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COMMITTEE ON THE PEACEFUL USES
OF OUTER SPACE
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5-14 June 2002
Agenda item 5
Implementation of the recommendations of the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III)

Report of the action team to implement recommendation no. 6, "Improve public health services"

Implementation of the recommendations of the Third United Nations Conference on The Exploration and Peaceful Uses of Outer Space (UNISPACE III)

Report and Action Plan (COPUOS 2002)

NOTE: The following progress report reviews the work of the action team 6 on tele-medicine, based on events/meetings that have occurred since the 39th session of the Scientific and Technical Subcommittee of 2002.

ACTION TEAM FOR RECOMMENDATION NO. 6 / TELEHEALTH To Improve Public Health Services by Expanding and Coordinating Space-based Services for Telemedicine	
State(s) leading the action team	Canada ***Note***: Canada is open to another country co-chairing or even chairing Action Team
Members	**States**: Argentina, Australia, Bulgaria, Cuba, France, Hungary, Iran, Iraq, Italy, Japan, Pakistan, Portugal, Saudi Arabia, Slovakia, South Africa, Syria, Turkey, United States **Organisations**: UN ESCAP, WHO, Manila Observatory, Philippine Astronomical Society
Objectives	Address the technological and organizational challenges associated with demonstrating the practical utility of space-based telemedicine for improving the organization and management of health care, particularly in developing countries.
Principal Products to be Delivered **see attached for more information	1. Develop an International Cardiovascular Disease Knowledge Management Network—a clinical decision support tool for cardiovascular disease.** 2. Host a global telemedicine UN conference for telemedicine specialists and interested government officials 3. Write a report on the status and potential of telemedicine world wide - Examine range of telemedicine initiatives worldwide - Identify most promising areas for implementation - Examine need for telemedicine, especially in developing countries - Propose steps and develop recommendations for decision makers ***Note***: While Canada is proposing to lead no. 1, it proposes that nos. 2 and 3 would be led by another country.
Work plan	Undertake cardiac network project in developing countries (2002-2004) Host global telemedicine UN conference (2003) Write and submit final report to COPUOS S&T (2004) Presentation of the annual progress report at UN conference (2005)
Activities undertaken since the 39th session of the STSC(2002)	• 1st Coordination meeting was held during the STSC of 2002, with the aim of discussing the work to be undertaken by this action team, and a specific proposal by Canada (cardio-vascular disease knowledge management network) • Based on recommendations received, the workplan was revised and re-submitted, enlarging the work of the action team to include the preparation of a report on the status and potential of telemedicine world-wide and a global conference on the topic (in 2003) • The chair of the action team participated in the CSA-CIDA (Canadian International Development Agency) conference held in Ottawa, Canada in May

	of 2002, and presented the Cariovascular project with the aim of raising awareness and seeking assistance from this development agency. • The second meeting of this action team took place on June 6th (during COPUOS 2002), to further discuss the work of the team and action plan. Participants included Argentina, Slovakia, Syria, and Turkey (and exchange of information with Bulgaria as they could not attend the meeting) Note: 2nd meeting of action team focused mainly on Cardiovascular network, as delegations present were not in a position (at this time) to volunteer to chair one of the other two actions. (namely, hosting a global conference on the issue and writing a report on status and potential of telemedicine worldwide). Chair re-iterated Canada's interest in having another member state undertake these two activities. • Several actions were identified to further the work of the cardiovascular network initiative, including establishing contacts with experts in the regions and contacting embassies located in Ottawa, Canada, to inform them of this project. Assuming a positive response to the project by the embassies, we would seek their assistance for submitting this project to CIDA (Canadian International Development Agency) to seek financial support, in addition to considering other funding sources.
Measures taken to encourage participation of NGEs	Under consideration

Action Item No. 6:

An International Cardiovascular Disease Knowledge Management Network

Vienna Declaration: Section I, Paragraph II, Subparagraph a: Using space applications for human security, development and welfare

(a) To improve public health services by expanding and coordinating space-based services for telemedicine and for controlling infectious diseases.

Definition of Problem:

There is currently no *internationally standardized database, network or decision support tool* for cardiovascular disease. Cardiovascular disease is not only a North American phenomenon, but is far too common in developing countries as well and is becoming an emerging problem of developing world and an impediment to development. The underlying causes of the disease are the same regardless of geographical and cultural differences. These causes—which are due to diet, behavior, and life style factors such as smoking, alcoholism, and hypertension—are prevalent in countries as diverse as Bulgaria, Canada, Portugal, Kazakhstan and Pakistan that have high premature cardiac death rates.

