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TELEHEALTH INCLUDING TELEMEDICINE: THE PRACTICE AND PERSPECTIVE FOR AFRICA IN THE 21ST CENTURY

1. Introduction

Many prevalent diseases are associated with poverty and development problems such as illiteracy, gender inequality and lack of basic infrastructure. In the developing world, the main causes of ill-health include infectious diseases and there are high levels of maternal mortality and malnutrition. In poor countries, including those of sub-Saharan Africa, less than half the population has adequate access to care and an even lower proportion has access to adequate sanitation. In the least developed countries just over a third of women are literate, compared to the almost universal literacy levels attained in the industrialised world. This has important implications for the introduction of new technology.

Information and communications technologies are evolving rapidly. The costs of both equipment and use are falling. The growth in use of the Internet continues to be exponential. Many countries now recognise the importance of telecommunications for social and economic development. Consequently significant new investments are being made in telecommunications to extend and improve networks in Africa. However, regulatory barriers, high license fees, customs duties and non-tariff barriers (such as type approval) have restricted access to the potential benefits of new information and communications technologies in many developing countries. At the same time, it must be noted that the World Trade Organization (WTO) recently concluded two major agreements which will significantly liberalise the regulatory environment and lower the costs of equipment and services.

Health Telematics (Telehealth) and Telemedicine were defined by WHO's International Group Consultation on Health Telematics (11-16 December, Geneva, 1997) as followed;

"Health telematics is a composite term for health-related activities, services and systems, carried out over a distance by means of information and communications technologies, for the purposes of global health promotion, disease control and health care, as well as education, management, and research for health."

"Telemedicine is the delivery of health care services, where distance is a critical factor, by all health care professionals using information and communications technologies for the exchange of valid information for diagnosis, treatment and prevention of disease and injuries, research and evaluation, and for the continuing education of health care providers, all in the interests of advancing the health of individuals and their communities."

It is timely and highly relevant that OAU should have included this topic on the agenda of its VI th Conference of Ministries of Health, choosing to investigate how telematics contribute to health care, education, research and health system management ; and how it can serve as a lever for growth and development in communities.

2. Benefits of health telematics and telemedicine

From the experience gained worldwide so far, a number of direct benefits from health telematics can be identified. They include (without any ranking):

- Remote monitoring of the chronically ill ; improved access to a wider range and better quality of care across geographical boundaries, overall reductions in hospitalization and waiting times in health care systems.
- Sharing of scarce resources such as specialists and expensive equipment by a much greater number of patients.
- Global sharing of skills and knowledge for care, information and disease surveillance.
- Cost savings by reducing the transport of patients and travel of health professionals, as well as by allowing home care of patients who would otherwise require hospitalization.
- More opportunities for health information and education in a variety of community contexts (including schools, homes and health care centres) and to hitherto disadvantaged and under served populations.
- Extension of training and continuing education to health professionals who may otherwise be isolated in rural areas.
- Overcoming barriers related to illiteracy through the availability of multiple media (visual, textual, audio, graphic as appropriate).
- More people can be diagnosed and treated at their local clinics or hospitals, even in the absence of referral hospitals. For the first time, it is technically feasible to contemplate the provision of universal health care.
- Easy access to specialist support for mobile medical units in disaster relief and emergency situations.
- Increased collegial support to medical personnel working in remote and isolated areas, resulting in increased job satisfaction

An appropriate health telematics strategy will help overcome the current barriers to access to health care and promotion and improve the quality of health care for all.

3. Potential risks and limitations

3.1 Potential risks

WHO and its partners must be careful not to raise undue expectations about the prospects for health telematics to solve the world's health problems. If the potential benefits of health telematics are to be realised, it will be necessary to be aware of, and to guard against, the possible dangers of injudicious or improper use of these technologies.

Quality is a crucial prerequisite in the exchange and acquisition of health information, as only scientifically sound, reliable and verifiable references are useful in health telematics networks. As in any open information networks, this quality is not necessarily assured. The possibility of incorrect, biased, or even fraudulent information reaching the consumer, without having been submitted to clearance or peer review, is not negligible. Mechanisms for selection and regulation are not easily available.

There are also risks in the increased frequency of self-diagnosis and self-medication, particularly where people fall prey to persuasive but misleading marketing. Proactive policies for education and awareness raising will be needed to counteract these risks.

For these and other reasons, it is of utmost importance for the successful development of health telematics to ensure that, on the one hand, only high-quality information enters the health

telematics network, and, on the other, that the public is educated and encouraged to use all such information in a prudent manner.

Finally, it should be stressed that adoption of the new telematics approaches must not be at the expense of other basic health-related priorities such as potable water, immunization, paper-based health information, etc.

3.2 Other barriers and limitations

In developing health telematics and telemedicine following barriers and limitations must be take into account:

- lack of information
- lack of training and training opportunities
- lack of political commitment
- lack of resources
- frequent changes of skilled and qualified personnel
- lack of, or inadequate infrastructure (electricity, maintenance, etc.)
- restrictive regulations in the use of communications facilities

Health care professionals in developing countries can nevertheless overcome these barriers, especially when they collaborate with and get support from the telecommunications (telecom) network operators, their ministries of communications and national regulatory authorities. Creative solutions must be tailored to particular cases and countries.

Collaboration with the telecom community will improve the chances of getting the facilities needed for health telematics. Such collaboration will rally greater support from politicians and international development agencies.

