A PROPOSAL TO THE BOARD

OF THE

INTERNATIONAL MEDICAL INFORMATICS ASSOCIATION

TO SUPPORT A

WORKING CONFERENCE ON

HEALTH CARE PROFESSIONAL WORKSTATIONS

Submitted by: John S. Silva, M.D.
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INTRODUCTION

Today's complex medical environment places increased demands on health care professionals' decision-making skills. These demands are magnified by the need to evaluate each provider decision against an exponentially expanding biomedical knowledge base. The health care professional must also document those decisions, usually in a manual medical record. On one hand, the art and science and "letters" of medicine require increasing amounts of professional time decreasing the net time available for patient-professional interaction. On the other hand, professionals are required to increase productivity and control costs of care. Recognizing this vicious cycle, the Institute of Medicine and the General Accounting Office recommend the creation of an *automated medical record.* Anticipating that the automated record will be created/edited during the patient encounter, the IOM recognized that a new tool, the health care professional's workstation, will be required to provide a rapid and flexible data entry system.

In a landmark article on physician workstations, Marsden Blois proposed that a workstation must learn how the physician works, then anticipate his/her information needs. After the workstation has collected usage data, anticipatory computing should provide information to the physician "at your service". Despite this excellent model, many provider-system interfaces force the physician or nurse to translate from their usual practice pattern of many functions for one patient to the system's pattern. These systems are neither fast nor flexible and do not meet the information needs of today's providers.

Rapid and flexible entry of clinical information will require what I call "Keystone Technologies." That is, we will be unable to build an arch between the health care professional and automated or non-automated systems *until* we provide a tool which is as fast and flexible as the current manual methods. This tool should be the connection point between the health care professional and the extensive network of health care information systems and knowledgebases, what Dr. Morris Collen calls the "Physician's Office Without Walls".

Currently, we do not have a satisfactory answer for this critical design issue! Graphical user interfaces, controlled vocabularies, natural language processing, light pens, touch screens and voice entry are among the newer techniques and technologies offered to solve this problem. However, there is no organizational entity to accumulate, integrate and disseminate information concerning experiences with workstations. We believe that this lack represents a unique opportunity for IMIA to establish a leadership role in medical informatics. IMIA is the appropriate organization to promote international collaboration, information sharing and networking on professional workstations. We propose to organize, under the auspices of IMIA, a working conference on health care professional workstations.

STRATEGIC PLAN

The strategic plan for this working conference is to bring together experts in Medical Informatics and Information Sciences from many countries. Their tasks will be to prepare a vision statement for the health care professional workstation, to describe the functional specifications that meet the vision, and to define a pragmatic approach to realize the vision.

OBJECTIVES

Prepare a vision statement that describes, from various user views, what functions should be supported by a PWS today and what functions should be available by the year 2000.

Describe the users and uses, the user interface, the applications and the external connections of a generic PWS.

Produce a design of the PWS, using information engineering techniques, that will include functional process and data models.

Publish the proceedings of the working conference as a major source of information on health care professional workstations.

Present a panel session describing the conference findings at the next MEDINFO program (Geneva 1992).

It is hoped that the conference will become the seminal meeting to establish a working group for workstations. Additionally, this conference will provide a forum for the demonstration of new and emerging technologies.

STRUCTURE

We recommend that conference attendees be limited, by invitation only, to fifty individuals. We plan to ensure that the conference will reflect an international view and have representation from both the medical informatics and information science communities. We also anticipate supporting three plenary lectures. These plenary lectures will describe a vision of the future for human computer interfaces, workstation technologies and communications. We propose to have four working groups that will meet in parallel and joint sessions. The four working groups are:

User and Uses -

This group will define who are (and might be) the users of a PWS and what functions should be supported on or by the PWS. Since the PWS must support transparent access to other systems, the group will also define the requirements for interoperability and connectivity between the PWS and external systems.