Proposed Solution:

Develop an International Cardiovascular Disease Knowledge Management Network for helping medical authorities to assess, monitor, diagnose, prevent, and treat cardiovascular disease—a clinical decision support tool for cardiovascular disease.

Medical authorities in developed and developing countries alike would benefit greatly from an internationally-standardized clinical cardiovascular repository database that would enable them to adopt and implement cost-effective treatments for their cardiac patients. The specific solutions and outcomes of the project would be the following:

- Assist medical authorities in participating countries in capturing the socio-demographic information and the clinical data of cardiac patients using telemedicine techniques. The objective is to establish the most cost-effective method and protocol to treat their patients, to prepare and implement health policies related to cardiac disease, and to adopt preventive strategies to minimize the incidence of the disease.

- Establish an international cardiac disease management model to facilitate cardiac clinical knowledge management and research by developing an internationally standardized clinical database linking low cost telemedicine platforms over telematic networks to capture and catalogue epidemiological data covering socio-demographic factors, clinical data, and treatment outcomes for cardiac disease.

- Demonstrate the practical utility of telemedicine technologies for assessing, monitoring, diagnosing, preventing, and treating cardiovascular disease, particularly in developing countries.

Rationale and Description:

The importance and power of information management and information technology are well known. Gone are the days when developing and maintaining health information systems was considered simply to be an administrative support tool for tracking day- to-day activities within health care institutions. Today, health information systems are an integral – and increasingly important – component of a nation's health management strategies. Unfortunately, health

systems in most countries lack the needed information and information exchange that would help them realize the benefits of being part of the information age.

The standard minimum cardiovascular data set of the project, which has been adopted in the Canadian Province of Ontario and elsewhere, will allow for the creation of an international cardiovascular data warehouse. This data warehouse will enable clinicians, health services researchers, health care planners and health care policy makers to establish cost effective clinical protocols for cardiovascular disease management and treatment, for disease trending and surveillance, and for global cardiac disease prevention and planning.

This project will leverage the success of the regional cardiovascular clinical database developed at the University of Ottawa Heart Institute and the Institute's success of developing the National Nutrition Guideline for Hungary. It is important to emphasize that the project will aim to do more than create an international database. It will also develop standards for the telecommunications protocols which will enable interoperability, and for privacy and security, which will be submitted to the International Telecommunications Union (ITU) and to the World Health Organisation (WHO) for ratification. Moreover, the database will be researched to derive information, which in turn will create knowledge regarding successful procedures, to be disseminated widely. Once again we propose to do this in conjunction with WHO. And finally, since most Internet trunks serving the developing world are carried by satellite, and since that medium has specific issues when transporting Internet Protocol (IP), the proposal will utilize satellite telecommunications extensively.

The project will provide the partners with a secure cardiac clinical data repository database over virtual private networks on the Internet for their cardiac patient data. A secure public key infrastructure, which is currently employed by the University of Ottawa Heart Institute, will be deployed to the partners, so that the patient information security and confidentiality will not be compromised. On-line data analysis tools will also be available to all the participating partners.

Participating countries will be encouraged to link up with the University of Ottawa Heart Institute using the telemedicine facility over Internet for medical discussion and medical rounds, and even for patient consultation. At present, the University of Ottawa Heart Institute has established a standardized assessment and treatment protocol for hypertensive patients with Slovakia and Hungary. The outcomes of using the protocol have been proven to be cost effective for treating cardiac patients in that region. It is anticipated this standard protocol can be applied to similar socio-economic environments.

Communications Links for Cardiovascular Disease Knowledge Management Network.

The network will use Internet Protocol (IP) transport, as World Wide Web enabled interfaces will be required in order to make the system user friendly. Throughout much of the developing world the terrestrial infrastructure is inadequate, and so the Internet Service Provider (ISP) contracts for a satellite connection for the international Internet trunk. Furthermore it is expected that much of the community of interest will not have any access to domestic Internet service, and so a dedicated circuit must be supplied. As mentioned above, due to poor terrestrial infrastructure, this must often be a satellite delivered connection.

There are specific limitations with IP transport over satellite or terrestrial wireless channels, which tend to have burst noise characteristics. Satellite circuits also have long delays relative to most terrestrial circuits. Although they are not insurmountable, those limitations must be addressed in the overall system design, including the protocols used in the higher layers of the OSI model.

Since satellite delivery must be used to achieve the objective of making project outcomes universally accessible, and since there are satellite specific issues to be considered, satellite delivery would be used extensively for this project.