Journal Abstracts and Telehealth References

Selected by
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Barbara P. Yawn, M.D., M.Sc, FAAFP. *Telemedicine : A New Framework for Evaluation*, Telemedicine Journal, vol 6, n°1, 2000, 55-61

Recent strategies for evaluating telemedicine attempt to incorporate broad issues such as medical effectiveness, optimal strategies for blending face to face and telemedicine, the direct and indirect costs of telemedicine services, accessibility, and patient and provider satisfaction. To address these issues, a scheme of evaluating telemedicine for a series of medical conditions or diagnoses has been recommended. The primary problem with this evaluation scheme is the need to assess telemedicine for each condition in which its use is proposed. This paper suggests an alternative framework for evaluation based on the clinical tasks that a physician or other health care provider must do to assess, treat, and follow patients. These tasks, which are employed in the care of most conditions, include visual tasks, auditory tasks, and instrumentation and palpation tasks. For each clinical task, the technology requirements for tools and settings would first be established. The scope and limitation of the tools for those tasks would be identified and the need for integration with face-to-face care could be assessed. Finally, the outcomes of the interaction of tasks, tools, and settings could be assessed across broad categories of tasks rather for than a single disease or condition. Such broadly oriented telemedicine assessment would allow a single evaluation of telemedicine for a proposed task and decrease the need to evaluate each new program or new use of telemedicine technology. Region specific patient and provider satisfaction will likely still be required for each program.

Telehealth has the potential to change the way health providers deliver care, access clinical information for decision-making, and learn. It also can enable how communities and consumers make informed decisions about their health and health needs.

Donald Legault, David Mowat, Bob Tate, Michael White, Jim Moore, Susan Begg, Michael Goddard, Deborah Jordan. *Sharing Health Surveillance Information using the National Health Surveillance Infostructure* - ITCH 2000 from Potential to practice - International Conference, August 23-27, 2000, Victoria.

The National Health Surveillance Infostructure is Health Canada's contribution to the Network for Health Surveillance in Canada. One facet of the Infostructure is to facilitate secure access and sharing of timely health surveillance data and information to health surveillance workers (personnel across Canada, by means of a comprehensive multi-level Internet enabled infra-structure. Two key components of this infrastructure include an inventory of health surveillance information and a portal of access to health surveillance information, tools and products. Portal technology will also provide inter-active user capability for pro-active information dissemination (list-server), moderated discussion environment and customised information delivery interfaces. We will present a description of these two key components, how they relate to other components including information and security architectures, and both the current states of the initiative and plans for evolution in the next two years.

Jennett P.A., M. Gao, D. Hailey. *Cost-Benefit Evaluation of Telehealth Implementation Implications for Regions and Communities* - ITCH 2000 from Potential to practice - International Conference, August 23-27, 2000, Victoria.

Telehealth has the potential to change the way health providers deliver care, access clinical information for decision-making, and learn. It also can enable how communities and consumers make informed decisions about their health and health needs. Policy makers are aware that telehealth applications can influence access, benefits, and quality. Applications are currently being implemented in every Canadian province and territory. Traditional economic evaluation frameworks, however, have been somewhat wanting in their ability to capture the net direct and indirect benefits of telehealth implementation, particularly from the social perspective. This presentation will discuss the development of a conceptual cost-benefit evaluation framework specific to practical telehealth implementation targeted for health authorities, regions and communities. The framework is targeted to enable policy makers to estimate the practical benefits and costs of telehealth applications for the public sector, caregivers, and consumers, with the endpoint of sustainable telehealth systems which contribute to access and quality. Specifically, the assumptions,

concepts, data elements, generic economic questions, policy issues, and challenges within the framework specific to the potential costs and savings will be discussed. The work draws on recent parallel queries occurring in Queensland, Australia.

Lehoux P, Battista RN, Lance JM. *Telehealth: passing fad or lasting benefits?* Can J Public Health 2000 Jul-Aug;91(4):277-80

Advocates of telehealth argue that the delivery of health services by means of communications technologies is both feasible and desirable. Nevertheless, the benefits of telehealth, due to the variety of its applications and their uneven development, are not self-evident. The goal of this paper is to reflect on the processes by which telehealth applications do or do not contribute to the delivery of health services. We propose a framework structuring a preliminary analysis of the match between needs and the possibilities offered by telehealth. Four mechanisms of expected benefits are discussed: 1) decreasing patient transfers; 2) decreasing trips by providers and patients; 3) meeting the needs of underserved populations; and 4) building providers' and patients' knowledge and reducing rural isolation. We conclude by stressing that the participation of providers is crucial, both in the research on telehealth and in the steering of its evolution.

