient home care through Internet. Service implemented in the infectious diseases service at the Hospital Clinic of Barcelona.

2. Welfare Service Model for chronic patients monitoring as help to cardiovascular risk factors secondary prevention, University Hospital Puerta del Hierro in Madrid.

3. HEALTH OPTIMUM [5]. System to implement telemedicine services over broadband networks in Health Care Organizations, Aragón. Telemedicine services developed are:

- Tele-advice: Consultation between a primary care physician and one or two specialists through videoconferencing.
- Tele-radiology
- Tele-consultation
- Shared Clinical Records
- Tele-laboratory. This service is especially important in Aragon due to monitoring patients on anticoagulation therapy

4. Serena Project. Tele assistance for chronic patients at home using biosensors and monitoring devices.
5. EyePACS: An adaptable telemedicine system for diabetic retinopathy screening.

Also mention the project, which is releasing the Basque Health Service, for the treatment and monitoring of chronic patients (Diabetes, Chronic Obstructive Pulmonary Disease...). Its name is Osarean: Multichannel Health Care service Center. The main goal of this project is to promote citizen involvement with their disease and to increase the interaction with health administrative procedures.

Outside Spain it is worth to mention United States case. In recent years the government has undertaken a series of activities to support the development of telemedicine, benefiting rural areas, sub-urban and urban areas. Some of the telemedicine applications developed in cities across the United States have been:

1. Iowa: Videoconsultations for patients with special needs, including children with heart disabilities and people with mental illness.
2. Columbia: telemedicine services provision for patients with renal failure.
3. Alaska: evaluation of telemedicine applications to improve health care in remote areas.
4. Oregon: use of teledermatology to diagnose and treat skin cancer and other skin conditions.

B. Comercial Systems

In the market it is possible to find several systems which with some adaptations are suitable to be used for telemedicine applications. Most of them include video conferencing and chat system to enhance physician-patient communication.

Adobe Acrobat Connect

Adobe Acrobat Connect is a web conferencing software that enables individuals and small businesses to instantly communicate and collaborate through easy-to-use, easy-to-access online personal meeting rooms

Oracle Beehive L5

The Oracle Beehive collaboration system provides an integrated set of collaboration services including team workspaces, email, calendar, instant messaging, and conferencing built upon a unified architecture that provides the highest level of scalability, manageability, and security.

Yugma

It is a teleconferencing and virtual meetings service that enables sharing and desktop management with up to ten guests, which in addition to be able to view everything being done in the computer, may also manage and interact with it.

All of them allow virtual consultations development, enhance physician-patient communication and reduce travel costs, save time, and increase productivity. But they all have to be somehow adapted for the application in question, and require licensing for use.

It also can be found similar non-commercial or free systems, as OpenMeetings, but usually all of them have issues to be implemented in healthcare environments.

III. TELEMEDICINE SYSTEMS ARCHITECTURES

This section presents the different options available in telemedicine systems development, both regarding hardware and software [6][7][8].

A. Remote Monitoring Devices

Tele medicine is no longer something only dedicated to physician-patient communication and to reduce travel to hospital. Currently, it is proposed, the inclusion of monitoring sensors to increase the time spent at home of people with some kind of pathology, chronic, or newly released, or by some kind of disability.

Monitoring devices are used mainly:

- To increased the patients’ auto care
- To prevent crisis in the disease
- To collect data for Clinical Records
- …

There are a lot of monitoring devices (most offer the same telemetric information, some equipment is connected to a phone line, and others are wireless and many are becoming cellular); weight monitoring devices, thermometers, blood pressure cuffs, stethoscopes, pulse oxymeter readers, EKG leads, glucose meters and others [10].

To consider in selecting/using a telemedicine/telemonitoring device, we have to assess:

InterOperability: Sometimes the patients need some training to use the medical devices, others it is difficult to connect them to central systems. The interoperability is essential in this kind of applications. Devices must implement communication protocols and secure data transfer.

Medical Interaction. The doctor must access to the patients’ received data and the system has to analyze the data and send alerts if it is necessary.

