South Asia Centre for Medical Physics and Cancer Research

SCMPCR

Newsletter

A Project of Alo-BT

January 2024 | Volume 6 | Issue 1

QUALITY EDUCATION AND HEALTH SCIENCE FOR PATIENT BENEFIT

Inside This Issue

Editor's Notes

In this edition of the newsletter, we have reported on SCMPCR activities, educational and professional development programs conducted across member States, scientific articles, news on professional achievements and the chat with the Dipl. Ing. Hierholz. SCMPCR is pledged to stand with and support every medical physicist in South Asia in their professional endeavour for excellence. We will make sure the year ahead is a better one for all. Wishing everyone all success in every venture in the New Year and ahead.

Editor-in-Chief
SCMPCR Newsletter.

কর্কট রোগে ভরসার জায়গা

কর্মশালা ঠাকুরপুকুরের সরোজ গুপ্ত ক্যান্সার সেন্টার অ্যান্ড রিসার্চ ইনস্টিটিউট উদযাপন করছে তার সুবর্ণজয়ন্তী বর্ষ। তারই অঙ্গ হিসেবে চার দিন ব্যাপী একটি আন্তর্জাতিক মানের কর্মশালা আয়োজন করেছে তারা। বৃহস্পতিবার সেই চিকিৎসা সম্মেলনের আনুষ্ঠানিক উদ্বোধন হয়। কর্মশালা আয়োজনের দায়িত্ব যৌথ ভাবে নিয়েছে বাংলাদেশের আলো ভুবন ট্রাস্ট-ও। ক্যান্সার চিকিৎসার অন্যতম গুরুত্বপূর্ণ অঙ্গ রেডিয়োথেরাপির গুণমান সংক্রান্ত কর্মশালা হাতেনাতে পরিচালনা করবেন দেশ-বিদেশের আন্তর্জাতিক খ্যাতিসম্পন্ন বিশেষজ্ঞরা। আলোকপাত করা হবে মেডিক্যাল ফিজিক্স ও ক্যান্সার গবেষণার ক্ষেত্রেও। অংশ নেন বিশ্ব স্বাস্থ্য সংস্থা (হু), জার্মানি, ইউএসএ, বেলজিয়াম, বাংলাদেশ, নেপাল, ভুটান, শ্রীলঙ্কা এবং এ দেশের প্রথিতযশা ক্যান্সার বিশেষজ্ঞ-সহ দেশ-বিদেশের মোট ৫০ জন প্রতিনিধি — এই সময়

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Advancing Global Healthcare through E-learning: A Comprehensive Report on SCMPCR ELP-08: Radiation Dosimetry: External Beam Radiotherapy and Brachytherapy

Md. Anwarul Islam, PhD, DIMPCB
Training Program Coordinator, SCMPCR

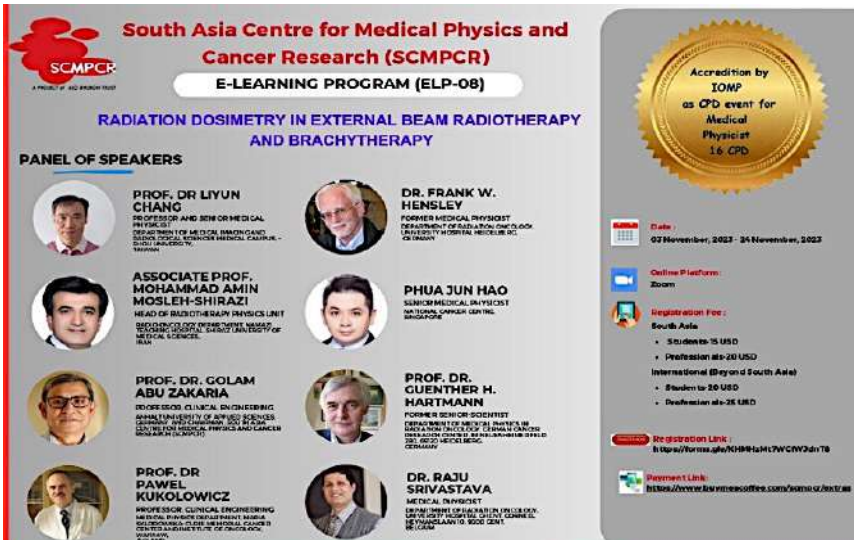
The COVID-19 pandemic has increased the use of e-learning and online education. This enables organizations like South Asia Centre for Medical Physics (SCMPCR) to conduct programs that fill knowledge gaps and promote equality in medical physics, where advancements can significantly affect patient outcomes.

