

MEDICAL PHYSICS WORLD

Bulletin of the International Organization for Medical Physics

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Vice-President's Report



Azam Niroomand-Rad, Ph.D.

As you may know, at the WC 2000 in Chicago the International Union for Physical and Engineering Sciences in Medicine (IUPESM) General Assembly voted on site selection for WC 2006 in favor of Lausanne for the European consortium (Swiss+UK+Germany).

However, this decision was appealed by Korea on the basis of procedural errors, namely the IUPESM Congress Coordinating Committee (CCC) violated its own procedures during the solicitation of bids and during the selection process. Therefore, the IUPESM Administrative Council (AC) was obligated to act on the appeal. After an extensive debate and an examination of facts, in the July 28 meeting, the AC voted that the Korean appeal had sufficient merit to warrant a re-vote. The AC decision was later challenged by Dr. Robert Neilson, General Secretary of the Institute of Physics and Engineering in Medicine questioning the validity of the AC proceedings during the July 28 meeting of AC in Chicago. Due to the sensitivity of the issue and the ambiguity of the statutes, at the end of March 31, the AC made two important decisions as outlined below:

- The first decision was to rescind ALL motions and votes taken during the AC meeting on July 28 and re-deliberate all issues in a virtual meeting of the AC.
- The second decision was that, in the event the AC was to recommend a re-vote of the 2006 World Congress site selection, there would first be a request to the General Assembly to approve the Council's recommendation before a re-vote is taken.

The approval of the appeal by Korea in the virtual meeting of the AC was based on a number of factors. Following is taken from a report submitted by Dov Jeron, Chair of IUPESM CCC:

The most important included procedural errors caused by:

- repeated changes to deadlines that were made by the Congress Coordinating Committee (CCC);
- the failure to consult the Administrative Council for approval of these changes;
- errors in handling conflicting proposals;
- the acceptance by the CCC on May 31 of a preliminary proposal from Switzerland which lacked endorsement from one of the 3 countries listed in the proposal;

- the receipt of the final complete proposal from Switzerland — having official endorsement from all 3 consortium members — very late in the process; and
- the lack of critical review of this proposal.

A summary of the sequence of events, highlighting the errors and the irregularities in the procedure of the Congress Coordinating Committee follows.

- **January 1, 2000**, letters of intent from prospective hosts due. (This deadline was later extended by the CCC to **February 7**). Letters of intent were received by the extended deadline from Germany, Hong Kong, Israel, Korea, Switzerland and the United Kingdom. All letters proposed to host the 2006 World Congress as **single countries**.
- **February 11, 2000**, Switzerland requested approval to submit a proposal which would include neighboring countries.

No mention was made at that time as to which neighboring countries were to be included. A new extension of the deadline was made to accommodate this proposal.

- **March, 2000**, based on the letters of intent which were received in February, the CCC invited Germany, Hong Kong, Israel, Korea, Switzerland and the United Kingdom to submit preliminary proposals by May 31, 2000 for review by the CCC (precise date of invitation unclear due to CCC chairman's hard disk crash).

The purpose of reviewing preliminary proposals by the CCC is to request an explanation of any unclear issues and ask for revisions of unacceptable details in the proposal.

- **May 31, 2000**, preliminary proposals received from Germany, Hong Kong, Korea and Switzerland.

- The preliminary proposal from Germany was to host the 2006 in Nuremberg as a **single country** under the auspices of the German Biomedical Engineering and Medical Physics societies.

- The preliminary proposal from Switzerland listed Switzerland, Germany and the UK as host organizations. This bid was submitted **on the same date** that Germany submitted a preliminary proposal to host the Congress as a single country. However, on the day of its submission, the **Swiss proposal did not have approval from the German societies** to be included in the joint proposal.

- The preliminary proposal from Switzerland was to have the World Congress held in Lausanne

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but had no clear role for the other European partners. In addition, the proposal body included the following statement:

“... Pre- and post-meetings planned in United Kingdom and Germany.”

- The preliminary proposal from Switzerland was, in addition, accompanied by the following note: “... as an attachment you find the document of the joint bid of Switzerland, United Kingdom, and Germany. On June 13, there will be a meeting in Frankfurt, organized by EFOMP (Prof. Nuesslin) to find hopefully a solution for a single bid from Europe...”

- The CCC did not request additional information or receive clarification regarding the conflict between the proposal from Germany and the Swiss proposal. The German proposal was never officially withdrawn from consideration.

- **June 1, 2000**, Preliminary proposal received from Hong Kong
- **June 7, 2000**, Preliminary proposal received from Israel (Delay approved by the CCC)
- **June 13, 2000**, the first meeting of the European consortium committee was held to negotiate an agreement between the consortium mem-

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International Medical Physics for the 21st Century

Gary D. Fullerton, PhD, Secretary General IOMP

Abstract

Medical physics as a recognizable specialty has existed since the middle of the 20th century. At that time several of the national medical physics societies in North America and Europe evolved from the medical specialties that had originally sought their assistance. Soon after this there was an effort to draw together medical physics specialists from across the world to more effectively and efficiently initiate the process of integrating radiation therapy and diagnostic imaging devices from physics into medicine. The initial meeting involved representatives from only a handful of countries primarily from Europe and North America. Those few formed the International Organization of Medical Physics in 1963 with the intent of extending the benefits of medical physics to others countries as rapidly as possible. At the beginning of the 21st century the IOMP now has more than 70 member nations, corporate members, allied international organizations and membership in the International Council for Science to assist in achieving the original goals of incorporation. The newest among the regional chapters are the chapters from Asia and South East Asia. This talk will discuss the programs of IOMP in the areas of science, professional relations, education and training with the intent of making these programs and international assistance more available in the region.

Introduction

The history of medical physics is quite short relative to that of most recognized academic and professional specialties. The rapid growth of the specialty in the USA and other parts of the world in the latter half of the 20th century was explosive. The American Association of Physicists in Medicine (AAPM) was formed in 1958 with less than 100 members and now has more than 4600. This is one of the fastest growing components of the American Institute of Physics. The International Organization of Medical Physics (IOMP) formed in the late 50s and early 60s through the cooperation of medical physicists from the UK, Sweden, Canada and the USA that resulted in the official organization of IOMP starting on January 1, 1963. In the last half of the 20th century more than 66 additional national members joined the original 4 nations to give greater than 70 national members. The IOMP now represents 16,000 medical physicists on all continents of the globe with the exception of Antarctica. The purpose of this talk is to review this rapid growth to identify the factors that have caused it, identify the role of international cooperation in continuing development and identify those programs that can more rapidly lead to improved applications of physics in medicine.

Foundations of Medical Physics

The study of medicine and physics were intertwined through much of the past 500 years but it was only with the discovery of radiation that this relationship became irreversibly linked to support the profession of medical physics. The most important physics discovery in support of medical physics occurred in November 1895 in Wurzburg, Germany. As shown in **Figure 1** this discovery occurred in a very typical university physics laboratory where Wilhelm Roentgen was studying Crookes rays and inadvertently stumbled on an unknown radiation or X-rays. He quickly noted that X-rays had potential for application to medicine by producing images such as the one shown in **Figure 2**. Physicists around the world were soon involved in patient examination for both fun and patient benefit (eventually). The specialty of medical physics was born though it would be many decades before such specialists organized themselves to represent their new field.

The discovery of natural radioactivity by Marie and Pierre Curie in 1896 provided the second pillar of support for medical physics but this was only the beginning. A continuing series of discoveries and devices transferred radiation from the physics laboratory to the hospital to create specialties such as radiology, nuclear medicine and radiation oncology. A device of contemporary interest is the cyclotron particle accelerator shown in **Figure 3** that is just now entering hospitals as an on-site source of positron emitters for PET imaging. These are examples of the many radiation physics inventions and discoveries that are transforming the

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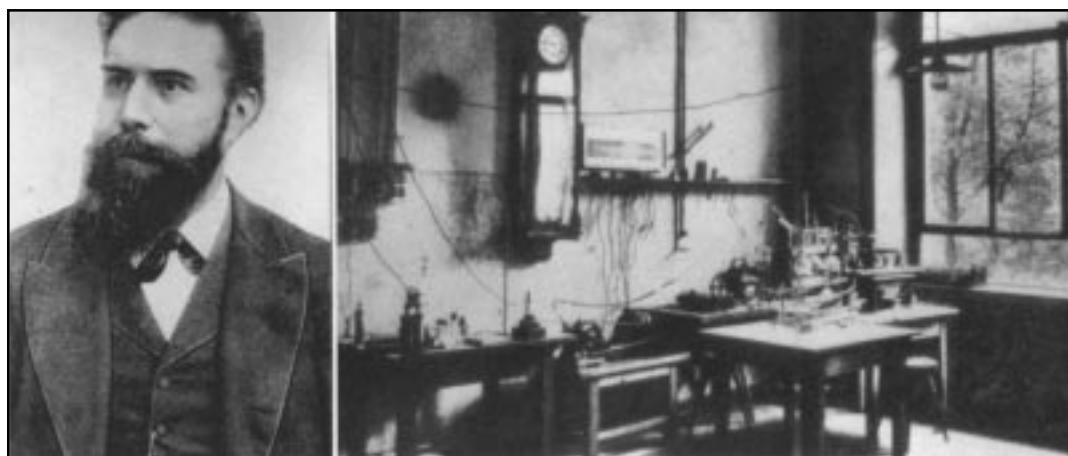


Figure 1. In November 1895 Professor Wilhelm Roentgen was conducting experiments in this laboratory with a Crooke's tube supplied by the Siemens Company when he observed scintillations of a phosphor at some distance from the tube. He correctly attributed these scintillations to an as yet unidentified radiation, which he referred to as unknown or x-radiation.