B. Internet Based Telemedicine Systems

Technically, an Internet based Telemedicine System must meet some basic requirements such as [12-13]:

- Multiplatform based
- Most common Internet Browsers support: Microsoft Internet Explorer, Firefox, Safari, or Google Chrome.
- Run without installing anything on the client PC
- Support multiple concurrent users
- Provide features such as: videoconferencing (single or multiple), text messaging, file sharing, desktop sharing, whiteboard, or information repository (library).

Of all the above features, one of the most important in telemedicine is the need for online doctor-patient communication. Thus, below it is described the different
modules required (see Figure 2) for videoconference development and possible technologies to be used:

![Figure 2. Videoconference System Block Diagram](image)

Figure 2 shows an example of the different modules in which telemedicine videoconferencing applications are divided: interface (Flex), server (Red5 in this case), database manager (Oracle, SQL Server…), and in this case a content management system (Joomla!).

The visual part in Figure 2 is developed in Flex using the Cairngorm framework, like the Model View Controller (MVC) pattern, but with more abstraction layers, due to multiplatform capability and because it doesn’t require the application to be installed by user. This part contains all necessary logic for application execution, as well as the necessary calls to Red5 server to establish communication and to reflect at all times to all users, the changes occurring: new users connection, real-time messaging, etc.

This Flex application is placed on the Red5 Flash server and is accessed by the user from the Joomla module introducing required parameters such as login user name, server IP address, etc.

The server part is developed entirely in Java so it does not matter which operating system we run to host it: Linux, Windows, Mac, etc. The features are separated into webapps: the whiteboard, file sharing, chat, video-audio and sharing desktop, each one with all the needs demanded by the features.

Joomla is responsible of supporting video conferencing visual component, including related modules, and providing necessary mechanisms such as user access, user permissions, etc., all data being managed by a database manager.

<table>
<thead>
<tr>
<th>Protocols</th>
<th>Flash Media Server</th>
<th>Wowza Media Server</th>
<th>Red5</th>
</tr>
</thead>
<tbody>
<tr>
<td>RTMP, RTMPT, RTMPS, RTMPE, RTMPE, RTMFP</td>
<td>RTMP, RTMPT, RTMPS, RTMPE, RTMPE, RTMPE, RTMPE, RTMPE, RTMPE</td>
<td>RTMP, RTMPT, RTMPS, RTMPE, RTMPE, RTMPE, RTMPE, RTMPE, RTMPE</td>
<td></td>
</tr>
<tr>
<td>Platforms</td>
<td>Windows, Linux</td>
<td>Windows, Mac OS X, Linux</td>
<td>Windows, Mac OS X, Linux</td>
</tr>
<tr>
<td>Audio/video Streaming</td>
<td>FLV, H.264, MP3, AAC, Speex</td>
<td>FLV, H.264, MP3, AAC, Speex</td>
<td>Under Demand: FLV, MP3, MP4, AAC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Real Time: Sorenson, H.264, MP3, AAC, Speex</td>
</tr>
<tr>
<td>Clients</td>
<td>Flash</td>
<td>Flash, iPhone, SilverLight, QuickTime</td>
<td>Flash</td>
</tr>
<tr>
<td>Server Part</td>
<td>AS2</td>
<td>Java</td>
<td>Java</td>
</tr>
</tbody>
</table>
Technologies Description

The technologies (see table 1) described below usually are used to develop this kind of projects:

**Flex**

Flex is based on the Flash platform, but has more of a programmer approach to interactive web application design, whereas Flash's approach to application development is still based around the vector animation, as it was originally designed to be. Flex allows programmers to rapidly develop applications and their layouts using MXML and ActionScript, along with other built-in technologies that make video and audio streaming and handling a breeze. Since Flex is built on the Flash platform and actually produces its output in a Flash file format, Flex applications are inherently cross-platform.

Adobe Flex can be understood as architecture composed of a series of products for developing RIAs (Rich Internet Applications) to achieve the same results with the visual characteristic of Flash applications by using object-oriented development. Since Flash is a product aimed at designers, Adobe Flex is the recommended solution for developing RIAs, based on the Model View Controller pattern (MVC).

**Red5**

Red5 is an open source server for delivering Flash content via streaming. It uses the RTMP, RTMPT or RTMPS for streaming the content in real time. This server has all the qualities of Adobe Flash Media Server and uses the ActionScript Communication for developing real time applications. This server is written entirely in Java and has the following characteristics:

- Video Streaming (FLV, F4V, MP4).
- Audio Streaming (MP3, F4A, M4A).
- Recording of Stream clients (FLV only).
- Shared Objects.
- Live Stream Publishing.
- Remoting.