Furthermore, technological improvements have made significant strides in recent decades, enhancing the effectiveness and precision of radiation therapy. This progress ensures that the treatment continues to be vital in the fight against cancer, offering a range of applications from potentially curative therapy to symptom palliation.

In a global context, addressing disparities in education and healthcare resources is essential. Collaborative efforts, such as e-learning programs, can contribute to sharing knowledge and expertise across regions, ultimately improving the quality of healthcare worldwide. As technology advances, finding ways to fill these gaps and ensure that advancements are accessible remains a crucial challenge.

SCMPCR is proactively addressing disparities in medical physics knowledge and resources across the South Asian (SA) region. Through e-learning programs, hands-on training, and in-service training, SCMPCR demonstrates a commitment to advancing medical physics and fostering collaboration among professionals. To further these efforts, SCMPCR is actively seeking to employ an accomplished professional specializing in Medical Physics

The SCMPCR's e-learning programs includes lecture series, group discussions, examinations, and the involvement of young students or medical physicists as moderators, contribute not only to knowledge transfer but also to skill development for the next generation. This approach helps ensure sustainable and continuous improvement in the field.

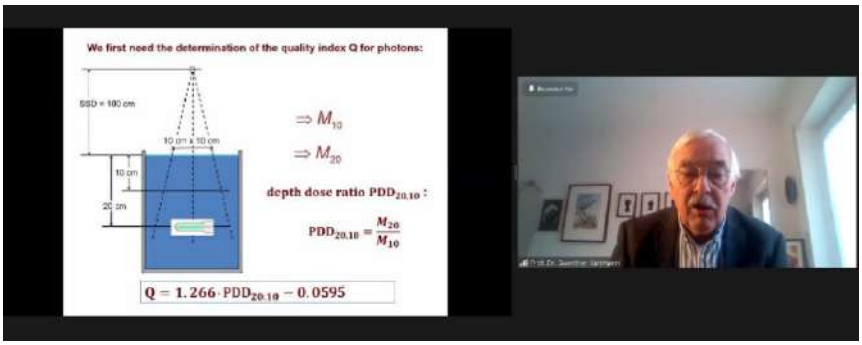


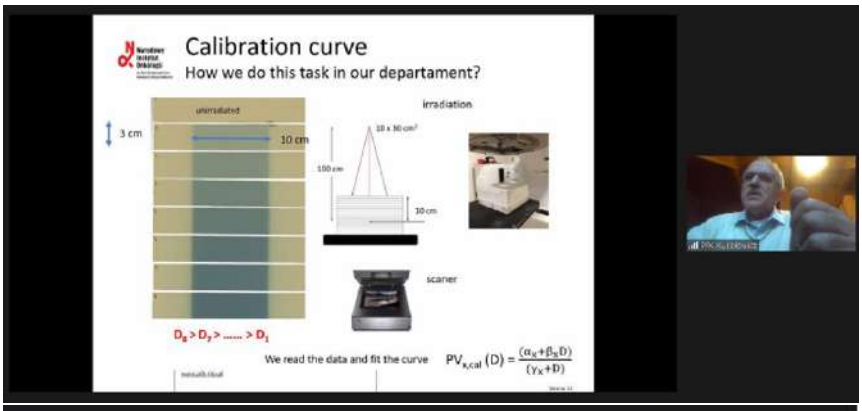
The e-learning program obtained accreditation from the International Organization for Medical Physics (IOMP), granting participants a total of 16 Continuing Professional Development (CPD) points.