Figure 2. The famous radiograph from Roentgen's laboratory in 1895 made it's way quickly around the world and by 1896 many physicists were working with medical colleagues to diagnosis the character of broken bones as is shown here in the physics laboratory at Dartmouth College in the USA. The profession of medical physics was born though it would be nearly a half-century before such specialists identified themselves and formed medical physics societies to enhance and enable their work in medicine.



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International Medical Physics

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practice of medicine. Physicists accompanied these devices and procedures to provide expert consultation on the physical properties and behavior of the instruments in clinical practice. The most well known of recent applications are nuclear magnetic resonance (NMR), magnetic resonance imaging (MRI), position emission tomography (PET), ultrasound imaging (US), linear accelerators (LINACs) for radiation oncology and ultrasound lithotripsy (USL) among many others. Safe and effective use requires well-educated physics specialists with medical education to develop and maintain the system use in clinical practice. The point of this brief review is to note that the physics to medicine transfer rate is increasing. Simultaneously clinical medicine is becoming more elevated and homoge-

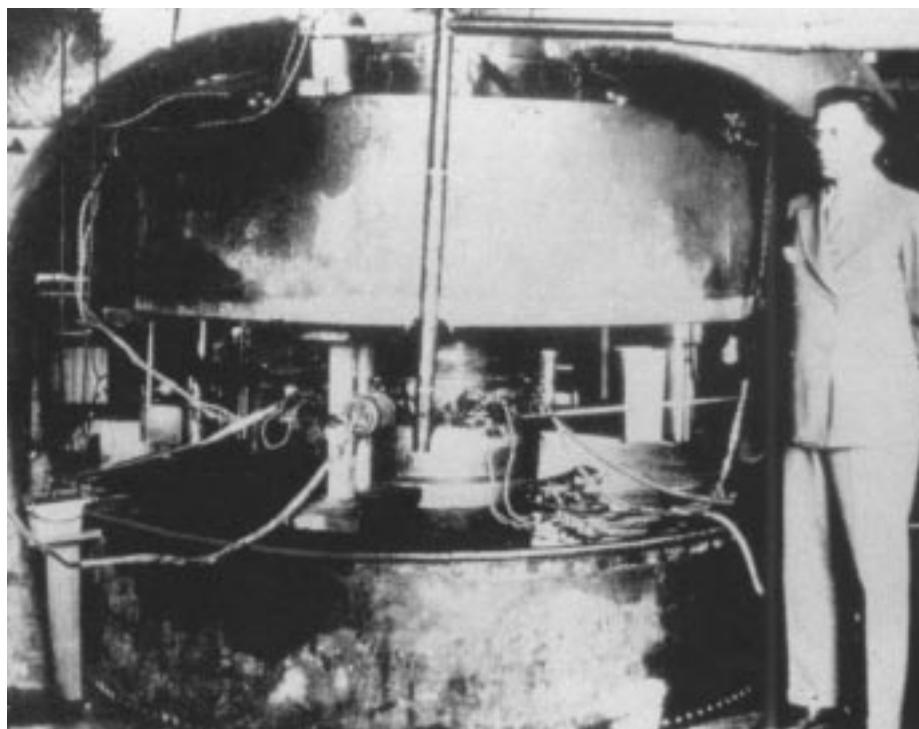


Figure 3. In this photograph from the laboratory of E. O. Lawrence in 1933 we see the first cyclotron that is the direct progenitor of all medical cyclotrons now in hospitals to produce positron emitters for positron emission tomography (PET) imaging.

neous around the world. There is need for international cooperation to assure medical physics support is sufficient to assure successful implementation in all countries. This is the goal of the International Organization of Medical Physics.

The International Organization of Medical Physics (IOMP)

The goal of the IOMP is spelled out in the opening section of the Statutes:

1. The objectives of the International Organization for Medical Physics are:
 - (a) To organize international cooperation in medical physics and to promote communication between the various branches of medical physics and allied subjects.
 - (b) To contribute to the advancement of medical physics in all its aspects.
 - (c) To advise on the formation of national organizations of medical physics in those countries which lack such organizations, and also the possible formation of national committees in those countries where there is more than one medical physics organization.

To achieve these goals the IOMP uses a wide variety of tools and organizations. The most important of these are the triennial World Congress on Medical Physics and Biomedical Engineering and the publications Medical Physics World and Electronic Medical Physics World. More recently IOMP has added an Awards Committee, Publications Committee, Science Committee, Education and Training Committee and a Professional Relations Committee. Each of these Committees has a budget to support and sponsor regional conferences and meetings such as the meeting in Kuala Lumpur.

The IOMP also initiated a program at Chicago2000 to promote regional collaboration on medical physics meetings and projects. IOMP is promoting this cooperation by forming the International Advisory Council with representatives from all regional chapters of the association as well as representatives of international organizations with similar interests such as the International Atomic Energy Agency, World Health Organization, Pan American Health Organization and United Nations. The purpose of this council is to promote improved distribution of educational resources and improved scheduling of events.

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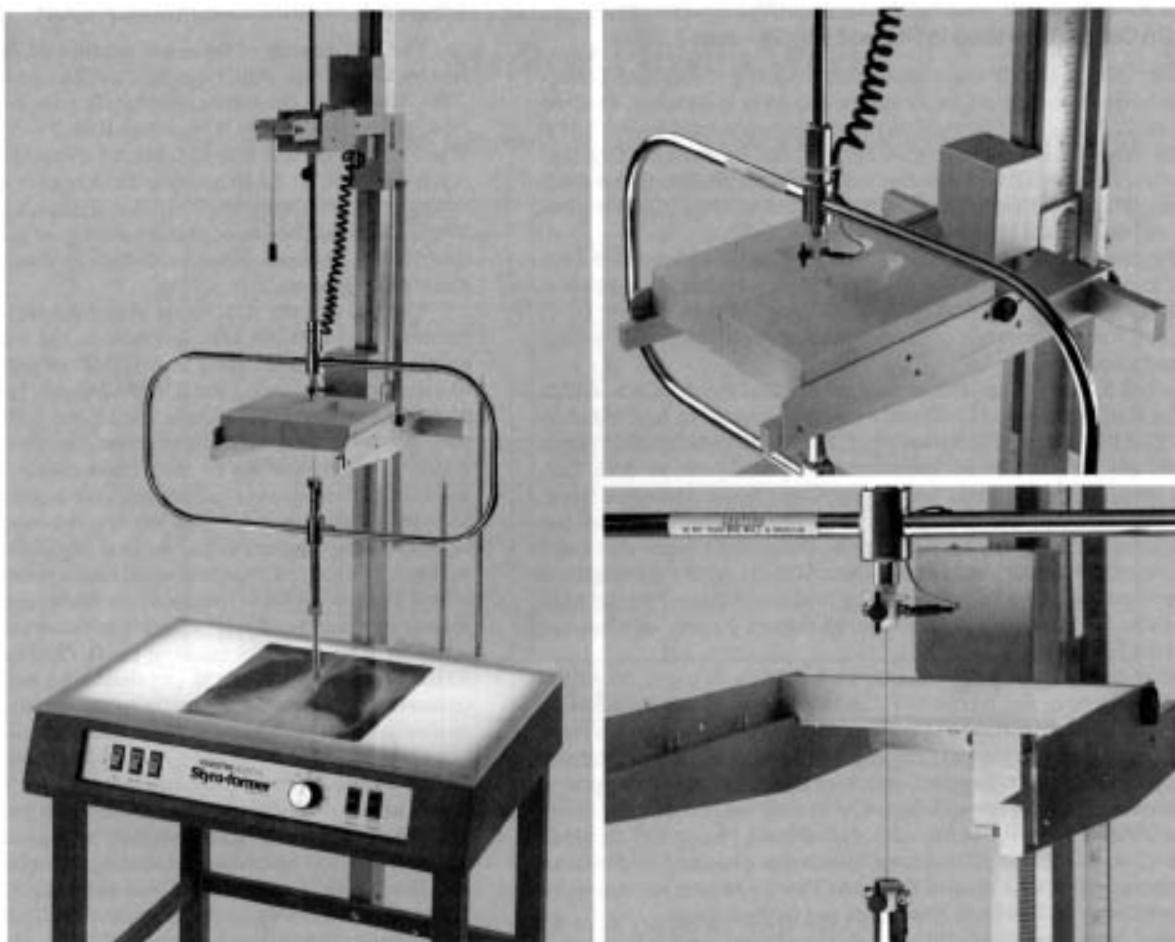
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Report of the IOMP Professional Relations Committee (Term 2000-2003)

INTRODUCTION

The charge of the IOMP Professional Relations Committee (PRC) is to improve medical physics worldwide by providing systematized knowledge concerning clinical training, standards of practice, personnel resources and physical resources necessary to provide quality services in areas of clinical medical physics. The committee promotes research and documentation to determine the nature and principles of professional conduct necessary to assure quality patient care and put such information in a useful form for all countries, especially developing countries.