**HTML5**

HTML5 is a new version of various specifications, among which are: HTML 4, XHTML 1 and Document Object Model Level 2 (DOM). At the same time, HTML 5 aims to provide a platform for developing web applications more like desktop applications, whereas its execution within a browser does not imply a lack of resources to resolve the real needs of developers. HTML 5 is expected to be ready as a recommended development specification in 2012. Despite this, some browsers already implement many features of HTML5 because HTML 5 is made up of many different modules, with different levels of specification. The main problem of HTML5 are the oldest web browsers, like Internet Explorer 6, 7 and 8 or Firefox 3.x, because these versions doesn’t support all the features needed in order to develop a telemedicine system.

All these technologies can be found embedded in the Joomla!. Joomla! Content Management System, which is the part chosen to be responsible for the visual component of the videoconference -as well as the related modules- and for supplying the necessary mechanisms, such as user access, user permits, etc.

**Telemedicine System Basic Modules**

Below are described the basic modules that must have a telemedicine system.

**Forum module**

This module makes it possible to create thematic threads involving both doctors and patients, asking questions and providing answers that will generate knowledge. Forums can be very useful in medicine, because they allow community members to discuss topics with one another, and the discussions are archived for future reference.

Multiple forums are often set up for different areas of discussion, for example, forums about medical specialties or about a current issue of interest.

![Whiteboard module example](image)

**Mail module**

This module can send notifications like the date and time of an appointment, establish a more direct and personal communication with the doctor to discuss private matters, etc.

**Whiteboard module**

With this module the specialist can share graphics, diagrams and handmade annotations over images like X-ray with patients in real time. Whiteboard facilitate to draw diagrams and make easier the explanations between doctors and patients, or between doctors in education sessions (see figure 3).

**Desktop sharing module**
Desktop sharing module provides the ability to share, both patients and specialists, their screen to see together documents like presentations, PDF files, etc. or navigate a web page without any kind of software installation. Doctors should only be able to access a patient’s desktop when the patient gives the permission.

**Exercises module**

So as to monitor the patient’s development, the doctor sets a series of exercises for the patient to carry out; these exercises can be accompanied by the doctor’s indications on how to do them. The patient accesses this list of exercises, watches them and reads any existing associated information and then proceeds to record him/herself doing each exercise with a webcam. Once the recording has been completed, the file generated will automatically be sent to a central server which the doctor will access in order to play it back and analyze as appropriate. Afterwards, the doctor will inform the user, either by email or at the next virtual or physical appointment.

**Virtual surgery**

The patient makes an appointment for a virtual consultation on a specific date. If the day in question is not convenient for the doctor, the patient is instructed to successively choose another date until an appointment suitable for both can be made. Once the date has been fixed, an email confirming the chosen date is sent to both the doctor and the patient. When the day arrives, both log on to the system and access the videoconference system, through which they can exchange views and share the doubts and responses that may arise [14-16].

**Remote Medical Education module**

This module enables distance learning by providing users the ability to personalize information, provide graphic and diagramming sharing, make annotations on them, etc. This module uses the asynchronous learning mode of delivery, so the participants access course materials on their own schedule and so is more flexible. Students are not required to be together at the same time. The benefits of this module are:

- **Expanding access**: distance education can assist in meeting the demand for education and training demand from the general populace and businesses, especially because it offers the possibility of a flexibility to accommodate the many time-constraints imposed by personal responsibilities and commitments.

- **Alleviate capacity constraints**: being mostly or entirely conducted off-site, the system reduces the demand on institutional infrastructure such as buildings.

**File Sharing module**

The file sharing module will permit the file publication to all users, for multiple users, or for one user. This element is of considerable interest because it allows the session manager to share private information with a patient and information with everyone, like a PDF or DOC file with information about the illness, all at the same time. Moreover, the patient can share documents like a photo of his or her illness, a form with personal information, etc. with the session manager without any other patient knowing about it.