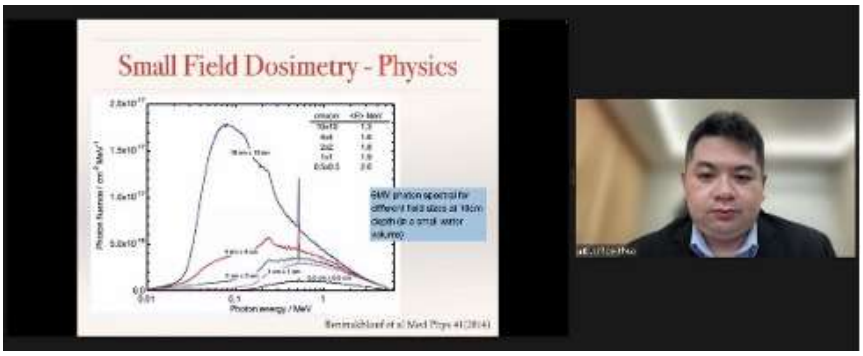
Recently, SCMPCR conducted an E-learning program (ELP-08) focusing on "Radiation Dosimetry: External Beam Radiotherapy and Brachytherapy." The program included eight lectures, group discussions, and an examination held from November 3, 2023, to November 24, 2023. All sessions were conducted using the Zoom digital platform, and examinations were administered through the ClassMarker platform.

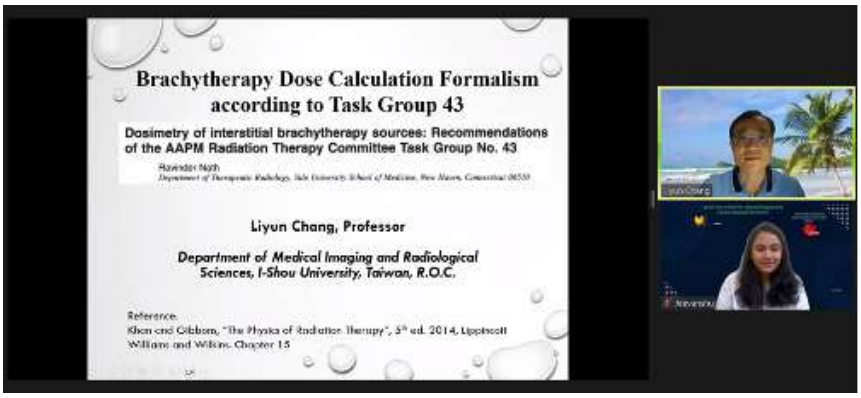
On November 3 (Friday), Prof. Dr. Guenther H. Hartmann delivered a lecture on a comprehensive overview of Radiotherapy Dosimetry. The session highlighted the principles and significance of Ionization Dosimetry. This foundational presentation delved into the critical role of ionization dosimetry in radiation oncology, offering essential insights into precise dose calculation and delivery. The session was moderated by Prof. Hasin Anupama Azhari, PhD, CEO of SCMPCR.

On 4 November (Saturday), Prof. Dr. Pawel Kukolowicz provided an insightful presentation on GafChromic Dosimetry. This advanced dosimetric technique was explored in detail, shedding light on its application and advantages in modern radiation therapy for accurate dose









measurement and verification. Dr. Md Akhtaruzzaman, Chief Medical Physicist & RCO at Evercare Hospital Chattogram, moderated the session.

On November 5 (Sunday), Dr. Frank W. Hensley conducted a session that delved into the Report of Task Group 186 on the Model-Based Dose Calculation Method. The presentation explored advancements in dose calculation methods, providing an overview of the task group's findings and recommendations. Eng. Ms. Dinelka Rasnayake, Lecturer at General Sir John Kotelawala Defence University, moderated the session.

