

KINGDOM OF SAUDI ARABIA
MINISTRY OF INTERIOR
General Administration For Medical Services
SECURITY FORCES HOSPITAL



المملكة العربية السعودية
وزارة الداخلية
الإدارة العامة للخدمات الطبية
مستشفى قوى الأمن

Rajab 6, 1416H
November 27, 1995G

Mr. Anwar Motan
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Dear Mr. Anwar Motan:

COMPUTER AND INFORMATION TECHNOLOGY
IN THE HEALTH FIELD
27-29 JUMADA II 1416H (20-22 NOVEMBER 1995G).

As Chairman of the Organizing Committee, I would like to express my gratitude to you for your support and participation during this event held at Security Forces Hospital.

The symposium was attended by registrants from all over the kingdom and the Gulf countries. We witnessed excellent presentations, engaged in a vast exchange of information and experiences, and received very favorable feedback from participants. Your lecture "Using the World Wide Web in the Health Field" was very informative.

Again, thank you. Your contribution and support were invaluable towards the growth of a better understanding of "Computer and Information Technology in the Health Field" in Saudi Arabia.

Best wishes and kind regards.

Sincerely yours,

Engr. Sami Al Akeel
Chairman, Organizing Committee
Director, Information Services
Security Forces Hospital

Using the World Wide Web in the health field

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ABSTRACT

Internet is a global network of networks connecting thousands of computers in a wide variety of organizations. Internet provides electronic mail, file transfer, access to remote machines, and, recently, the ability to browse information on computers world-wide using a system and method termed the World Wide Web (or simply, the Web).

The operation of Web relies on hypertext as a means of interacting with users. Hypertext is basically the same as regular text - it can be stored, read, searched, or edited - with an important exception: hypertext contains connections within the text to other documents. These new texts themselves would have links to other documents - continually selecting text would take you on a free-associative tour of information. In this way, hypertext links create a complex web of information. Web supports access to other media: images, sounds, and movies, thus constructing a stimulating, rich, limitless virtual encyclopedia.

There is a tremendous amount of health related and medical information on the Web for patients and health professionals. The government of many countries (the US in particular) supports extensive information on latest research (genetics, epidemiological, clinical findings, etc.). Respectable academic institutions and hospitals present their facilities and personnel on the Web for communication and consultation. Medical companies provide information on the latest products. Medical education material, electronic journals, and course work satisfying the US Continuing Medical Education criteria are available on the Web. New applications on reviewing electronic medical records (with proper security checks) are being made available over the Web.

INTRODUCTION

King Faisal Specialist Hospital & Research Centre(KFSH&RC) is a 517 bed tertiary care hospital and one of the most prestigious health care institutions in the Kingdom of Saudi Arabia. The hospital provides a variety of health services to the people of the kingdom, includes open heart surgery, bone marrow transplant, heart, kidney and liver transplant, etc. In addition to being a health care institution, it is also a research and educational center. Recently two hospitals have been added to the institution and expected number of beds could very well be over 900.

Traditionally the Computer and Hospital Information Center (CHIC) department was only responsible for the Mainframe applications running on IBM Mainframe. Most of the Local Area Networks created in the hospital were accomplished by the user departments. This created different types of networks in the hospital. CHIC department took the initiative and took over the responsibility about 4 years ago to integrate most of these network into a single Fibre Optic backbone network which could be useful for the users through out the hospital. As time and budget permitted KFSH&RC went through an elaborated network plan to cover the whole institution.

Setting

What are WWW, hypertext and hypermedia?

WWW stands for "World Wide Web". The WWW project, started by CERN (the European Laboratory for Particle Physics), seeks to build a distributed hypermedia system. The advantage of hypertext is that in a hypertext document, if you want more information about a particular subject mentioned, you can usually "just click on it" to read further detail. In fact, documents can be and often are linked to other documents by completely different authors -- much

like footnoting, but you can get the referenced document instantly!

To access the web, you run a browser program. The browser reads documents, and can fetch documents from other sources. Information providers set up hypermedia servers which browsers can get documents from.

What is a URL?