Carefully planned and collaborative pilot projects offer significant potential for developing countries. One example might involve a district hospital and the telecom operator working together to link limited resources in rural and remote areas to clinical centres able to offer the requisite expertise. The two players could seek the support, participation and/or blessing of their national ministries of health and communications, which in turn might contact and seek support from international organisations, such as WHO, ITU, the World Bank, and the European Commission. Such a collaborative undertaking would help the originating partners (the hospital and the telecom operator) gain access to resources and expertise and increase the chances of the sustain ability of particular projects. If a small-scale pilot project shows cost savings or if the benefits clearly outweigh the costs, e.g., by improving the quality of, and equity of access to, health care, then it could be demonstrated to political leaders whose support may be necessary for the more widespread implementation of health telematics.

Health care professionals are keen to benefit from modern information and communications technologies as well as from contacts with colleagues in industrialized countries that may have

useful experience and capabilities. A careful balance needs to be established in undertaking projects. Developing countries should not be used as experimental ground, nor should there be dependency on external partners. However, if a project is carefully constructed and sustainable (even if only in the medium and long term) and if it provides the basis for expansion of the health telematics network, the countries themselves will benefit and the foreits will ba accessibleat local, national and regional level.

4. Key factors of successful implementation

There are many factors to be considered. Some main factors include:

- Careful planning is needed to achieve significant potential for developing countries.
- The collaborative undertaking should help the originating partners (for example, the hospital and the telecom operator) gain access to resources and expertise, increasing the chances of sustainability.
- The technological configurations should be selected or designed with due consideration of concerned society, and of their acceptability in cultual and economic terms.
- The introduction of telehealth and telemedicine must be seen not as a one way process, but as having the potential to facilitate interaction and participation. Scientific knowledge , new technology and approaches should accommodate loca perceptions and experience.
- Health telematics services should be integrated in the health care delivery system. This requires special efforts to adopt and adapt health telematics so that it forms an integral part of the health system.
- The success of health telematics will depend on how successful pirot project have been in building up partnerships among some of the key players who could or should be involved in developing services.

5. In order to provide effective assistance with regard to the planning and implementation of telehealth and telemedicine in Africa, WHO would be ready to provide advice and the necessary technical support on the following :

- To develop awareness and obtain political commitment at the highest level;
- To ensure that the basic infrastructure needed for health telematics is available before implementation begins; for example, adequate and reliable telecommunications and access to global networks are prerequisites for any such programme;
- To encourage the development of health telematics links especially within the country;
- To develop training centres to provide health workers with necessary skills in the use of this technology, and to use health telematics as a means of training and continuing education for all health care professionals;

- To help establish linkages (e.g., through global networks such as the Internet) between developing and developed countries in the epidemiological surveillance of significant diseases;
- To assist in the development of telehealth services;
- To assist developing countries in generating the proposals and business plans which will help them acquire the resources necessary to ensure the sustainability of telehealth and telemedicine projects;
- To adapt the use of such technology and approaches to national health priorities.

6. Perspectives for Africa in 21st century

With increased liberalisation of access to telecommunication, there is an even greater potential to make the benefits accessible to all in the 21st century. In particular, rapid progress in telecommunication technology should allow poorer countries to take maximum advantage of developments in health and benefit from experiences of other countries.

Strong partnerships between the private and public sectors will increase the chances that health telematics will contribute to health worldwide. Researchers, planners and decision-makers in various geographic and development settings must be encouraged to collaborate, in a spirit of international solidarity. Africa must be an active player, in a position to share available expertise and resources.

Providing improved access to national and international medical expertise is the most significant benefit of health telematics. Especially important are the new levels of diagnostic and therapeutic quality which can be achieved by using health telematics to service physicians and nurses in remote or otherwise isolated area.

There is a unique opportunity for OAU to encourage the free exchange of health information, knowledge and expertise between OAU member countries and worldwide. OAU should encourage and promote a diversity of strategies to assist individual partners and member states in identifying and gaining access to appropriate sources of high-quality information and expertise.

Health telematics applications transcend national boundaries and are evolving rapidly. They present enormous challenges to traditional legal and regulatory structures. OAU should identify those areas where further international and OAU countries' cooperation is needed to advance the objective of providing primary and other essential health care services and information through telehealth and telemedicine. It should encourage countries to accommodate these new approaches within their own health systems.

Developing the national/regional telecommunication infrastructure will benefit not only health care but also other social sectors. OAU has an important role to play in harmonizing the telecommunication infrastructure development so as to enable other application programmes such as education, trade, agriculture, broadcast and etc.

Recommendations

To promote an integrated and unified policy for the development telehealth, including telemedicine, in Africa, the following should be considered:

- A working group should be established (core member states , UN specialised agencies and NGOs) to develop a well coordinated health telematics policy. This would facilitate the harmonization and implementation of health telematics projects of other African countries.
- An appeal should be mode to other UN agencies, and the private sector including NGOs, to raise the necessary resources for implementing such health telematics projects.
- OAU should take up thr responsibility of setting up a computerized database or Internet website; this would ensure exchange of information among countries and avoid duplication of efforts in implementing such health telematics projects. The database should be maintained in language relevant to the OAU.
- Information should be collected on both success stories and failures, in both OAU and other countries.
- Each Member state should designate a focal group made up of representatives from ministries such as the Ministry of Health, Post and Telecommunication, and Education; the group would collect relevant information for the development of health telematics and report to the OAU on the establishment and updating of the database.
- These focal group would also contribute to the development of a national strategy and policy on health telematics.
- The national policy on health telematics should be part of an integrated plan for health system development and implemented in collaboration with other ministry.

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