On November 10 (Friday), Prof. Dr. Golam Abu Zakaria presented expertise on absolute dosimetry for high-energy photons and electron beams. The session explored fundamental principles, methodologies, and challenges related to absolute dosimetry, offering valuable insights into ensuring accurate and precise dose delivery. The session was moderated by Md. Anwarul Islam, PhD, DIMPCB, Coordinator Medical Physicist at Square Cancer Centre, Square Hospitals Ltd.

Prof. Mohammad Amin Mosleh-Shirazi's session on 11 November (Saturday) focused on applying In Vivo Dosimetry in External Beam Radiotherapy. This session explored real-time dose verification during treatment, highlighting the importance of in vivo dosimetry in ensuring accuracy and safety in external beam radiotherapy. The SCMMPCR program coordinator moderated the session.

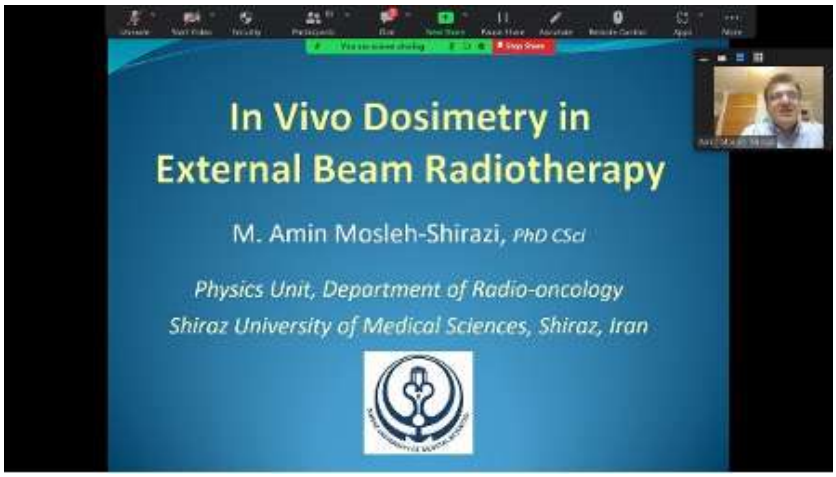
On 12 November (Sunday), Phua Jun Hao, MS, provided insights into dosimetry for the small field in the context of radiotherapy. The session delved into the challenges and methodologies associated with accurate dose measurements in small radiation fields, offering knowledge on optimizing dosimetry practices for improved precision. Suresh Poudel, DIMPCB, Medical Physicist at BP Koirala Memorial Cancer Hospital, Chitwan, Nepal, moderated it.

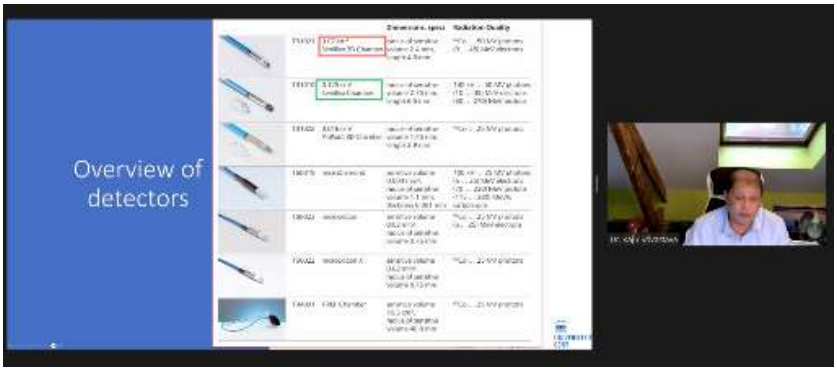
On November 17 (Friday), Prof. Liyun Chang conducted a session addressing Brachytherapy Dose Calculation Formalism according to Task Group 43. The presentation covered the principles and methodologies outlined by Task Group 43, offering a comprehensive understanding of dose calculations in brachytherapy. The session was moderated by Ms. Jeevanshu Jain, a Medical Physicist at the Advanced Center for Treatment, Research, and Education in Cancer (ACTREC), Tata Memorial Centre, Navi Mumbai, India.

