**Course: Advance Bio Informatics**

**Module Title: Law and Biological Databases**

**Module No: 158**

**Biological data protection**

eHealth (also written e-health) is a relatively recent term for healthcare practice supported by electronic processes and communication, dating back to at least 1999. Usage of the term varies. A study in 2005 found 51 unique definitions. Some argue that it is interchangeable with health informatics with a broad definition covering electronic/digital processes in health while others use it in the narrower sense of healthcare practice using the Internet. It can also include health applications and links on mobile phones, referred to as m-health or mHealth. Since about 2011, the increasing recognition of the need for better cyber-security and regulation may result in the need for these specialized resources to develop safer eHealth solutions that can withstand these growing threats.

**Forms of e-health**

The term can encompass a range of services or systems that are at the edge of medicine/healthcare and information technology, including:

**Electronic health records:** enabling the communication of patient data between different healthcare professionals (GPs, specialists etc.)

**Computerized Physician Order Entry:** a means of requesting diagnostic tests and treatments electronically and receiving the results.

**ePrescribing:** access to prescribing options, printing prescriptions to patients and sometimes electronic transmission of prescriptions from doctors to pharmacists.

**Clinical Decision Support:** providing information electronically about protocols and standards for healthcare professionals to use in diagnosing and treating patients.

**Telemedicine:** Physical and psychological diagnosis and treatments at a distance, including telemonitoring of patients functions;

**Consumer health informatics:** Use of electronic resources on medical topics by healthy individuals or patients.

**Health knowledge management:** e.g. in an overview of latest medical journals, best practice guidelines or epidemiological tracking (examples include physician resources such as Medscape and MDLinx);

**Virtual healthcare teams:** consisting of healthcare professionals who collaborate and share information on patients through digital equipment (for transmural care).

**mHealth or m-Health:** includes the use of mobile devices in collecting aggregate and patient level health data, providing healthcare information to practitioners, researchers, and patients, real-time monitoring of patient vitals, and direct provision of care (via mobile telemedicine);

**Medical research using Grids:** Powerful computing and data management capabilities to handle large amounts of heterogeneous data.

**Healthcare Information Systems:** also often refer to software solutions for appointment scheduling, patient data management, work schedule management and other administrative tasks surrounding health

**Advantages and Disadvantages**

E-mental health has a number of advantages such as being low cost, easily accessible and providing anonymity to users. However, there are also a number of disadvantages such as concerns regarding treatment credibility, user privacy and confidentiality. Online security involves the implementation of appropriate safeguards to protect user privacy and confidentiality. This includes appropriate collection and handling of user data, the protection of data from unauthorized access and modification and the safe storage of data.

Telemedicine is the use of telecommunication and information technologies in order to provide clinical health care at a distance. It helps eliminate distance barriers and can improve access to medical services that would often not be consistently available in distant rural communities. It is also used to save lives in critical care and emergency situations.

Although there were distant precursors to telemedicine, it is essentially a product of 20th century telecommunication and information technologies. These technologies permit communications between patient and medical staff with both convenience and fidelity, as well as the transmission of medical, imaging and health informatics data from one site to another.

Early forms of telemedicine achieved with telephone and radio have been supplemented with video-telephony, advanced diagnostic methods supported by distributed client/server applications, and additionally with telemedical devices to support in-home care

**The Data Protection Rules in Practice**

The confidentiality of patient records forms part of the ancient Hippocratic oath, and is central to the ethical tradition of medicine and health care. This tradition of confidentiality is in line with the requirements of the Data Protection Acts 1988 & 2003, under which personal data must be obtained for a specified purpose, and must not be disclosed to any third party except in a manner compatible with that purpose.

Given the immense sensitivity of health-related information, it is imperative that professionals in this sector be clear about their use of personal data. The questions and answers set out below shed some light on the considerations for this sector. The issues raised in this section are dealt with in a general fashion. The Data Protection Commissioner recognizes that it would be preferable for comprehensive and carefully thought-through guidelines to be designed by the appropriate representative bodies in this sector, by way of statutory codes of practice.

**Data Acquisition**

* Medical records
* Criminal records
* Biological data (e.g. genetic material)

**Sharing & Protection**

* Sharing of data combined with suitable protection for personal data
* Legislations to ensure protection of personal data
* Help reassure a patient that their information is being taken care of

**Country to country:**

France – French Data Protection Act (2004)

Italy – Supervisory Authority for Personal Data Protection

Canada – Personal Information Protection and Electronics Documents Act (2000)