PRC MEMBERS

The membership of PRC consists primarily of regional representatives as follows :

Dr. Stelios Christofides, Chairperson of PRC (Middle East), Ms Mariana de Cabrejas (South& Central America), Dr. Kwan-Hoong Ng (South East Asia & Far East), Dr. Abdus S. Mollah (Indian Subcontinent & Surrounding countries), Dr. Marta Radwanska (Eastern Europe), Dr Habib Zaidi (Northern Africa), Dr. Wynand Strydom (Central & Southern Africa), Dr. John Coles (Australasia), Dr. Raymond Wu (North America), Dr. David Thwaites (European Union Countries), Mr. Mohammed Zaidi (Communications and Equipment Exchange Program), Dr. Marilyn Stovall (IOMP Libraries Program).

Currently, the post of Vice Chairperson/Secretary and the Post of the Twinning Program are vacant.

CURRENT ACTIVITIES

The following briefly describe the current activities of the PRC :

- 1. Communications and Equipment Exchange Program.** This is the most active of the PRC's programs thanks to the efforts of Mr Mohammed Zaidi. An account of the activities of this program is given separately in this issue.
- 2. IOMP Libraries Program.** Dr. Marilyn Stovall has also been very active pursuing this important program. An account of the status of this program is reported separately in this issue.
- 3. Twinning Program.** The purpose of the establishment of this program was to bring in touch medical physicists from developing countries with their colleagues from developed countries in order to assist them with the day-to-day problems, give advice on certain issues, etc. The program has not made any progress so far due to the vacancy of this Position. There is a definite need for this type of collaboration and special efforts are made to identify people who will be willing to get the program started again.
- 4. Medical Physicist Classification Task Group.** The issue to persuade the International Labour Organization to include the profession of the Medical Physicist in its classification of job descriptions is a long-standing issue of the IOMP. For this reason it was felt necessary to establish under the PRC a special Task Group to continue these efforts. The Task Group consists of Dr. Peter Inia (Chairperson), Dr. Colin Orton, Dr. Pedro Andreo, Dr. Cari Borras, Dr. Carlos de Almeida, Dr. Kwan-Hoong Ng, Dr. Wynand Strydom, Gary Fullerton and Dr. Stelios Christofides.
- 5. Task Group on Patient Safety.** After a publication in an AAPM newsletter which mentioned that more than 50.000 patients die in the USA every year due to mistakes by Medical and paramedical professionals, the President of IOMP has requested that a task group be formed under the PRC to investigate the problem and to recommend ways to minimize these errors from the Medical Physicist point of view. The Task Group consists of Dr. Stelios Christofides, Ms Mariana de Cabrejas and Dr. Louis Wagner.
- 6. Other Activities.** At the last meeting of the PRC, which was held in Chicago in July 2000, the problem faced by affiliated associations from developing countries in setting up their own Accreditation Body was identified. The PRC is currently investigating ways, which may assist in solving this problem.

A physician from Pakistan was sponsored to attend an International Union Against Cancer (UICC) training in the USA for three months. The training

includes research techniques, advance expertise in clinical management as well as diagnostic and therapeutic skills.

Furthermore, the PRC was asked recently by the IOMP Executive Board to review the Bylaws that govern the waiving of IOMP fees, where applicable, for affiliated associations from developing countries

CONCLUSIONS

The progress of the PRC activities is slow due to the distance and time difference that separates its members.

Communication and information exchange between the PRC members, although done exclusively through email, is rather slow. A slow, but positive progress is made in all of the above-mentioned activities.

By the next issue of the MPW, I will be in a position to give a more detail report on the above activities.

*Stelios Christofides, Ph.D., IOMP PRC Chairperson
Head, Medical Physics Department
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Treasurer's Report

The request for Annual Subscriptions went out to 72 National members in December 2000. As of 23 March 2001, 16 of 72 countries have renewed their subscriptions which amounts to US\$ 16653.50. We hope to receive additional subscriptions from other national members soon. The solicitation letters were also sent out to 97 Corporate members (or potential members) in January 2001 and to date, we have received only 3 company renewals. Thanks for BICRON, CAPINTEC, INC. and LANDAUER, INC.'s support.

Since there are so few responses, we will have to make a substantial effort to raise funding for IOMP. The IOMP Finance Committee has been assigned the duty of rebuilding the character of our relationship to Corporate Members. The IOMP Finance Committee is planning to create a program that would be more productive for Corporate Members in the future.

A brief description of Corporate Membership Benefits Include:

Present:

- First the Corporate Members are listed on the IOMP web-site <http://www.iomp.org> . Please look at the Corporate Members page. This listing provides a link to an IOMP maintained list as well as a direct link to each company's web-site.
- There is a discount on ads published in MPW and Corporate members are listed in MPW.
- Both mechanisms give access to the approximately 16,000 medical physics members of IOMP.
- The IOMP provides the Corporate Members and delegates with regular e-mail updates on IOMP sponsored and endorsed events to make it possible to determine the best international meetings at which to show materials or arrange for the participation of a foreign representative. (See list of events on the web page.)

Future:

- We are presently negotiating permission to provide the 6000 names and addresses for the World Congress on mailing labels to IOMP Corporate members.
- IOMP is working on increasing the significance of regional meetings in Asia, Latin America and Europe using co-sponsorship of the IOMP Regional Chapters.
- IOMP is planning to form a Corporate Council to work on the problems of assuring that the latest and best medical physics equipment is available to all our members in more than 70 countries.

The support system for Corporate Members needs more work and the Finance Committee is doing the planning as we speak.

Let us know if you have any suggestion for improving the program and making it more responsive to Corporate member needs.

*Nisakorn Manatrkul, M.Sc.
Treasurer IOMP*

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Status AAPM/IOMP Libraries – April 2, 2001

We currently have 86 active libraries in 51 countries. Since last quarter, one donation has been completed and 2 are in progress. Another donation has been matched to the appropriate library and we are awaiting confirmation of shipment.

Our contact at IOPP is Julia Tancock, who coordinates donations of books to new and existing libraries; all new libraries receive at least five books from IOPP. Kathy Burroughs at AAPM coordinates the donations of Medical Physics journal subscriptions. We sent her current addresses for the 31 libraries to whom AAPM members donated their 2001 subscriptions to Medical Physics. The Society for Radiological Protection has mailed the first quarterly publication for 2001, The Journal of Radiological Protection, to all active libraries.

We are enhancing the libraries' access to information by means of the Internet and CD-ROMs. In December, we sent seasons greetings accompanied by 3 CDs to all active libraries. Two CDs contained information from the ASTRO 2000 meeting in Boston, MA. Another CD contained the complete text of Medical Physics since 1996, in addition to abstracts for the years 1975-96. The CDs were donated by the American Society for Therapeutic Radiology & Oncology and The American Association of Physicists in Medicine.

Twenty-two libraries have returned the update questionnaire sent in October 2000. A follow-up to the non-responding libraries will be sent soon.

Anyone wishing to donate materials or establish a library is asked to contact the curator.

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Donation of Used Equipment – PRC Report for January-June 2001

A Siemen's Mevatron is being shipped in May-June time frame to Jawahar Lal Nehru Cancer Hospital and Research Center, Bhopal, India. The no objection certificate has been obtained and the local Siemens' has agreed to install and service the machine.

Theratronic Theraplan 300 Treatment planning system very kindly donated by Radiological Associates of Sacramento (Mercy San Juan Radiation Oncology Center, Carmichael, California) reached Jawahar Lal Nehru Cancer Hospital and Research Center, Bhopal, India.

A used block cutter donated by Huestis Corporation has reached Pakistan. It is being donated to University of Peshawar, Institute of Radiotherapy and Nuclear Medicine (IRNUM), University Campus, Peshawar, Pakistan.

Plans are being developed to ship a Co-60 machine to Syria or Egypt.

Two Victoreen r-meters 70 and 570, donated by Kenneth J. Kopecky, MS, DABR from Edison, NJ were given to Idaho State University for their health physics laboratory.

Equipment available:

Two Mevatron, Co-60 machine (2 Theratronic and a Picker C-9), Victoreen r-meters (3).