... it is unwise to promote telemedicine in isolation from other uses of technologies in health-care.

Mitchell J. *Increasing the cost-effectiveness of telemedicine by embracing e-health.* J Telemed Telecare 2000;6 Suppl 1:S16-9

In 1999 a national study of telemedicine in Australia led to the promotion of the concept of 'e-health', the health sector's equivalent of 'e-commerce'. A new study explored the view that, with the convergence of technologies and the consequent increase in ability to perform multiple functions with those technologies, it is unwise to promote telemedicine in isolation from other uses of technologies in health-care. The major sources of information for the study were the presentations and discussions at five national workshops held to discuss the findings of the original report on telemedicine. Nineteen case studies were identified. The case studies showed that with the convergence of technologies telehealth is becoming part of e-health. The cost-effectiveness of both telehealth and telemedicine improves considerably when they are part of an integrated use of telecommunications and information technology in the health sector.

Picot J. *Meeting the need for educational standards in the practice of telemedicine and telehealth.*, J Telemed Telecare 2000;6 Suppl 2:S59-62

The first telemedicine standard to be developed, documented and adopted widely was the radiology standard, which includes technical and image transmission standards as well as requirements and qualifications needed for teleradiology practice. But many other health professionals engaged either full time or part time in telemedicine and telehealth—for example, telepsychiatry, telepathology, teletriage and tele-ophthalmology—also need and use special skills and knowledge. At present, they acquire these skills on the job and their skills may not be recognized. There should be performance standards and telepractice guidelines for professionals operating in the fields of telemedicine and telehealth. Furthermore, there is a case for the development and implementation of education and training standards, enabling professionals who practise in the field to obtain suitable skills, knowledge and recognition for telepractice.

M. Rabiul Ahasan. *Social and cultural ethics of new technology - HFs consideration* - ITCH 2000 from Potential to practice - International Conference, August 23-27, 2000, Victoria.

Recently, with the global free market opportunity, the corresponding flow of various products, machinery and technologies across various ethnic and cultural borders rise questions on differing work practices and social changes. With the wide variation of social norms in different nations, rapidly changing technology needs to be adapted. The human factors associated with adapting a new technology to be suitable for a particular society should focus on various aspects of the users' physical, environmental and cognitive capacities. In addition, users' culture, language, perceived skills, educational level and standards of living are important. Other key elements are global economics, peculiar politics, and complex organisational structures and management system. Without due consideration of the level, type and infrastructure, maintainability and sensitivity of the socio-cultural norm, implementation of technology could unlikely be nonergonomic in terms of mismatching the users' system and human suffering. In this context, socio-technical aspects are explored in this paper, which are potential to the ever-changing situations of technological research and development.

Robin Dodge. *Experience With An Internet Based Medical Record* - ITCH 2000 from Potential to practice International Conference, August 23-27, 2000, Victoria.

In the early 90's the Federal Aviation Administration upgraded its paper medical record to a modem and software driven history and physical. The software included validation of the entered data against required medical standards for pilots. Not all physicians were required to use the electronic version; thus the FAA was managing parallel systems. The author was a beta tester and end user of this new system. Related paper work declined and data entry errors essentially became nonexistent. A new hosting server and migration of the medical record system to the Internet was initiated when the electronic system was found not to be Y2K compliant. Online standards validation, access to past medical history, and a streamlined process were anticipated. The final product is a relatively slow server with no validation of medical standards. The old paper and previous electronic forms were combined, resulting in a confusing and ambiguous new web H&P form. A paper copy must still be mailed. It now takes more time to complete a record and the system is prone to errors of substance although not process. The FAA is now managing only one system, as all physicians must use the Internet. The objective of employing new technology to benefit all users has not been reached. This is an example of the potential of new technology being more than that achieved. Perhaps the future will see improved benefits for all and even allow transfer of such knowledge for use in a wider health field

Thomas W. Grein, Kande-Bure O. Kamara, Guénaël Rodier, Aileen J. Plant, Patrick Bovier, Michael J. Ryan, Takaaki Ohyama, and David L. Heymann. *Rumors of Disease in the Global Village: Outbreak Verification,* World Health Organization, Geneva, Switzerland, Vol. 6, No. 2, March-April 2000

Emerging infectious diseases and the growth of information technology have produced new demands and possibilities for disease surveillance and response. Increasing numbers of outbreak reports must be assessed rapidly so that control efforts can be initiated and unsubstantiated reports can be identified to protect countries from unnecessary economic damage. The World Health Organization has set up a process for timely outbreak verification to convert large amounts of data into accurate information for suitable action. We describe the context and processes of outbreak verification and information dissemination.