User Interface Management System -

The UIMS group will describe current and future models of the computer-human interface. Topics discussed will include: the types of conceptual objects, dialogue designs, display devices, input and output devices, and nominal graphics. The group will also address new technologies to collect and display information versus data; i.e., voice recognition, pen-based systems and visualization.

Applications -

The applications group will describe the software programs that will reside within the PWS. Topics include: intelligent navigation aids, knowledgebases, text management systems, user tools, natural language processing for inquiry, data collection and explanation.

Strategy and Implementation

This group will evaluate the PWS from the perspective of a business plan. How does the PWS fit into the enterprise? Is acquisition of PWS for our users a wise *business* decision? Is it reasonable for my company (or institution) to build and or market one? How can health care professionals convince their organizations that buying/building a PWS is a wise decision?

Each working group will be tasked to develop hardware and software requirements which relate to specific functions.

ORGANIZATION

The conference will be co-chaired by Drs Ball and Silva. A conference steering committee will consist of the co-chairpersons, four working group leaders, and conference support staff. The steering committee will be responsible for inviting all attendees and plenary speakers. They will also prepare all materials prior to the conference, present a daily summary of conference findings, edit the conference proceedings and comprise the panel for MEDINFO.

SCHEDULE

The first two days will follow the schedule below:

8:00 - 11:00 AM	Working group sessions
11:00 - 12:00	Plenary session
12:00 - 1:00 PM	Lunch
1:30 - 3:30	Working group sessions
3:30 - 5:00	Informal sessions
5:30 - 7:00	Dinner
8:00 - 9:30	Joint session, presentation of group findings by leaders and synthesis/integration of efforts across groups

The last day will have a two demonstration periods, a third plenary session and a wrap-up presentation and distribution of the draft conference proceedings.

It is respectfully requested that IMIA approve and endorse a working conference on "Health Care Professional Workstations" with Drs Marion Ball and John Silva as its co-chairpersons with the objectives outlined above.

INTERNATIONAL MEDICAL INFORMATICS ASSOCIATION

Special Interest Group of the International Federation for Information Processing

To John S. Silva, M.D.
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EC/JW/vd/91-177   Leuven, April 15th 1991
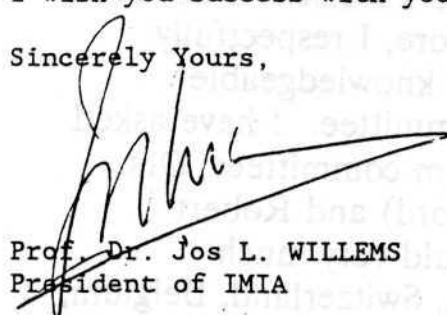
Dear Professor Silva,

The proposal which you and Dr. Marion Ball have proposed to organize an IMIA
Working Conference on "Use of Professional Workstations in Health Care" has re-
ceived a favorable reply from the Board of IMIA, which recently met in Bor-
deaux, France.

As Marion may have told you already, an International Programme Committee has
to be formed which will be responsable for the Scientific Contents of the
meeting. The practical arrangements for the meeting have to be worked out by
the Local Organizing Cee. Hereby enclosed you will find some guidelines and
recommendations which may help you for the planning of the Conference.

Please note that also in Europe there are many people interested in this topic.
Several names were suggested during the discussion in Bordeaux among which
J.H. van Bemmel (Rotterdam), R. Engelbrecht (München), A.B. Bakker (Leiden), R.
Hansen (Oslo), J.R. Scherrer (Geneva) and there must be many others. In my
opinion, the conference will attract many people.

I wish you success with your initiative and look forward to your further plans.