On November 18 (Saturday), Dr. Raju Srivastava conducted a session guiding participants in selecting the correct chambers for commissioning and absolute dosimetry in the radiotherapy department. The session offered practical considerations, tips, and methodologies for ensuring the appropriate selection of dosimetry chambers for accurate commissioning and absolute dosimetry in clinical practice. Dzuthohulu, Department of Radiation Oncology, Saroj Gupta Cancer Centre & Research Institute moderated it.

The Group Discussion session organized on November 19 (Sunday) provided a highly engaging platform for participants to address queries and clear their doubts about the previous lectures. All speakers were present to share their knowledge and experiences with the participants. Participants posed over 50 questions on the chat box during the discussion sessions, and approximately 30 were addressed within 1.5 hours. SCMPCR committed to answering the remaining queries offline. This interactive session helped the participants prepare themselves for the upcoming examination. Following this, there was a self-study period of four days.

The Examination took place on November 24 (Friday). Participants were required to have a 70% attendance to be eligible for the Examination and a 50% score to pass the exam. Of the 92 participants, 32 successfully achieved 50% marks and received certificates with full Continuing Professional Development (CPD) points, while others received only attendance certificates.





The widespread participation in the e-learning programs, containing attendees from 31 nations totalling 108 individuals, indicates the universal demand for accessible and high-quality education in medical physics.

Participants represented 36 different nations, with 25 from Bangladesh, 42 from India, five from Nepal, and others hailing from diverse countries such as Israel, Kosovo, Malaysia, Mexico, Sudan, Morocco, Indonesia, China, the United Arab Emirates, Egypt, Cambodia, Lebanon, Singapore, Australia, Colombia, Nigeria, Saudi Arabia, Qatar, Kazakhstan, Palestine, Botswana, Romania, Bulgaria, Hong Kong, the Philippines, Slovakia, and France. The diversity of participants, attending from countries with varying levels of medical infrastructure, underlines the importance of such initiatives in bridging gaps and promoting the need for the standardisation of medical physics practice.

The positive feedback from participants underscores the success of SCMPCR's commitment to delivering impactful and insightful learning experiences. As professionals from diverse corners of the globe engaged in the E-learning Program, the knowledge exchange has significantly contributed to the collective advancement of medical physics, thereby enhancing patient care globally.

The positive responses on the relevance of topics, quality of content, clarity of presentations, and delivery effectiveness prove our commitment to delivering high-quality, pertinent content clearly and effectively.

Participants provided positive feedback on the ease of accessing sessions and the Quality of Audio/Video. This affirms SCMPCR's dedication to ensuring a seamless and technologically sound learning environment.

Evaluation by the participants on Facilitators (Speakers and Moderators): Statistical charts measuring the Expertise of Facilitators and Interaction with Participants showcase positive evaluations. Participants appreciate the

facilitators' expertise and their engaging interaction, fostering an effective learning environment.

Evaluation by the participants on Overall Experience: Participants' overall experience is reflected through statistical charts, with the majority expressing positive sentiments. SCMPCR's E-learning Program has successfully delivered a holistic and rewarding educational journey, resonating positively with the diverse global participants.

The success of the SCMPCR E-learning Program (ELP-08) on "Radiation Dosimetry: External Beam Radiotherapy and Brachytherapy" is a testament to the collaborative efforts and dedication of several key stakeholders.

Speakers and Moderators: Our heartfelt gratitude extends to the esteemed speakers and moderators who generously shared their expertise, insights, and time. Their commitment to advancing medical physics through informative sessions and engaging discussions has been invaluable.