Equipment needed:

Block cutter, Film dosimeter, radiation field analyzer, rectal monitor, cavity chamber, TLD readers, ultrasound system with sectorial transducer, surgical aspiration system, gastroscope, cardiotocograph and micro-analyzer for blood, urine and biochemistry analysis.

Joint-venture proposal from India:

"We need support from IOMP to develop a Radiation oncology center in India, even if there is any institution or individual who would be interested to donate equipment we can tie up with such institution/ individual and give them their name eg Indo-US joint venture." They need a used cobalt 60, mammography unit and a gamma camera. For information contact Mohammed K. Zaid.

The equipment available is in good working condition. The recipient has to pay for shipping and handling only. If you want to donate used equipment to IOMP or want some equipment donated to your organization, please contact me at 208-526-2132, Fax 208-526-2548 or e.mail zaidimk@id.doe.gov

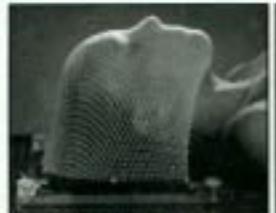
Report from the Education and Training Committee (ETC)

There were several important events supported by the Education and Training Committee between the period September 2000 - March 2001. The first activity - an International Seminar and Workshops on Medical Physics Training in Prague, Czech Rep. is discussed in more detail elsewhere in this MPW issue. Further, three other activities were approved for IOMP co-sponsoring. These are: Seminar on Medical Physics Training and Education, satellite to the 1st Euro-Asian Congress "Medical Physics 2001" in Moscow, Russia; Medical Physics Workshop "Continuous Quality Improvement in Medical Imaging and Radiation Therapy" in Kuala Lumpur, Malaysia; European Short Course "Quality Assurance in Contemporary Imaging and Radiotherapy" satellite to the European Congress on Medical Physics and Engineering, Belfast, Ireland, UK. Three other activities were approved by ETC as IOMP endorsed activities - in Tehran and Sofia (reported in the previous MPW) and in Lisbon, Portugal, November 2000. The last activity - a Conference on Medical Radiation Physics and Engineering, developed as an important meeting for the region, covering both education/training and scientific issues. ETC has also agreed on its future plans for work and development, including an extension of the ETC Web space. Further to the list of new members of ETC (published in the previous MPW), Amparo Marles, PhD was approved as Secretary of the Committee. Last but not least, ETC would like to encourage all colleagues running Medical Physics courses to submit these for the enclosure to Global Directory of Graduate Education Programs.

*Slavik Tabakov, PhD
Chairman ETC*

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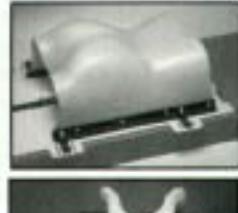
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International Seminar and Workshops on Medical Physics Training with EMERALD

Professional training in Medical Physics is of extreme importance for contemporary healthcare. Normally the training begins immediately after the graduation (MSc) and extends from 6 to 24 months (depending on the country and subject). However just a few training schemes exist and their development and introduction is of variable quality. Aiming to harmonize these initiatives, a special project has been developed by a Consortium of Universities and Hospitals from the UK, Sweden, Italy and Portugal. The name of the project (supported by the EC Leonardo program) is EMERALD - an acronym of European Medical Radiation Learning Development. From 1996 to 1998 the project has developed three structured Training Modules in medical radiation physics (X-ray Diagnostic Radiology, Nuclear Medicine, Radiotherapy).

The EMERALD modules have been now acquired by trainers and academics in more than 35 countries. In an attempt to further disseminate these training results in Central and Eastern Europe, the EMERALD Consortium organized a special Seminar in Prague (Czech Republic) from 2 to 5 September 2000. This activity was co-sponsored by the IOMP (through the Education and Training Committee). The event was attended by invited specialists and senior representatives from Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Russian Federation, Slovak Republic, Ukraine. Host of the Seminar was the Czech Technical University in Prague, and the Organizing Committee included F. Milano (Florence Univ.), L. Musilek (Czech Technical Univ.), S. Tabakov (King's College London).

The first part of the Seminar was aimed towards the assessment of the status and needs of Medical Physics Education and Training in Central and Eastern Europe. Each country presented a report on the subject, followed by discussions. The President of the European Federation of Organizations for Medical Physics (EFOMP) Dr Inger-Lena Lamm and the Chairman of the Education and Training Committee of IOMP Dr Slavik Tabakov presented to the delegates the requirements and standards for Medical Physics training. Prof. Colin Roberts presented the UK experience with the IPEM Training scheme. All these reports will soon be available as electronic publications.

The second part of the Seminar focused on the EMERALD training scheme and its use. Each EMERALD Training Module encompasses the physics

(and elements of engineering) of the topic and consists of a Workbook with tasks, leading to certain competencies (correlated with the IPEM Training scheme) and a CD-ROM image database (IDB). There are various types of tasks in the Workbooks. These include understanding the basic characteristics and parameters of equipment; using existing regulations, protocols and software; using various types of measuring equipment; dosimetry in medical radiation physics; performing measurements, collecting results and calculating parameters; assessment (QC) of various types of equipment, etc. The three volumes of training materials and the Course Guide (for the training supervisor) runs to 700 pages. The IDB includes some 1400 images of radiological equipment and its components; block diagrams and performance parameters, graphs, waveforms; QA procedures and measuring equipment: test objects and image quality examples as well as typical images and artifacts, etc. The EMERALD Training Scheme is aimed at young graduates entering the field and each module is structured to cover 4 months with the expectation that this core training will be supplemented at each location in which it is used to suit local needs.

The last part of the EMERALD Seminar included 3 parallel Workshops (each repeated 3 times). The aim of the workshop was to discuss in detail each of the three Training Modules (X-ray Diagnostic Radiology, Nuclear Medicine, Radiotherapy). A full set of Training materials were prepared for each delegate, in order to help further dissemination and development of the Medical Physics training in Central and Eastern Europe. The Seminar concluded with a discussion, which revealed the importance and necessity of the event. Special gratitude was expressed to the EMERALD Consortium and IOMP Education and Training Committee. The delegates signed a Declaration of Intent and formed a large hub in the EMERALD Network. A full list of this Network is available at the EMERALD Web-site, www.emerald2.net. The site also includes an Open Discussion Forum, which together with the Network, will help the development of Medical Physics Education and Training.

Slavik Tabakov, Ladislav Musilek, Franco Milano

A Report on Medical Physics Seminar/Workshop in Dhaka, 5-10 December 1999

The task group of DGMP "Medical Physics in Developing Countries" has held a one-week Seminar/Workshop in Dhaka on Medical Physics together with the physics department of the *Bangladesh University of Engineering and Technology* (BUET) in the years 1996, 1997 and 1998. As a result of these seminars and of the exchange of experiences with the German colleagues, and especially because of the efforts of the Bangladeshi colleagues the *Bangladesh Medical Physics Association* (BMPA) could be founded in July 1998 (President: Prof. Gias-uddin Ahmad). BMPA with its 40 foundation members (now about 60) has now become a member of the IOMP. The BMPA will be the basis of the further development of Medical Physics in Bangladesh and will make further international co-operation easier being an official partner.

The Bangladeshi organizers have for the first time organized independently a Seminar/ Workshop in Dhaka titled *Medical Physics in Radiotherapy and Nuclear Medicine* from 05.12. to 10.12.1999. Supported by UNESCO, the seminar had an international character. This year, apart from me, also Dr. K.-H. Hoever and Prof. U. Quast of Germany had come repeatedly. For the first time Dr. Gfirtner and Mr J. Drewes joined the seminar. Participants from the USA were Ms Prof. A. Niroomand-Rad and Dr. S. Huq. From India Dr. M. M. Rehani was present. The organizers in residence were among others Dr. Ahmad, Dr. J. Poddar and Dr. S. R. Husain .

The seminar was opened on December 5th at 9:30 a.m. in the conference room of BUET by Prof. Ahmad. The guest of honour, Prof. Nooruddin Ahmed,

the chancellor of BUET, stressed the necessity of international co-operation during his speech and gave his thanks to the foreign scientists. At noon the workshop started as planned. About 60 persons from all over Bangladesh had registered for the one-week workshop. Noticeable was the large number of young physicists and radiation-oncologists. One third of the participants were women. During the seminar days in Dhaka a broad spectra of medical physics knowledge was transmitted. Topics ranged from x-ray diagnosis, nuclear medicine, radiotherapy and radiation protection to special topics like vascular brachytherapy. Like last year we used the rooms for radiotherapy of the Delta Medical Centre Ltd on the work free day of the week (10.12.) for practical lessons. So we had a cobalt-therapy-machine at our service. The dosimetric devices were used that we had brought from Germany two years ago. We practised the method of small working groups. This enabled us to practice an intensive and individual teaching of all participants. On 10th December 1999 the Seminar/Workshop was concluded with a final function.