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Leslie J. Peters, Deborah P. Peters. *Telehealth, Part II, Spring 1998, Asha, 31-33**

Digitization and telecommunications technology makes possible greater access to health care for remote and underserved populations. But although many telehealth programs were implemented over the last 25 years, few have survived withdrawal of external funding. This, in spite of data indicating few hardware problems and that in general patients are satisfied with their experiences of telehealth. What's the problem? Why are telehealth programs marginally successful at best?

Birute Foster, Tom Kiedrzynski. *Designing teaching materials with relevant computer applications for the development of public health surveillance in the Pacific* - Proceedings of the Seventh National and Fifth International Conference on Information Technology in Community Health (ITCH 98) - New Partnerships - Better Care, Nov.1-4, 1998.

Reliable, timely and accurate data collection represents one of the major concerns for health professionals in the Pacific. To improve the effectiveness of public health activities, several strategies have been established, including harmonization of health indicators, development of relevant computer applications and training. In this field, we prepared teaching materials for a course on «The practice of public health surveillance in the Pacific». It includes the integrated use of EPI INFO 6 as a software package allowing for a common, flexible and reliable application for health information systems. The aim of the course and materials is to provide a framework for the region to adapt health information systems to specific priorities of disease and health surveillance, with the use of EPI INFO 6 as a computerized tool. It will enable the Pacific island countries and territories to provide necessary health information for national levels, and at the same time to address specific regional perspectives. Training will include several sessions allowing for participation from all the Pacific island countries and territories. The objectives for the first round of training, include familiarity with EPI INFO, the ability to produce records on a patient, weekly or monthly summary reports. The reports produced will include analysis of health indicators and timely disease surveillance data. The second session will incorporate aggregation and normalization of surveillance databases and further development of EPI INFO applications giving the participants ownership through the design process.

Donald W. Moran. *Health Information Policy: On Preparing For The Next War.* Health Affairs 1998, Vol. 17, n°6, Page: 9 - 22

As policymakers demand more and better information about health care, the private health information technology industry is investing heavily to produce the "paperless clinical enterprise" of the future: the infrastructure that will be required to satisfy those demands. Developments on a number of policy fronts, however-from medical privacy legislation to clinical software regulation to "telehealth" - suggest the need for a conscious health information policy that will inform the debate in each niche area with a larger sense of whether public policy will promote or retard private innovation in this area. Given the stakes involved, and the immediacy of the issues, leadership in this direction is badly needed.

Yellowlees P. *How not to develop telemedicine systems?* P. Telemed Today, 1997 May-Jun; 5 (3): 6-7, 17

This history of telemedicine is characterized by many systems that have failed, or have only lasted a short period of time. Some of the reasons for these failures are discussed. Presented here is a set of six simple rules that have been developed from evidence in the literature, and from personal telemedicine experience, about how to assure the failure of a project. These rules are unfortunately still frequently adhered to and lead to the failure, or the less effective functioning, of telemedicine systems.

Brauer GW. *Telehealth: the delayed revolution in health care*, Med. Prog. Technol, 1992 ;18 (3) : 151-63

It is recognized that health care in rural communities could be improved significantly with the assistance of telehealth, the term by which the combined application of computer and telecommunications technologies to health care has come to known. Yet in spite of its obvious potential, the telehealth literature has shown a surprising lack of growth. This paper reports an analysis which revealed that, between 1975 and 1990, few telehealth articles were catalogued by the National Library of Medicine, and suggests why this might have been the case. Following a brief discussion of the origins of telehealth, terminology, and the rural health care crisis, this overview examines the status of telehealth in terms of its main applications: telemedicine and tele-education. An analysis of the pattern of publications between 1975 and 1990 is then used to suggest why telehealth has not fulfilled its potential. Corrective measures are proposed and the paper concludes with a summary of recent telehealth initiatives.