**Chat module**

With this module, users can exchange text messages, public and private messages. It is also possible to review the history of previous talks. There is a public chat room for everybody where any of the users in the session can type and send texts. The private chat option is available for both the session manager and for the patients, but with conditions. The session manager can create private chats with everybody, but the patients can only create a private chat with the session manager.

**Online Repository module**

The online repository module provides all users a set of information, and permits download scientific articles, news, books online.

In this repository also is stored examples about Pathological Video (This is a very significant tool as it provides vital information specifically in pathology examination), Pathological Image (Pathology / Histo-pathology still Images can be grab for the various reactions with reagents under microscopic view) or Pathological Reports (These reports can be generated on the basis of the above-mentioned pathology examination and comments can be received by specialists or expert doctor).

**C. Multiplatform possibilities**

ICT Evolution and in particular the increased speed of data transfer over the Internet, and various mobile device platforms development have made e-health and tele-health systems move one step forward and reach the m-health spectrum.

m-Health allows to highlight the importance of self-responsibility and self-management in health and illness [4].

Mobile devices are always connected, and transmitting all kind of information (including information about our health, if we want). Mobile devices can be connected with external sensors (weight monitoring devices, Thermometers, blood pressure cuffs, Stethoscopes, press oxymeter readers, EKG leads, glucose meters and others) via infrared or Bluetooth protocols, and transmit data using UMTS GPRS networks to a central server. Central server analyzes the information; send alerts and recommendations, warnings to the appropriate specialist, or simply inserting records in the history of the patient.

Currently, mobile operating systems that are reached more market share are Android (Google) 17,3% market share and iOS (Apple) 73% market share. Reviewing the literature, for both you can find plenty of health-related applications, including [6]:

- Applications to control of calories you eat each day
- Applications to measure heart rate
- Color-blindness tests
- Applications to calculate the maximum sun exposure without sunscreen and Protective Factor (SPF) in Spain.
Tool for diagnosing musculoskeletal and orthopedic disorders.

- Blood Glucose Monitor.

<table>
<thead>
<tr>
<th>Features</th>
<th>Ipad 2</th>
<th>PlayBook</th>
<th>GalaxyTab</th>
<th>HP Slate</th>
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<tbody>
<tr>
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<td>9.7 inches</td>
<td>7 inches</td>
<td>8.9 inches</td>
<td>8.9 inches</td>
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<tr>
<td>RAM</td>
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<td>1GB</td>
<td>512MB</td>
<td>1GB</td>
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<tr>
<td>Processor</td>
<td>A5 (ARM Cortex A9 dual-core) 1GHz</td>
<td>ARM Cortex A9 dual-core, 1 GHz</td>
<td>Tegra 2 1 GHz dual-core NVIDIA</td>
<td>Atom Z530 1.6 GHz</td>
</tr>
<tr>
<td>Storage</td>
<td>16-64GB</td>
<td>16-64GB</td>
<td>16-64GB</td>
<td>32-64GB</td>
</tr>
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<td>Connectivity</td>
<td>Wifi, 3G, Bluetooth</td>
<td>Wifi, Bluetooth, HDMI</td>
<td>Wifi, 3G, Bluetooth</td>
<td>Wifi, Bluetooth, HDMI</td>
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<tr>
<td>Weight</td>
<td>601gr</td>
<td>400gr</td>
<td>470gr</td>
<td>680gr</td>
</tr>
<tr>
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<td>193 x 130 x 10 mm</td>
<td>230.9 x 157.8 x 8.6 mm</td>
<td>234 x 150 x 14.7 mm</td>
</tr>
<tr>
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<td>QNX</td>
<td>Android Honeycomb</td>
<td>Windows 7</td>
</tr>
<tr>
<td># of device specific apps</td>
<td>~100000</td>
<td>~300</td>
<td>~1300</td>
<td>---</td>
</tr>
<tr>
<td>Battery life</td>
<td>10 hours</td>
<td>8 hours</td>
<td>7.5 hours</td>
<td>5 hours</td>
</tr>
</tbody>
</table>

In table 2, we can see the main features of tablets which are in the market currently. Depends on the application, features like screen size, connectivity protocols or operative system are decisive.