This report shows ways of co-operation between a developed and a developing country. It is not possible for DGMP or any other scientific organisation to find a solution for every problem of a developing country. But our activities in Bangladesh show that it is vital to support the intensive internal efforts of these countries by specific detailed external help for self-help.

Golam Abu Zakaria, Ph.D.
Gummersbach/Germany, October 2000

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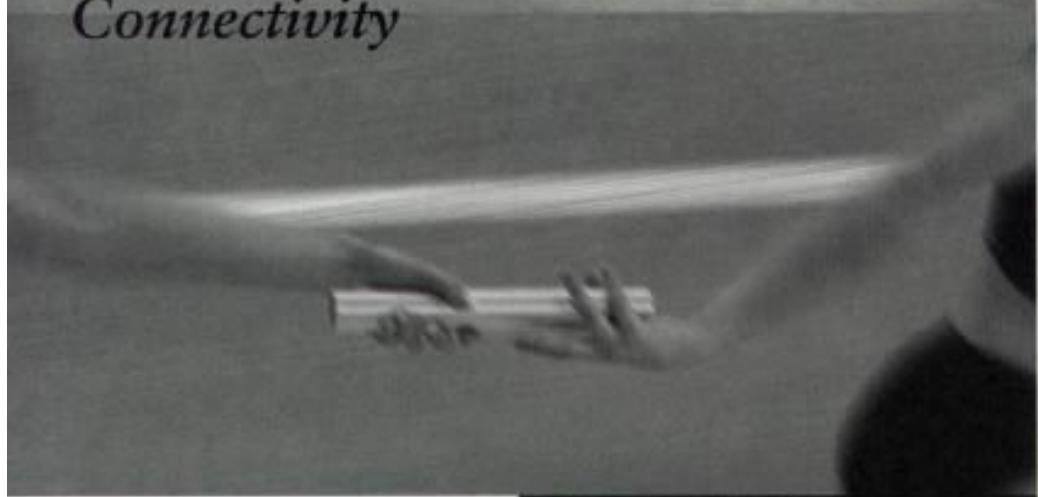
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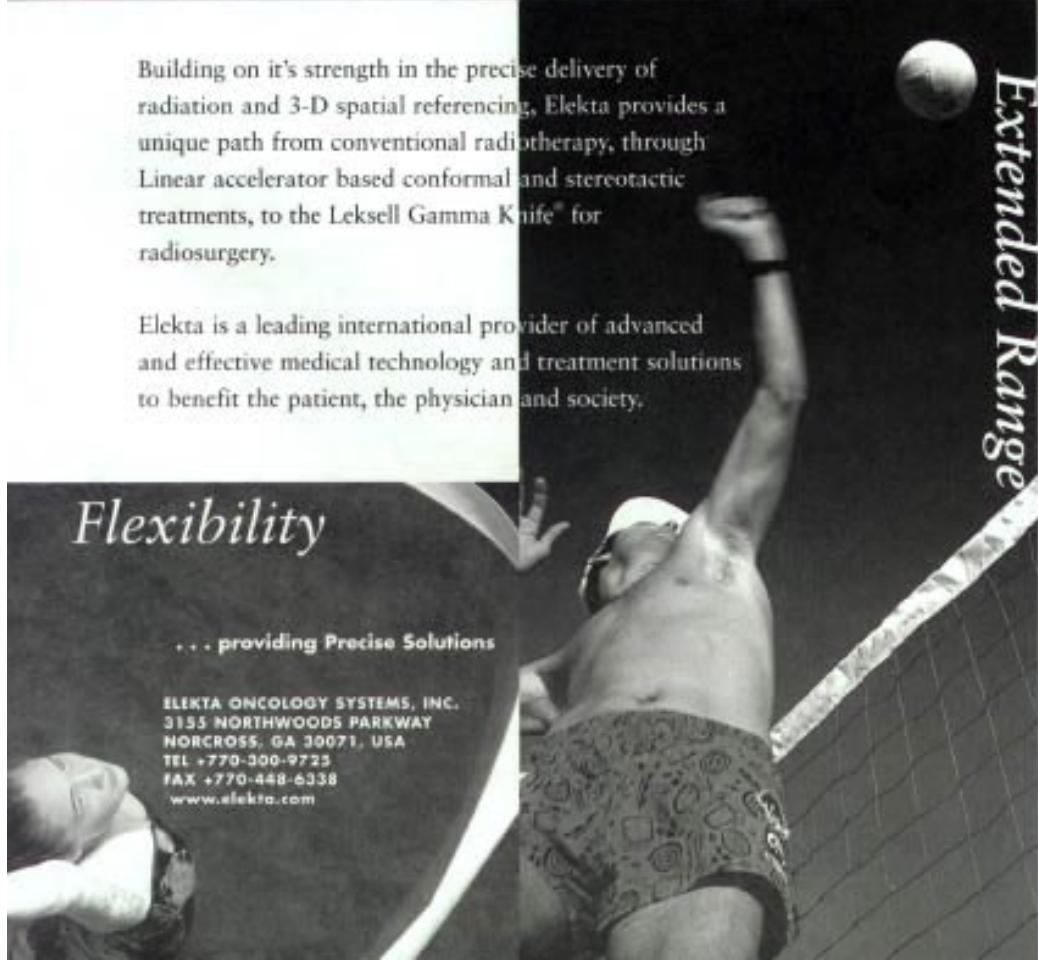
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International Conference on Radiation and its Role in Diagnosis and Treatment (FICR 2000)

Tehran, Iran October 18-20, 2000

Iran's Shahid Beheshti University of Medical Sciences recently hosted the International Conference on Radiation and its role in Diagnosis and Treatment (FICR 2000). Over 300 delegates from 10 nations, including the United States, the Netherlands, Canada, India, Japan, Korea, and several nations from the Middle East attended the conference. The host delegates consisted of Iranian scientists, students, physicians, and staff.

A large number of technical papers were presented. The talks were well balanced between the basic science of radiation biology and the applications of radiation in medicine. This conference gave delegates from developing nations an opportunity to learn from their colleagues in developed countries. Speakers from different nations gave presentations on a wide range of topics on medical physics. Of particular interest was Myron Polycove's discussion of the effects of low-dose radiation exposure on the immune system. K.P. Mishra suggested that, rather than trying to kill cancer cells with radiation, we should instead try to deliver just enough dose to trigger the cell's own apoptosis (programmed cell death).

Many of the papers were presented in Persian language. On the first day, simultaneous translation was provided, which was extremely helpful. On the last two days, this was not available. It was difficult for non-persian speakers to follow, although most slides were presented in English. This was the only area of difficulty encountered during an excellent meeting.

This conference brought together scientists and physicians from nations that have not enjoyed much scientific contact in recent years. It may be that this personal contact will be the longest-lasting legacy of FICR 2000. It is our hope that the brief personal and scientific contacts made at this meeting will continue for many years since all parties involved stand to gain much from continued communication.

For Azam (an Iranian by birth), this meeting was a homecoming. For Andrew, this was his first trip to Iran. He approached the visit with some degree of trepidation. Although he was somewhat reassured by the conference organizers, he realized that he had many preconceptions about Iran, common among Americans and Europeans. All his fears were allayed, for the people we met were friendly, helpful, and generous. We both have very fond memories of this trip.

Following the meeting, we, with some of the participants had a technical tour of Ramsar, a city with very high radiation background. We were quite surprised by radiation levels in excess of 10 mR/hr (0.1 mGy/hr) at one place and some areas had dose rates in excess of 1 mR/hr (0.01 mGy/hr) even at a height of one meter above the ground.

Andrew Karam, CHP Azam Niroomand-Rad, Ph.D. University of Rochester Vice President, IOMP

Publication Committee Report (PC-Report)

As stated in our previous report, the Publication Committee has been formed and the first session was convened on July 23, 2000 in Chicago. Since then there have been some changes in our membership. Dr. Cameron has decided to resign from the committee because of other commitments, but has graciously agreed to remain involved with the Committee's activities for special projects. We are also happy to report that we have an additional expert consultant, Dr. John Navas. The current members include:

- Gino Fallone, Ph.D. (Chairman)
- Alun Beddoe, Ph.D. (PMB Editor)
- Enrique Gaona, M.S. (ALFIM)
- Kwan-Hoong Ng, Ph.D. (EMPW Editor)
- Stuart Meldrum, Ph.D. (PM Editor)
- E. Ishmael Parsai, Ph.D. (MPW Editor)
- John Navas, PhD consultant to the Committee
- Larry DeWerd, Ph.D., Secretary (GOMP Editor)
- Oskar Chomicki, PhD, ex-officio
- Gary Fullerton, Ph.D., ex-officio (IOMP Home Page Editor)
- Azam Niroomand-Rad, Ph.D., ex-officio (MPW Editor)
- Colin Orton, PhD, (MP Editor)
- David Evans, PhD, web-consultant to the Committee

We had considerable discussions concerning the implementation of an official IOMP web site, as well as, the creation of an independent web site supported by a private party, which would carry information of interest for medical physicists worldwide. It has been agreed that Dr. Gary Fullerton shall continue to remain the official web-editor of the official IOMP web site (www.iomp.org). This web-page will remain the focus of all electronically based promotions controlled by the Publication Committee such as Global on-line medical physics textbook, medical physics bibliography, and other services. The actual site location for the independent web page for medical physics will hopefully be announced in our next report. The appointment of Dr. Colin Orton as Editor of the Medical Science Series of books for the Institute of Physics Publishing has been extended for another three years. These are official publications of the IOMP. The Publication Committee has requested the Financial Committee to consider the possibility of distributing, for a fee, membership list to members, publisher members and corporate members of the IOMP. Various options are being considered. The Publication Committee continues in its charge to improve medical physics worldwide by providing appropriate publication materials for programs generated by the Organization, and is, at the moment, concentrating its efforts on electronic-related issues.

