Pacific Telepathlogy Service at Fiji School of Medicine

Abstract: Pacific Telepathology service has been established at Fiji school of Medicine (FSM) with technical support from University of Basel. The service is designed for remote consultation, continuing medical education (CME) health care research (HCR). To develop Telepathology services for participation with international Telepathology community for improving quality of health care in the Pacific.

Telepathology server for "Pacific Pathology Group" has been set up at http:// telepath.patho.unibas.ch/ , which is dedicated for Telepathology consultations bring together health care professionals in the Pacific to overcome limitations of distance, lack of resources and to improve quality of healthcare services, Accessed by a computer possessing Internet and email connection, members send cases and questions, review and comment on other cases and receive consultation via web or email. Benefits are tremendous in terms of remote consultation, CME, HCR and improving quality of modern health care even at remote islands devoid of health care resources. Internet speed or reliability is not a limiting factor.

Virtual institute of pathology has been established in Switzerland with over 400 Pathologists and is providing consultations to many *countries including Solomon Islands where there is no pathologist. The institute is functioning efficiently with average reporting turnaround time of 48 hours. Efficiency is the result of organization and communication. Presently this Service has been established at the FSM in Fiji Islands primarily for education & remot* P *consultation with* plans to expand to other island countries . *(Pacific Health Dialog 2003, Vol. 10 (2), Pg 178-181)*

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Introduction

Fiji School of Medicine is a regional medical school training health care professionals for over 13 pacific Island countries. Fiji like other Pacific Island countries face the same problem of developing poor economy, migration of skilled workers, limited resources, poor infrastructure, compounded by geographically separated small islands with minimal communications. At the present time, there are only 2 qualified pathologists in the country with total population of around 0.8 million. Health care at remote islands is mainly by nurse practitioners trained at the school. Two major hospitals saw this lack of resource created the need for telepathology services.

Development of Telepathology at Fiji School of Medicine started with email communication with Kurt Brauchli and Martin Oberholzer at university of Basel, Switzerland. Prof. Martin Oberholze, head of Pathology at University of Basel, has long experience in setting up telepathology services not only in Switzerland, but in several other countries, including Solomon Islands, where there are no pathologists.

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History of Telemedicine & Telepathology

Telemedicine can be defined as "medical or Health care activities occurring between people separated by geographic "distance" through use of various modes of information transfer and storage. It offers several new avenues for bridging the gap between patients and advanced medical facilities. It is more important in developing countries since it allows extension of medical facilities to people residing in remote & rural areas where advanced medical facilities may not be available. On the other hand advanced countries look up to telemedicine as one approach that will radically improve the quality of healthcare decision making, by involving people from different regions to communicate without barriers or sharing expertise between regions, increasing quality and efficiency.

The applications of telemedicine include education, training, diagnostic services, home care, storage and integration of medical data, exchange of data and bridging of levels in medical standards. Its main goal is however, to maximize resource utility and eliminate the geographic distance barrier to all patients wherever they live.

Telemedicine has developed in all the branches of medicine including Tele-radiology, Tele-Pathology, Tele-endoscopy, Tele-cardiology, Tele-dermatology, Tele-psychiatry, etc., essentially telemedicine can be used where information transfer assists in health care.

History of iPath at Switzerland — partner of Telepathology at FSM.

The Department of Pathology at the University of Basel was using a telemicroscopy system for remote frozen section diagnosis since the early 1990s.' This system was coming to age and had to be replaced with a newer solution. After some initial experiments on remote control of a microscope software was developed for a first working telemicroscopy by the end of 1999. By the end of 2000 first telepathology server with telemicroscopy over the internet was setup at University of Basel. To archive all the images captured during a telemicroscopy session, an image database was created to store and share images among members. But very soon, members started to use the database as a standalone application, and found it more useful than the telemicroscopy application. It turned out that most of the telepathology consultations do not involve real time microscopy at all but rather the discussion over a few still images. Of course this can be done by email. However, with email only, it is hard to keep track of which diagnosis belongs to which case and group discussions or reviews are almost impossible, unless somebody

takes the burden to coordinate all these emails, but who has time for that. So main development shifted more and more from pure telemicroscopy to a much more general and open framework for telemedicine, using web technology where telemicroscopy is only a very specialised aspect of the whole application. By now, telemicroscopy has been moved out of the basic iPath-Server software and is now developed as a completely independent module that can be added to server if needed.

Outline of Telepathology at Fiji School of Medicine

Telepathology at Fiji School of Medicine is based around a web server located at University of Basel, Switzerland. The service is accessible by any one, anywhere with minimal requirements of basic computer with internet and email connection. Main page of Telepathology website is located at www.telepath.patho.unibas.ch and members can join the group by registering at the stite. Member can send patient case information such as text with images both online at the webpage or by email to webserver. Members can view cases online with images and comments by others and they can also type in their comments. For members with slow internet connection, cases can be sent by email, and can receive comments by email.

Presently two full time pathologists have been assigned by Virtual Pathology Institute at University of Basel to provide consultations for cases from Pacific (both Solomon's & Fiji). Generally we get expert consultations on our cases within 48 hours of uploading. More experts from Europe, America & Middle East have joined the group. With wide spread use, this service should significantly improve quality of pathology services in the region particularly in remote islands with minimum facilities. We plan to develop this service widely in the pacific targeted at students and for continuing medical education of health care workers in the region.

More than 500 members are currently using this "Virtual Telepathology service" A "virtual institute of pathology" with participants from all over the world and is providing telepathology service to many countries. In the Pacific this service is already successful in Solomon Islands where there is no pathologist.