Informatics in clinical practice in developing countries: still early days BMJ 1999 Nov 13 E319(7220);1297

Tamil Nadu will become the first Indian state to provide telemedicine in the public sector when a local hospital in the state will be connected to the Chennai Medical College through the integrated subscriber digital network (ISDN) and "high end" workstations. The state cannot yet connect every district and local hospital to the nearest medical college because the ISDN facility is hardly available outside Chennai. But India has developed technologies for launching missiles and for making nuclear bombs and provides cellular telephones, colour televisions, and luxury cars to the rich. Clearly a case of misplaced priorities.

The story is the same everywhere in the developing world. Consider access to telephones. About 40 countries have less than one telephone for every 100 people. About 25, many in sub-Saharan Africa, have under 0.5 per 100 people. Even India, despite all its scientific and technological credentials and reasonable economic stability, has 1.86 main telephone lines per 100 inhabitants. In contrast, Canada and the United States have more than 60 per 100 inhabitants. The disparity in internet use is even greater. In addition, most developing countries invest very little in health care. While the world's richest countries spent more than $2500 per capita on health each year during 1990-7, the low income countries hardly spent $15 per capita, just above the estimated $12 a year needed to secure the minimum preventive and essential clinical services. Countries such as Zambia, which spends about $6 per capita on health, and Cameroon, Indonesia, Nigeria, Sri Lanka, and Sudan, which spend less than 2% of gross domestic product, are certainly investing too little in health.

But India has developed technologies for launching missiles and for making nuclear bombs and provides cellular telephones, colour televisions, and luxury cars to the rich. Clearly a case of misplaced priorities.

Because of inadequate access to technology and subcritical investments in health care, developing countries cannot to take advantage of technology based advances in healthcare delivery. Besides, medical professionals in these countries are not technologically trained. Even when these technologies are used in the health sector, they usually benefit the urban rich. To be fair, conscientious doctors have attempted to use informatics to the extent that they could, such as the maintenance of electronic patient records at the Neurosurgery Department of the state owned King Edward Memorial Hospital in Mumbai, India. Increased use of informatics can transform health care in the developing countries, but, for now, they have to be satisfied with a few headline grabbing

telemedicine projects launched around the world. The International Telecommunications Union has sponsored two conferences on telemedicine for the Third World, one in Portugal (1997) and another in Argentina (1999). Agencies such as SatelLife and the Midjan Group are trying to make a difference. The HealthNet project of SatelLife uses satellites to connect health professionals in about 30 countries in Africa, Asia, and Latin America. It distributes electronically a weekly newsletter and ADS Bulletin. The Midjan Group provides European telemedicine services to countries such as Senegal and South Africa. There have also been a few indigenous efforts such as the one in South Korea connecting village medical care centres to the Seoul National University Hospital and Korea University Hospital.

Legal Issues Concerning Electronic Health Information: Privacy, Quality, and Liability James C. Hodge Jr, Lawrence O. Gostin, Peter D. Jacobson JAMA. 1999:282:1466-1471

Personally identifiable health information about individuals and general medical information is increasingly available in electronic form in health databases and through online networks. The proliferation of electronic data within the modern health information infrastructure presents significant benefits for medical providers and patients, including enhanced patient autonomy, improved clinical treatment, advances in health research and public health surveillance, and modem security techniques. However, it also presents new legal challenges in three interconnected areas: privacy of identifiable health information, reliability and quality of health data, and tort-based liability. Protecting health information privacy by giving individuals control over health data without severely restricting warranted communal uses) directly improves the quality and reliability of health data by encouraging individual uses of health services and communal uses of data, which diminishes tort-based liabilities (by reducing instances of medical malpractice or privacy invasions through improvements in the delivery of health care services resulting in better quality and reliability ofclmical and research data). Following an analysis of the interconnectivity of these three areas and discussing existing and proposed health information privacy laws, recommendations for legal reform concerning health information privacy are presented. These include (1) recognizing identifiable health information as highly sensitive, (2) providing privacy safeguards based on fair information practices, (3) empowering patients with information and rights to consent to disclosure (4) limiting disclosures of health data without consent, (5) incorporating industry-wide security protections, (6) establishing a national data protection authority, and (7) providing a national minimal level of privacy protection.

The proliferation of electronic data within the modern health information infrastructure presents significant benefits ... However, it also presents new legal challenges in three interconnected areas: privacy of identifiable health information, reliability and quality of health data, and tort-based liability.

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One does not discover new lands without consenting to lose sight of the shore for a very long time.

André Gide (1869 - 1951) The Counterfeiters