B.Gino Fallone
Chair, Publication Committee

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Annual Report for 2000 of the International Union of Physical and Engineering Sciences in Medicine

J.P.Morucci, President IUPESM

Introduction:

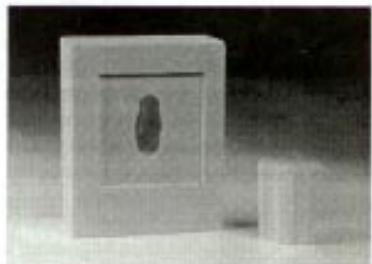
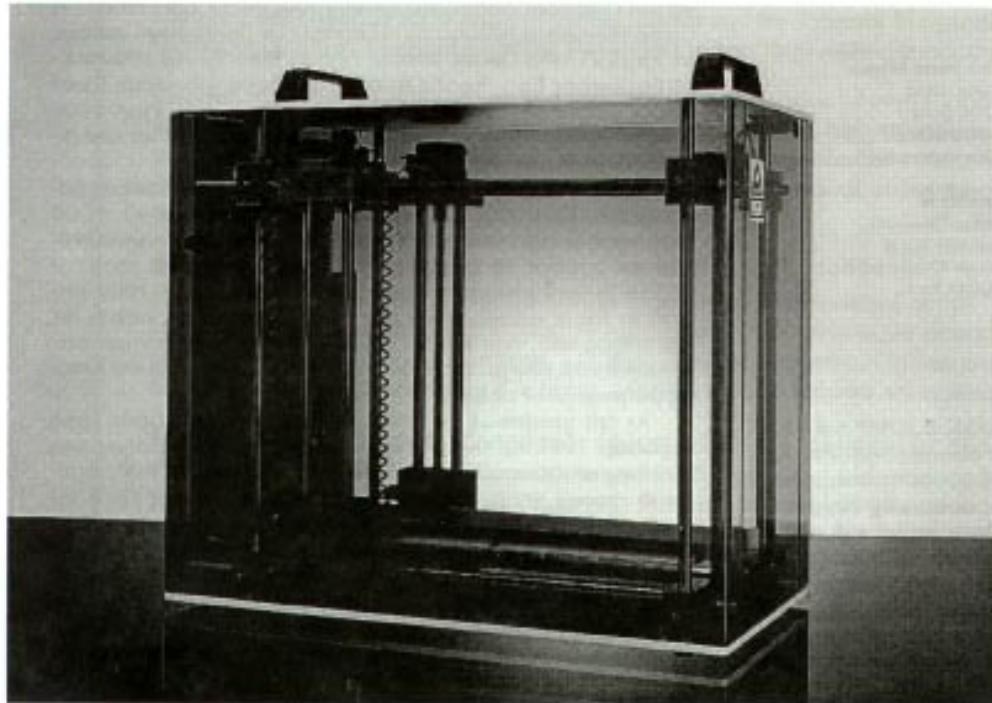
The principal objectives of IUPESM are: (a) to contribute to the advancement of physical and engineering science in medicine for the benefit and well being of humanity, (b) to organize international cooperation and promote communication among those engaged in health-care science and technology (c) to coordinate activities of mutual interest to engineering and physical scientists within the health care field, including international and regional scientific conferences, seminars, working groups, regional support programs and scientific and technical publications; (d) to represent the professional interests and views of engineers and physical scientists in the health-care community.

Membership:

The founding Constituent Organizations of the IUPESM are the **International Federation for Medical Physics** (Continued on page 18)

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Some Radiation Is Necessary For Good Health

Avoidance of cancer is one aspect of a healthy life. Avoidance of death from other causes is more important. A good immune system reduces death from cancer and other causes. This article provides evidence that a moderate increase of background radiation reduces death from all causes. I suggest that the mechanism is radiation stimulation of the immune system as proposed by Feinendegen et al (1998). Radiation protection policy in most of the world is based on the assumption that the risk of a radiation induced fatal cancer is linearly proportional to the dose. This is known as the linear- no-threshold (LNT) model of radiation risk. There are no human data to support this assumption for low doses and low dose rates. This article shows that while the large doses to pioneer radiologists increased cancer deaths, the more moderate doses to later radiologists improved their health. It reduced cancer deaths and deaths from other causes.

The British radiologist study, (Smith and Doll 1981) grossly contradicts the LNT assumption. If a moderate dose rate is as healthy as this article suggests, billions of dollars can be saved annually by not cleaning up low-level radioactive waste sites worldwide. In the future it may be advisable to incorporate radioactive waste into building materials to increase the background radiation of the occupants to a healthier level. That is, increased background radiation may be essential to health, much as we now add vitamins and essential minerals to our daily diet.

Data from the British radiologist study are summarized in Table 1. Radiologists in the study were divided into two groups-those who joined a radiological society before 1921 and those who joined such a society after 1920. The dividing date was chosen because the British x-ray safety committee became active about 1920. British radiologists who entered the field before 1921 had a cancer death rate 26% greater than all men in England and Wales. Those who entered the field after 1920 had a cancer death rate 37% lower than that of all men in England and Wales. The X-ray safety committee was up to the task and did its job well. Despite the large occupational exposures to early radiologists, their death rate from causes other than cancer decreased, canceling out their much greater cancer death rate. There was no statistical increase in death from all causes of the early radiologists compared to the three control groups. This suggests that radiation stimulation of their immune systems canceled the increased risk of radiation induced cancer deaths. Note the statistically significant decrease in death from all causes after 1920. The probability of this health improvement being accidental is generally less than 0.001.

The decrease in cancer death rates after 1920 is consistent with the decreased cancer death rates in areas of high background compared to low background areas. Data from Jagger (1998) suggest that people in the U.S. Gulf States are suffering from radiation deficiency. The cancer death rate in three U.S. Gulf States (LO, MS & AL) is 25% higher than in three U.S. mountain states (ID, CO & NM)-which have a much higher background level.

A recent article on longevity of A-bomb survivors (Cologne and Preston 2000) shows that survivors, 2.8-km from the hypocenter of the A-bombs, who received a low dose, had a greater longevity than survivors closer or further away. This is consistent with the hypothesis of Feinendegen et al (1998). Others somewhat closer than 2.8 km may also have greater longevity. Unfortunately, the authors combine over 40,000 survivors within one very large dose range of 50:1-from 0.005 to 0.249 Gy. This large group shows no significant statistical difference in longevity from the controls. If this group was broken down into 8 groups of 5,000 each, I suspect that survivors with lower doses might show greater longevity than

those with higher doses. Both authors have ignored my request for a breakdown of the data.

Table 1 Mortality of British Radiologists 1900 to 1980 Deaths of British radiologists were compared to three groups:

A-All men in England and Wales; B-All men in social class I; C-All male medical practitioners. A total of 1338 radiologists were divided into two groups: All British physicians who joined the British Institute of Radiology or the Royal College of Radiologists "Before 1920" and "After 1921".(From Smith PG, Doll R. 1981)

O/E = OBSERVED/EXPECTED

	GROUP	Before 1921		After 1920	
		Deaths	O/E	Deaths	O/E
Death	A	319	0.95	411	0.76***
From	B		1.04		0.89*
All Causes	C		0.97		0.87**
Death	A	62	1.26*	72	0.63***
From	B		1.44**		0.79*
All Cancers	C		1.75***		1.05
Death	A	257	0.95*	339	0.79***
From	B		0.97		0.92
Other Causes	C		0.88*		0.84**

STATISTICAL SIGNIFICANCE: * p<0.05 ** p< 0.01 *** p< 0.001

References:

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International Medical Physics

(Continued from page 4)

The past three years witnessed greatly improved international cooperation on IOMP projects due to the decision to focus on electronic distribution of information and documents using e-mail and the Internet. All information concerning the IOMP is now available at the home page <http://www.iomp.org>. In addition to receiving information concerning the organization there are now connections to all the web pages of the national members and chapter members of the organization. It is especially of note the large amount of medical physics information available at the AAPM home page <http://www.aapm.org> and the home page of the European Federation of Medical Physics (EFOMP) <http://www.efomp.org>.