Presently this Service at Fiji School of Medicine is being used for remote consultations and as teaching aid for students. Also development of this service to other branches of medicine is in pipeline, including setting up of our own server.

Initial Experience with Telepathology

Initial problems were of technical nature such as setting up video camera and video capture card into computer and to connect the camera to computer. But this was overcome by support from IT department. Next major problem was convincing people to join the group and use the service. Many do not have a computer at work place. Many were less enthusiastic to join, concerns were that they had to learn computer jargons. Gradually members are increasing. Presently over 50 members from school and health care have joined since the start of service and is increasing.

First case on Telepathology

First case put on telepathology was a case of Cytology specimen from a post pneumonic lung consolidation suspecious of malignancy. Cytology was reported as suggestive of malignancy. However during discussion visiting endoscopist from overseas commented that post bronchoscopy lavage had inherent cellular changes mimicking malignancy and that malignancy report should be treated only suspicious. This comment led to long discussion, and then decided to use telepathology database. Within 24 hours two comments came from Dr. Kunze at university of Basel, Switzerland, supporting diagnosis of malignancy, another comment followed soon from Dr. Martin Oberholzer of same university. Wtihin next two days one more comment from Pathologist from Saudi Arabia came in again supporting diagnosis of malignancy. However two days later Dr Boeking from cytopathology institute in Germany, commented that it is reactive changes, however he suggested molecular studies to rule out malignancy. Thus our first problem case had valuable opinions from global experts in the field, although conflicting opinions did not alter the case management of wait and watch.

Presently problem cases which need further study after our weekly CPC meetings, are put on telepathology database, These case are accessible to all students, and medical staff who are using mainly as a means of continuing medical education. Already our case data base has grown sufficient to serve as a teaching resource.

Conclusion

Web based telepathology service is being used at Fiji School of Medicine, successfully for consultations as well as teaching. This service has great potential for wider development in the pacific to improve pathology services in remote areas and also to improve quality through distance education, continuing medical education for isolated remote health care facilities. Telemedicine is currently the best option for the future development of health care in the region and joining global Telemedicine community to improve quality of health care in Pacific countries.

Tips on Using Telepathology service at Fiji School of Medicine

Detailed help is available on www.fsm.ac.fj/PWS Telipathology link

Legal aspects of Telemedicine

The question of 'what if something were to happen' needs to be addressed. If a doctor residing in one country is giving opinion for patients residing in some other country, whose laws and which country's judiciary would decide this situation? The problems of misdiagnosis, liability and malpractice are uppermost in the minds of policy makers in the field of telemedicine. Despite these issues telemedicine and telehealth have the potential to transform the world of healthcare.

With the increasing use of Telemedicine, legal and ethical issues have come to the forefront. Specific ethical problems likely to come up in the practice of telemedicine include Legal responsibility for the consultation, lack of doctor/professional direct contact, possible errors due to inadequate data. Confidentiality of patient data and storage and use of patient data for research without informed consent is another problem.

In India, the Information Technology Act of 2000 provides legal recognition for transactions carried out by means of electronic data interchange and other means of electronic communication. However, this act is silent on all aspects of telemedicine, thereby, leading to a situation, wherein as of now, we have no laws to govern telemedicine. Hence, legal issues in the practice of telemedicine require to be looked.

Legal aspects of Telemedicine can be classified into:
1. Traditional medico-legal issues - Since it is assumed that all medical personnel are well versed in these issues.
2. Conflicts in National Laws.
3. Issues unique to telemedicine–who is responsible?, who will administer? Insurance?

The general rule to find responsibilities and liabilities in telemedicine will be based on the contract scenarios between different participants in a medical act depending on who is the person directly linked with the patient and with the final diagnosis. Although medical ethics admits that "medical practice" without any clinical examination of the patient is contrary to "medical ethics", there are definitely two clear exceptions:

• Specialists accepted as being able to diagnose and practice medicine without direct patient contact like radiologists, pathologists and laboratory medicine specialists.

• Isolated, insular or rural areas covered by General Practitioners where there is a lack of specialists.

There exists two types of contract scenarios in telemedicine,

a) Tele assistance Scenario: Medical practitioner provides direct assistance to the patient at a distance either directly or through an external or intermediate person.

b) Tele consultancy Scenario: Medical Doctor provides assistance to another doctor who has direct responsibility of the patient.

Stretching the concept of negligence, a case could be made out against the Health Care Authorities for mot having established adequate health care facilities for taking car of emergencies

i) Responsible medical doctor consults a specialist: a) of the same specialty and b) different specialty where patient contact is not needed like radiologist, pathologist etc. The doctor directly responsible for the patient is liable, except when by previous contract in which the consulting doctor takes patient responsibility.

ii) Patient himself decides to consult a distant doctor. Here de-facto contract is established when the doctor accepts the consultation and thus becomes responsible.

Technician or health care worker consults a doctor regarding a patient. The question of "What is better of less dangerous for the patient?" is applicable.

Liability is first for the medical doctor, but he may ask for guarantees in case of negligence by the technician or healthcare worker. Looking at some of the other legal issues which include:

• Trot jurisdiction- is this the patient care site, physician care site or either, depending upon regional litigious differences?

• Documentation of evidence- detailed documentation by recording.

• Causes of action – the limits of transmission technology or image fidelity and the apportioning of liability between consulting parties.

• Malpractice insurance coverage- regional differences in rates or conditions.

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Before technology things did not work - but people did. [7]
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