Participants: We extend our appreciation to the participants hailing from 31 different nations. Their active involvement, enthusiasm, and diverse perspectives contributed to the richness of the program. The global community of participants played a crucial role in creating a dynamic and interactive learning environment.

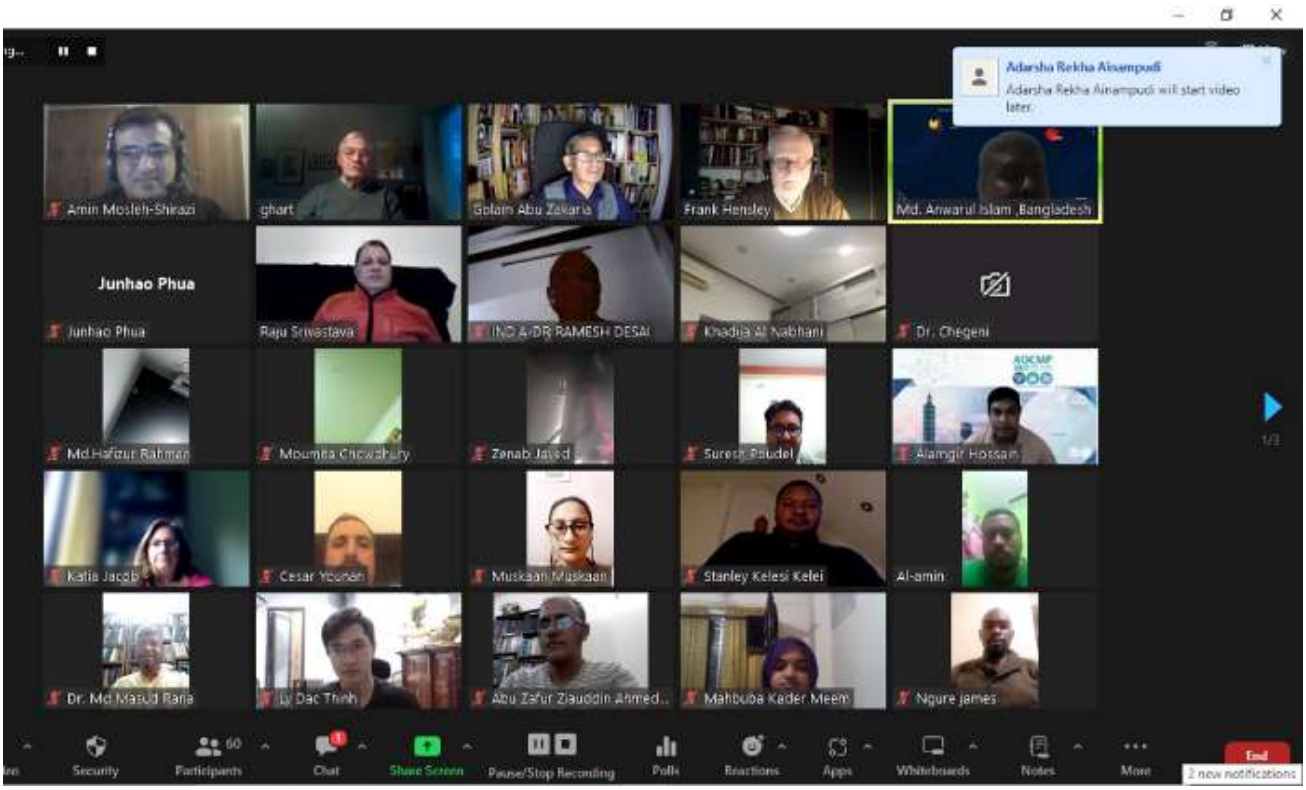
A special acknowledgement is reserved for the diligent organising team members who worked tirelessly behind the scenes. Their meticulous planning, coordination, and dedication ensured the seamless execution of the program from inception to the final Examination.