In any given year the IOMP will sponsor from 8 to 12 medical physics meeting around the world. These meetings as well as reports of past meetings are listed to give all medical physicists access to improved education as well as the ability to improve the practice of the medical physics profession in their region.

IOMP Membership in IUPESM and ICSU

In the middle of the 1970s the IOMP began to work with the International Federation for Medical and Biological Engineering (IFMBE) to promote improvements in medical physics and bioengineering as well as open the doors to broader recognition of our fields in the world science community. The IOMP and IFMBE formed a union called the International Union for Physical and Engineering Sciences in Medicine (IUPESM) to pursue these goals. The IUPESM initiated contact with the International Council for Science (ICSU) and applied for membership. ICSU first accepted IUPESM as an Associate Union Member and finally in 1999 as a full Union Member. Medical physicist membership in ICSU is an important step forward in the recognition of

the contributions of medical physicists to world scientific achievement. The IUPESM has now formed an IUPESM ICSU Liaison Committee to promote scientific and educational interchange with the 26 Union Members and 76 National Academy members of ICSU. More details of these relationships are available at the web addresses <http://www.iupesm.org> and <http://www.icsu.org>.

International Cooperation and the Future of Medical Physics

Not too long ago the President of the Royal Academy of Physicians observed that medicine would likely change more in the next 20 years than it has changed in the previous 2000 years. This observation at first glance appears excessively optimistic and expressing more than a little hyperbole. But when one considers the recently deciphered human genome and mouse genome and related genetic engineering methods, we realize that medicine is embarking on procedures using these discoveries that will accelerate progress with great leaps and bounds. There is need for all types of scientists to rapidly integrate the advancing tsunami of discoveries into the structure and implementation of improved health care systems for all nations. How can medical physics adopt to these changes?

Medical physics is a necessary part of the process. At present the availability of medical physics education is unevenly distributed in the world but this is changing. It is now possible for us to share ideas, discoveries and methods with only seconds of delay. The investment necessary to implement and prove clinical effectiveness for new devices and clinical protocols is expensive in both financial and ethical terms. We must share both the benefits and the cost of improved human care. The IOMP is dedicated to achieving these ends.

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ACCURATE RESULT

Annual Report 2000

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and Biological Engineering and the **International Organization for Medical Physics**. National Members are any countries having adherence with any of the Constituent Organizations. The number of National Members of IOMP is 70 and that of the IFMBE is 44. An overlap in membership between the Constituent Organization results in a total National Membership of 80.

Vital Statistics:

- 2 Constituent Organizations
- 80 National Organizations
- Consultative status at IAEA, PAHO and WHO
- Greater than 40,300 Individual Members
- Triennial World Congress on Medical Physics and Biomedical Engineering –16 regional scientific meetings and -15 educational courses organized in 2000
- 2 journals, 2 electronic newsletters and Internet web pages
- 80 sponsored specialty libraries in Developing Countries

Organizational Matters:

Virtual meetings of the 11-member IUPESM Administrative Council are held on a quarterly basis using electronic communications to manage ongoing affairs. Minutes of these meeting are posted on the IUPESM home page <http://www.iupesm.org/>. The General Assembly is informed of Administrative Council actions by e-mail announcements to delegate mailing lists. The 200-member General Assembly meets presently on a triennial basis at each instance of the World Congress on Medical Physics and Biomedical Engineering. Dues and income from meetings are collected by the Secretaries General of the IUPESM, IOMP and IFMBE. At present the collective financial assets of the IUPESM and its two member organizations is in excess of \$500,000. The financial assets of several of the member societies exceed these levels by one or more orders of magnitude. Projects of common interest with these national members allow the IUPESM to leverage projects significantly beyond the budgetary limits of the Union. The Secretariat of the IUPESM presently resides with the Secretariat of the IOMP in San Antonio, Texas (USA) while the Secretariat of IFMBE is in Sweden.

Activities Undertaken during 2000:

The main event of the year 2000 is the venue of our World Congress on Medical Physics and Biomedical Engineering, Chicago (USA) 23-28 July with more than 4600 attendants including about 900 students and 1100 exhibitors.

National Conferences or Workshops with International Participation: Clinical Engineering Workshops in 2000; Helsinki (Finland) January; Santo Domingo (Dominican Republic) April; Riga (Latvia) May; Wurzburg (Germany) June; Chicago (USA) July; Vilnius (Lithuania); Panama City (Panama) October; 2nd European Symposium on Biomedical Engineering and Medical Physics, Patras (Greece): 6-8 October 2000; Workshop on Biomedical Engineering Education, Chicago (USA) 22-23 July 2000; 1st Slovenian-Croatian Meeting on Biomedical Engineering, Bled (Slovenia) 8-12 October; 1st Japanese-Korean Symposium on Medical and Biological Engineering. Osaka (Japan); 5th Portuguese Conference on Biomedical Engineering, Coimbra (Portugal) 26-27 May; 8th National Conference on Biomedical Physics and Engineering, Sofia (Bulgaria), 12-14 October; International Conference on Radiation and its role in Diagnostic and Treatment FICR 2000 Tehran (Iran) 18-20 October; Conference on Medical Radiation Physics and Engineering, Lisboa (Portugal), 20-22 November; National Medical Physics Workshop, Kuala Lumpur (Malaysia) 10-11 April.

Graduate Education Programs in Medical Physics as an aid to both students and professionals are organized in 19 countries all over the world. The IOMP medical physics education programs during the year 2000 were in Algiers, Algeria (January, 2000), Bangkok, Thailand (May/June, 2000), Prague, Czech (October, 2000), Sofia, Bulgaria (October, 2000), Tehran, Iran (October, 2000), Lisbon, Portugal (November, 2000). IOMP special topic scientific meetings were held in Beijing, China on May 27-29, 2000, Latin American regional meeting “Nuevas Técnicas en Radioterapia”, Chicago, Illinois July 17-22, 2000, and Bangalore, India, November, 2000.

The Internet international listing of graduate education programs initiated in 1999 is now completed.

Work continues on a Global On-line Medical Physics Textbook and an on line Encyclopedia of Biomedical Engineering. A special focus is given on building a global communications network for all the members of the Union.

Conclusion and future plans:

The Union has established Key Programmes, which are complementary to and symbiotic with those of ICSU. They include Public and Governmental Understanding of Health Sciences; Education, Training and Continued Professional Development for the 21st Century and Global Biomedical Information Networking for Developing Countries; Evidence Based Health Technology; and Medical Equipment Evaluation.

IUPESM has created *an ICSU Liaison Committee* whose duties are to:

- build on established excellent relations with the ICSU Secretariat
- establish and maintain a good working knowledge of existing and proposed programmes within ICSU
- determine principal and secondary interests of other Unions and bodies within ICSU and generate a spirit of collaboration
- identify areas of potential future collaboration, especially global projects
- stimulate and consider programme proposals within IUPESM (IFMBE and IOMP) as candidates for grants either from ICSU itself or other international bodies, such as UNESCO, WHO, European Union, with the support (and stature) of ICSU
- formulate grant proposals and recommend priorities to IUPESM Council
- participate in ICSU Committees and activities
- contribute “populist” articles to ICSU’s journal ‘Science International’ on various aspects of Medical Physics and Biomedical Engineering
- prepare proposals and contributions to be made at the ICSU General Assemblies.

IUPESM is establishing collaboration with other members of the ICSU family on these and related projects.

Vice-President's Report

(Continued from page 1)

bers and to formulate a proposal for the 2006 World Congress.

This meeting was held just a little over a month before the 2000 World Congress in July. At this meeting, the 3 members of the European Consortium tentatively agreed to split the World Congress into 3 conferences to be held separately in Switzerland, Germany and the UK.

- **July 5, 2000**, set by the CCC as deadline for receipt of the final proposals to be distributed to the General Assembly delegates.
- **June 30, 2000**, final proposal received from Korea.
- **July 3, 2000**, final proposal received from Hong Kong.
- **July 4, 2000**, final proposal (complete with all endorsements) received from the European consortium.
- The Consortium proposal now had endorsement from Germany as well. (Endorsement from German Medical Physics Society was received by the Swiss organizers on June 29, 2000 and endorsement from the German Biomedical Engineering Society was received July 3, 2000 – 1 day before the final, completed proposal was submitted to the CCC.)
- Since the CCC requested no revisions to the preliminary German proposal, this proposal could have been considered as a final proposal.
- The CCC now had 2 different proposals that included the German societies: one as a single country and the other as participants in the Swiss proposal.
- While having met the revised deadline, the submission of the final Swiss proposal on July 4, which for the first time had endorsement from all three participating countries, left very little time for preparation. More importantly, for all practical purposes this left no time for its review and comments by the CCC members prior to the 2000 WC.

- **July 5, 2000**, final proposal received from Israel

The conflict between the European consortium and the German proposals should have been resolved immediately by the CCC but unfortunately was not. Not having received endorsement from all 3 countries, the Swiss preliminary proposal should have been disallowed. Except for the Swiss proposal, all other preliminary proposals were submitted in complete form and included endorsement by all participating organization.