URL stands for "Uniform Resource Locator". It is a draft standard for specifying an object on the Internet, such as a file or newsgroup. URLs look like this: (file: and ftp: URLs are synonymous.)

file://wuarchive.wustl.edu/mirrors/msdos/graphics/gifkit.zip

ftp://wuarchive.wustl.edu/mirrors

http://www.w3.org:80/default.html

news:alt.hypertext

telnet://dra.com

The first part of the URL, before the colon, specifies the access method. The part of the URL after the colon is interpreted specific to the access method. In general, two slashes after the colon indicate a machine name (machine:port is also valid).

What are SGML, HTML and JAVA?

Documents on the World Wide Web are written in a simple "markup language" called HTML, which stands for Hypertext Markup Language. SGML is a much broader language which is used to define particular markup languages for particular purposes. HTML is just a specific application of SGML. You can learn more about SGML, and the rationale behind HTML, by reading A Gentle Introduction to SGML (URL is <URL:http://etext.virginia.edu/bin/tei-tocs?div=DIV1&id=SG>), a document provided by the Text Encoding Initiative.

Java is a language developed by Sun Microsystems which allows World Wide Web pages to contain code that is executed on the browser. Because Java is based on a single "virtual machine" that all implementations of Java emulate, it is possible for Java programs to run on any system which has a version of Java. It is also possible for the "virtual

machine" emulator to make sure that Java programs downloaded through the web do not attempt to do unauthorized things.

Actually, Java can be used in the absence of the web, but the application that has sparked so much interest in Java is HotJava, a web browser written in the Java language. You can learn more about Java and HotJava from Sun's HotJava home page (URL is <URL:http://java.sun.com/>).

How can I access the web?

You have two basic options: use a browser on your own machine (the best option) or use a browser that can be telnetted to (not nearly as good, but possible). Web access by email is not available at this time. Note, however, that the traditional online services such as AOL, Prodigy, and Compuserve now offer web access of one degree or another as a standard feature.

It is always best to run a browser on your own machine, unless you absolutely cannot do so; but feel free to telnet to a browser for your first look at the web, or use email if the telnet command does not work on your system (try it first!). Note that "your machine" can be defined as a system you dial into from home, such as netcom or another account provider. Running a text-based browser on such a system is still preferable to telnetting to a faraway site.

Access to the web by email has been possible at various points in time, but the volume of incoming requests simply cannot be handled by any one central site. Obtaining a better grade of Internet access that allows you to run a web browser is strongly encouraged.

Health Information

The easiest and the most simplest way to find health information is to go through yahoo search engine. Http://www.yahoo.com will provide information on health by category i.e.

Companies	Organizations
Events	Policy
Hospitals	Professional
Institutes	Rural Health and so on.

If you click on Companies you will possibly see more choices i.e.

Alternative	Insurance
Biomedical	Medical
Equipment	
Cardiovascular	Mental Health
Chiropractors	Nursing
Consulting	Nutrition
Dentistry	Optometry
Diagnostic	Personal Growth
Employment Services	Pharmaceuticals
First Aid - "first aid"	Pharmaceuticals
Fitness	Pharmacies
Halitosis	Radiology
Healthcare Consultants	Reproduction
Healthcare Services	Software
Travel	

Most of the institution today are trying to setup their own data bases on their Web Server. However, there is a need to setup more information on Clinical Data Bases. These Clinical Data Bases do consist of the following major components :

- Patient Information from different Ancillary services of the hospital.
- Direct interface with the Medline type of Data Bases for Clinical Computing.
- Event Monitors.
- Rule based dictionaries.
- Informative handouts for patients.

The patient information available over the Web has many advantages. The first, of course is its nonstop availability to every clinic in the world. No matter where the Physicians are they can review their patient's charts. They can order prescriptions, Laboratory tests or patient instructions on the Web for the patient. In the same token patient can get on the Web and look at the patient instructions handouts. Pick up their prescriptions from their Pharmacy or turn in their specimen for testing.

In short there is a need to gather this information on the Web by each hospital. HTML can help to format and present this data in a readable format which would be meaningful for the Physicians as well as the patients.