IV. FUTURE RESEARCH DIRECTIONS

The goal of telecare/telehealth systems is to provide, with ultimate flexibility and ease of use, a new way to manage the disease, and the relationship between doctors and patients, using the technologies that surround us. That deal with applications for health, since they rely on technology to make everyday better. Videoconference systems will play an important role in health systems by enabling better and more natural communications [17-19].

Nowadays, telemedicine projects that are been developing, are oriented to pHealth concept and new telemedicine systems includes computer aided diagnosis also.

pHealth concept has attracted scientists for various technologies, medical doctors, policy makers from the healthcare industry, hospital administration and allied professionals. Professionals from all Europe and all over the world has given visibility to the tremendous potential of micro and nano technologies not only for the future of medicine, but also for the improvement of healthcare processes today.

Smart textiles, smart implants and sensor-controlled medical devices have become important enablers for monitoring and treatment in both inpatient and outpatient care. This is, however, just the beginning of revolutionary changes and significant opportunities are given for patients, companies and the healthcare industry.

The multilateral benefits of pHealth technologies for all three stake-holders lead to a triple win situation with enormous potential, not only for medical quality improvement and industrial competitiveness, but also for managing healthcare cost.

In nearby future, the projects which mix medicine and technology will be related to:

- Smart endoscopic capsules – preventing digestive cancers
- Ambient Assisted Living – ensuring health & mobility of an aging population
- Smart textiles and wearable diagnostic sensors – pHealth in surgery – smart devices for improved outcomes
- Patient monitoring and point of care diagnostics – prerequisites for personalized care
- Advanced imaging for personalized therapies – molecular imaging and model-based personalized therapy
- Data management – patient safety in wearable technologies and personalized medicine
- The economics of personalized health care – the triple win situation
- Digital Clinical Records
- Computer aided diagnosis

From previous points, one of the most important ones is Computer aided diagnosis. For years many projects are being developed around this topic, but today, the possibility of being implemented in hospitals is increased.

Fully automated data processing is able to provide a solution to this problem. Indeed, it may help pathologists in their daily practice in finding objective criteria for differential diagnosis or quantifying prognostic markers. More and more introduced in pathology departments, RMI systems however generate very large images which frequently exceed several Gigabytes. But, as it is almost impossible for a specialist to manually segment such a large image, and a fortiori many of them (the estimated time being hundred hours), the current practice consists in manually selecting some ‘representative areas’. A bias is then introduced in the process as this choice is obviously subjective. Computer Aided Diagnosis Systems try to obtain objective data applying the latest techniques in data (image, video, voice...) processing.
Finally, it is important to remark that telemedicine systems are already emerging, and their developments are linked to technology and communications advances. Other possibilities of evolution in this field are around empowering patients’ concept.

V. CONCLUSION

The implementation of ehealth system provides benefits in terms of reducing health care costs, costs of transfer of patients and personnel, as well as improving equity in access to health care technologies in remote villages with few professionals and corresponding facilities. Remote monitoring of diseases increases the responsibility the doctor feels for the patient, and the view of evolution is very satisfactory.

In this article we dedicated special interest to remote communicate systems between doctor and patient but the authors only described the Internet based ones without installing anything in the client (Web ones). It is important to consider the advantages and disadvantages of the models of standalone and web application. The standalone model has the flexibility to integrate external tools which in turn facilitates the interaction of communication hardware with the operating system. However this means that every computer system should have the program installed with the consequent disadvantage of maintenance and regular updating.

The Web model allows a centralized application from any Web browser remotely without the need of a previous installation dialog on the computer, so it is accessible from any platform. Through the centralized implementation processes are simplified periodic maintenance and updating of operating software, but the use of certain tools to capture and process images, which are dependent on operating system are limited.

Many aspects of telemedicine and eHealth, are still uncertainties or are pending evaluations. In this regard, we may include certain technological aspects of bandwidth requirements, standards or protocols in transmission technology and the evaluation of the effectiveness and efficiency of the practice of telemedicine compared with traditional practices, the acceptance of patients and professionals. All is related to the cost of implementing these services and the payment formulas for professionals, or the various legal aspects related to security, confidentiality, accreditation, etc.

Finally, the authors make some questions for thinking about them: ¿are the doctors prepared for the Health technological revolution? Is the home visit program patient chronic and immobilized can integrate all this? The penetration of broadband in our households is enough? Is there adequate or even technology is complex, and / or expensive?

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