Sincerely Yours,

Prof. Dr. Jos L. WILLEMS
President of IMIA

cc. : Dr. Marion Ball
      Prof. Dr. R. Salamon

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July 5, 1991

Dr. Jos Willems
President, IMIA
Division of Medical Informatics
Univ. Hospital St. Rafael
35, Capucijnenvoer
B-3000 Leuven
Belgium

Dear Dr. Willems:

I am very much looking forward to working with IMIA on the Working Conference on the Health Professionals' Workstation. I am making substantial progress with fund raising and am planning to hold the conference in a May time frame in Washington, DC. I know that final approval must come at the IMIA Board meeting in November, but Marion Ball assures me that I should not slow down my planning and my organizational activities.

To that end, I have asked Dr. Mark Tuttle to prepare a festschrift about Dr. Marsden Blois for our conference dedication. Therefore, I respectfully request from you your help in finding internationally knowledgeable individuals who could participate on the program committee. I have asked the following individuals to participate on the program committee: Drs. Paul Tang (R&D for HP labs), Ted Shortliffe (Stanford) and Robert Esterhay (father of cancer information, PDQ). I would very much appreciate representation from Holland, Scandinavia, Switzerland, Belgium, Germany, Japan and possibly Korea and South Africa. Any other international contributions would be more than welcome.
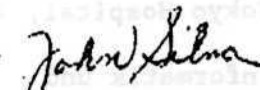
Dr. Jos Willems
July 5, 1991
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This meeting is also of great interest to the major computer companies in the world, and therefore, representation from Siemens, Phillips, some of the Japanese and other international firms would be most contributory.

I plan to attend the meeting on Hospital Information Systems in Gottingen where I also hope to meet individuals who could contribute to this working conference. I have consented to help Dr. Ball with the strategic planning initiative I understand you have underway.

I look forward to hearing from you.

Most sincerely,

John Silva, M.D.
Col, USAF, MC

JS/jhs

INTERNATIONAL MEDICAL INFORMATICS ASSOCIATION

Special Interest Group of the International Federation for Information Processing

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EC/JW/vd/91-328   Leuven, 30 juli 1991.
FAX : 1-301-328-8459

Dear Dr. Silva,

Upon the return from my vacation, I found your Fax dated July 5th, 1991.

I appreciate that you are working further on the organization of a Working
Conference on the "Health Professionals' Workstation".

I could recommend the following names as members of the Scientific Programme
Cee for your Conference :
Holland : Dr. Teun Timmers, Erasmus Universiteit, Faculteit Geneeskunde,
Medische Informatica, P.O. Box 1738, 3000 DR Rotterdam.
Japan : Prof. Dr. S. Kaihara, Hosp. Computer Center, Univ. of Tokyo Hospital, 7
Hongo, Bunkyo-ku, Tokyo 113.
Germany : Dr. R. Engelbrecht, MEDIS Institut für Medizinische Informatik und
Systemforschung, Ingolstädter Landstrasse 1, D-8042 Neuherberg.
Switzerland : Dr. R. Baud, Div. d'Informatique, Hopital Cantonal, CH-1211
Geneve 4.
Norway : Dr. R. Hansen, National Institute of Public Health, Geitmyrsveien 75,
N-0462 Oslo 4, Norway (Fax 47-2-353605).

Prof. Kaihara may not have the time to accept, but his coworker Associate
Professor Dr. T. Sakurai could eventually be proposed or another expert from
Japan.

I recently met in Kyoto Prof. Soung Hie Kim, Ph.D. from the Korea Advanced
Institute of Science and Technology, P.O. Box 150, Cheongryang-Ri, Seoul (Fax
02-962-8835) and Mladen Poluta from the Dep. of Biomedical Engineering, UCT
Medical School, Observatory 7925 in South-Africa (Tel. 021-47-1250 ext. 235).
I don't know whether they have expertise in Workstations, but you may ask.
Marion probably knows some more people in South-Africa.

I look forward seeing you in Goettingen and wish you further success for
setting up the Clinical Workstation Conference.

Sincerely Yours,

Jos L. WILLEMS, M.D.
President of IMIA

cc. : Marion Ball