I hope this brief write up will demonstrate the complexity of issues involved in site selection for 2006.

*Azam Niroomand-Rad, PhD
Vice-President, IOMP*

Report of AAPM / IOMP: International Scientific Exchange Program

On Workshop in Bangladesh • January 29 – February 2, 2001

The 11th AAPM / IOMP one-week Workshop in Radiation Therapy Physics was held successfully at Bangladesh University of Engineering and Technology (BUET) in Dhaka, Bangladesh, from January 29 – February 2, 2001. The Workshop was sponsored by the AAPM International Scientific Exchange Programs (ISEP) and International Organization for Medical Physics (IOMP) Education and Training Committee. The workshop was co-sponsored by the Bangladesh Medical Physics Association (BMPA), Bangladesh University of Engineering and Technology and Delta Medical Centre Ltd. The program was organized by the Department of Physics, Bangladesh University of Engineering and Technology, Dhaka, Bangladesh.

The objectives of this workshop were to discuss the fundamentals of the physics of radiation therapy, to present the current status of treatment of cancer patients using state of the art treatment technology to the clinical physicists and radiation oncologists, to intercompare calibration of photon and electron beams using the IAEA and the AAPM TG-51 protocols and to exchange information concerning medical physics profession in Bangladesh.

Dr. Gias uddin Ahmad, Professor of Physics, BUET and President of the Bangladesh Medical Physics Association, was the Host Director and Co-Director of this program. The AAPM faculty were: Drs. Faiz M. Khan, Bhudatt R. Paliwal, Nagalingam Suntharalingam, LeRoy J. Humphries, M. Saiful Huq and Theodore Thorson. In addition, 2 faculty members from Germany (Dr. K-H. Hoever) and The Netherlands (Dr. P.H. van der Giessen) attended the workshop. There were 72 participants: 71 from Bangladesh and one from Nepal. The participants included medical physicists, radiation oncologists, teachers, scientists and researchers. The program began with a welcoming address by Professor Abu Hashan Bhuiyan, Head of the Physics Department, BUET and was officially inaugurated by Professor Nooruddin Ahmed, Vice-Chancellor, BUET.

A total of 39 copies of the book, *The Physics of Radiation Therapy*, written by Dr. F. M. Khan, with author's discount, were also donated for distribution among participants and institutions which officially sent participants to the workshop. Certificates of Appreciation and Certificates of Participation were presented to the faculty and the participants. The certificates were signed by Drs. Charles W. Coffey, AAPM President, Azam Nirooand-Rad, AAPM ISEP Chair, and Vice-President of IOMP, Oskar Chomicki, President of IOMP, and Gias uddin Ahmad, President of the Bangladesh Medical Physics Association. In the closing ceremony Drs. Gias uddin Ahmad and M. Saiful Huq

highlighted the main features of the workshop and discussed the future activities of medical physics profession in Bangladesh. Dr. Huq discussed the possibility of establishing a state-of-the art cancer treatment facility in Bangladesh and asked the local radiation oncologists and medical physicists to assume leadership in the creation of such a facility. The closing speech was delivered by Professor Nooruddin Ahmed, Vice-Chancellor, BUET. After the concluding ceremony, the faculty and the participants were taken to a sight seeing tour of the national memorial at Savar, Dhaka. The drive through rural Bangladesh was quite enjoyable.

Evaluation forms were distributed to the participants and were collected upon completion of the program. Various aspects of the program including the quality and the quantity of the lectures presented by each faculty during the workshop were evaluated. The results of the evaluation (40 respondents) were summarized. General comments were noted by some of the respondents at the end of the evaluation form.

The local expenses of the faculty were supported by the Host Institution and their travel expenses were financed by funds provided by the AAPM, Medical Physics Foundation, and vendors. Various institutions and companies came forward with generous contributions to help meet the expenses for local hospitality. BUET lead the way in this gesture by making generous contribution to meet the local expenses of the faculty. Besides it provided all the physical facilities needed to hold the workshop including full-time transport for the faculty. Prof. Nooruddin Ahmed, Vice-Chancellor, BUET, hosted a dinner on the evening of January 29, 2001 to meet the faculty and the participants. We are grateful to these organizations and companies for their generous support.

We would like to place on record the total commitment and effort of Dr. Gias uddin Ahmad and the members of the organizing committee-specially Dr. Abdus Sattar Mollah, Dr. S. R. Husain, Dr. Fatema Nasreen, Prof. M.A. Zaman and Mr. Jahangir Alam, in organizing this workshop in such a short notice. The workshop provided an excellent opportunity for interaction among the medical physicists and also among the physicists and oncologists and to forge an unforgettable friendship among the faculty and the participants. We also like to thank the AAPM faculty for volunteering their time and effort in this endeavor.

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Calendar Of Events For 2001

By: Carter Schroy, Associate Editor, *Calendar of events*

These events are taken from the Medical Physics Calendar at <http://medphys.org/calendar>. Items may be submitted to the editor at eventsed@aol.com or by other methods listed on the website.

26-30 August 2001

Physics for Clinical Radiotherapy (ESTRO Teaching Course) ; Leuven, Belgium www.estro.be/estro/Frames/events.html/estro/Frames/events.html; info@estro.be

29 Aug - 2 Sep 2001

Modern Brachytherapy Techniques (ESTRO Teaching Course with Russian translation); Bratislava, Slovakia www.estro.be/estro/Frames/events.html/estro/Frames/events.html; info@estro.be

3-5 September 2001

IASTED International Conference On Visualization, Imaging, and Image Processing (VIIP 2001); Marbella, Spain www.iasted.com; calgary@asted.com

3-7 September 2001

Summer School and Scientific Workshop on Using Mathematical Modelling and Computer Simulation to Improve Cancer Therapy; Propriano (Corse), France calvino.polito.it/~biomat/school.html; bellomo@polito.it

10-14 September 2001

6th European Conference on Radiation and its Effects on Components; Grenoble, France www.radecs.org; radecs2001@imag.fr

12-15 September 2001

European Congress of Medical Physics and Clinical Engineering ; Belfast, N Ireland www.n-i.nhs.uk/Belfast2001/index.html

15-20 September 2001

6th Biennial ESTRO Meetings on Physics and Radiation Technology for Clinical Radiotherapy www.estro.be/estro/Frames/events.html/estro/Frames/events.html; info@estro.be

23-26 September 2001

6th International Conference on Dose, Time and Fractionation in Radiation Oncology ; Madison, WI, USA paliwal@mail.humonc.wisc.edu

7-11 October 2001

Evidence-Based Radiation Oncology; Principles & Methods (ESTRO Teaching Course) ; Cairo, Egypt www.estro.be/estro/Frames/events.html/estro/Frames/events.html; info@estro.be

7-11 October 2001

Basic Clinical Radiobiology (ESTRO Teaching Course) ; Tenerife, Spain www.estro.be/estro/Frames/events.html/estro/Frames/events.html; info@estro.be

21-25 October 2001

ECCO 11 / ESTRO 20 ; Lisbon, Portugal info@estro.be; www.estro.be/estro/Frames/events.html/estro/Frames/events.html

21-25 October 2001

6th Congress of the Asian Federation for Ultrasound in Medicine and Biology (AFSUMB '01) ; Kuala Lumpur, Malaysia basrij@medicine.med.um.edu.my

25-28 October 2001

23rd Annual Int'l Conference of the IEEE Engineering in Medicine and Biology Society ; Istanbul, Turkey www.ewh.ieee.org/soc/embm/emb-exec@ieee.org

4-10 November 2001

IEEE Nuclear Science Symposium And Medical Imaging Conference; San Diego USA www.nss-mic.org; lavietes1@llnl.gov

18-21 November 2001

DOSGEL 2001: 2nd Int'l Workshop on Radiotherapy Gel Dosimetry ; Brisbane, Australia www.dosgel.qut.edu.au; c.baldock@qut.edu.au

25-30 November 2001

The Radiological Society of North America Annual Meeting , Chicago, USA www.rsna.org

2-5 May 2002

Society for Computer Applications in Radiology Annual Symposium ; Cleveland, USA info@scarnet.org; www.scar.rad.washington.edu/

9-11 May 2002

Annual Brachytherapy Meeting of GEC/ESTRO ; Antalya, Turkey www.estro.be/estro/Frames/events.html; info@estro.be

18-24 May 2002

International Society for Magnetic Resonance in Medicine Scientific Meeting and Exhibition ; Honolulu, USA info@ismrm.org; www.ismrm.org

26-28 June 2002

16th Int'l EURASIP Conference BIOSIGNAL 2002 ; Brno, Czech Republic www.fee.vutbr.cz/UBMI/bs2002.html; ivo@ieee.org

14-18 July 2002

American Association of Physicists in Medicine Annual Meeting, Montreal, Canada aapm@aapm.org; http://aapm.org

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