The success of ELP-08 is a collective achievement, and we extend our sincere thanks to all who played a role in making this program a resounding success. Your dedication to advancing medical physics and improving healthcare globally is truly commendable.

Continued initiatives like these are essential for fostering collaboration, sharing expertise, and ensuring that advancements in medical physics benefit people worldwide, regardless of their geographic location or available resources.

SCMPCR's dedication to empowering populations involved with cancer aligns with the broader goal of achieving Sustainable Development Goal (SDG) 3, which aims to ensure health and well-being for everyone by 2030. By providing education and training in medical physics, SCMPCR contributes to improving cancer care and treatment outcomes globally.

The tireless efforts of SCMPCR to educate, train, and empower professionals and populations in the field of medical physics underscore the importance of collaborative and inclusive initiatives in advancing healthcare, especially in critical areas such as cancer treatment.



On 'Bridge Builder: Dr Golam Abu Zakaria. Medical Physics International'

Dr. Wolfgang- Peter Zingel

Economist, South Asian Institute, Heidelberg University, Germany

When I asked his fellow medical physicists how they felt, they said as "Dienstleister", service providers. The short answer described a dilemma of their art: Although their boss in whose honour we had gathered was in the rank of a chief doctor and well respected, they felt not really equal with the 'real doctors', despite of all the scientific and technical advancements. They would rather be regarded as partners in a team that decides on radiotherapy, which no longer is the crude tool of decades ago. And although they were not medical doctors, they knew so much that these doctors might need to know.

Golam Abu Zakaria had invited me – neither a physicist nor a medical doctor – to his farewell party as a friend of many years. He had been introduced to me when he came as a PhD student to Heidelberg. The Deutsches Krebsforschungszentrum (DKFZ), the German Cancer Research Centre was almost next door to the South Asia Institute (SAI). As an economist I had been part of a team working on German development assistance to Pakistan just when a terrible civil war broke out and the country split. Termed by US Secretary of State Henry Kissinger as 'basket case', this test case of development by now has surpassed its nemesis Pakistan and also India, economically as well as socially. Born as a Pakistani, Zakaria became a Bangladeshi and was among the first batch of students sent out for higher studies. He earned his graduation degree in physics from Halle University. After continuing his studies in post graduate in Goettingen University he came to Heidelberg University for Ph. D work and residential study. Bangladeshi students brought me into contact with him, a small, but very active crowd.

He was greatly inspired by Harald zu Hausen, then the Director of the DKFZ, who in 2008 was awarded the Nobel Prize in Medicine. After his PhD and trained as a qualified medical physicist Zakaria took up a position as chairman of medical physics, a newly created department at a large teaching hospital of the University of Cologne in Gummersbach, where he worked until retirement and helped to cure tens of thousands of patients.

But that was not enough for him. He felt that he had to give something back to both his home countries, Bangladesh as well as Germany, which he did, not only in the field of his own profession, but also in the wider field of general knowledge and culture. This made him a wanderer between the worlds, a bridge builder.

'Bridge Builder: Dr Golam Abu Zakaria. Medical Physics International' is the title of a felicitation volume, edited by Hasin Anupama Azhari, Arun Chougule and Volker Steil, and published by the Alo Bhubon Trust in 2023 and distributed by Power Publishers, India, and Gyankosh Prokashoni, Bangladesh. Four dozen authors from all over the world have written on Zakaria's study and

Germany

professional life in Germany; the historical developments of medical physics in Bangladesh; the cooperation between Germany and Bangladesh in the field of medical physics in Bangladesh; the international perspectives and cooperation in medical physics in South Asia and beyond; the development of medical physics as seen by students in Bangladesh and Germany, and finally reflexions on education and health in Bangladesh and personal reminiscences of long-time friends in Germany.

Thomas Kron, director of physical sciences Peter MacCallum Cancer Centre in Melbourne, set the tone in his foreword, where he described 'Dr Zakaria's field of study by crossing the Multidi Bridge. Medical physics is the application of principles of physics and problem-solving skills to problems in health ranging from prevention to detection, treatment and care of human diseases.' (p. 12). In pursuing his 'boulevard of dreams' he set up the South Asia Centre for Medical Physics and Cancer Research (SCMPRC) in Dhaka, aiming not just at improving the quality of medical physics services in Bangladesh, but in all South Asian countries.

I feel honoured and privileged to have been asked to contribute to the volume and am, thus, not an impartial reviewer. But there will be few books on the possibilities and prospects of medical physics in a truly international context and even fewer on the work of a single person who came from Bangladesh, studied and worked in Germany, went on a mission to promote the skills of his profession not only in his country of origin, but all-over South Asia, and to contribute to understanding of cultures of and in both his home countries.

Congratulations! Dr. Dilson Lobo Honored with the Prestigious C.V. Saraswathi-A.N. Parameswaran Memorial AFOMP Second Best PhD Award

In an inspiring achievement, Dr. Dilson Lobo, an Associate Professor at Kasturba Medical College Mangalore (Manipal Academy of Higher Education), has been awarded the prestigious C.V. Saraswathi-A.N. Parameswaran Memorial AFOMP second best PhD award. This esteemed award recognizes the best PhD thesis in Physical Sciences with relevance to medicine, underscoring Dr. Lobo's significant contribution to the field. Dr. Lobo's award-winning thesis, "Skin dose estimates in Postmastectomy chestwall radiotherapy," conducted under the guidance of Dr. Challapalli Srinivas, demonstrates a profound understanding and innovation in medical physics. His work provides critical insights and advancements in radiotherapy, particularly benefiting postmastectomy treatments.

Apart from this remarkable achievement, Dr. Lobo has been a dedicated life member of several professional bodies, including the Association of Medical Physicists of India (AMPI) since 2016, the Indian Brachytherapy Society (IBS) since 2019, and the Association of Radiation Oncologists of India (AROI) since 2023. His contributions to the field have been recognized previously as well, evident from his receipt of two best paper awards and the esteemed M.S. Agarwal Young Investigator Award from AMPI in 2022.

Dr. Lobo's academic portfolio is impressive, with 15 scientific articles published and 13 citations to his credit. He has also actively participated in the medical physics community, presenting 25 oral and poster presentations at various national and international conferences. The C.V. Saraswathi-A.N. Parameswaran Memorial AFOMP award not only honors Dr. Lobo's exceptional work in medical physics but also highlights his continuous commitment to advancing medical science. Kasturba Medical College Mangalore, along with the broader academic and medical community, celebrates Dr. Lobo's outstanding achievement and looks forward to his future contributions.

Developments in brachytherapy at Namazi Teaching Hospital, Shiraz, Iran: An example of prioritizing research to local needs and circumstances

Mohammad Amin Mosleh-Shirazi, PhD CSci

Department of Radio-oncology, Shiraz University of Medical Sciences, Shiraz, Iran Ionizing and Non-Ionizing Radiation Protection Research Center (INIRPRC), School of Paramedical Sciences, Shiraz University of Medical Sciences, Shiraz, Iran

mosleh_amin@hotmail.com

Introduction

Working in a developing country as a member of university faculty at a teaching hospital with strong links to various postgraduate degree courses, one is faced to some extent with a dilemma of how to direct the line of research when it comes to postgraduate student projects. What follows is a personal account of encountering such a dilemma, while aiming to improve the physical and technological aspects of brachytherapy (BT) treatments at Namazi Teaching Hospital, Shiraz, Iran, over the past 15 years or so. Similar to what has been achieved using the same approach in other aspects of radiotherapy (external beam and intraoperative), a number of postgraduate student thesis projects from collaborating academic centres (mostly Masters degree in medical physics or related courses) will be briefly introduced, which have been directed towards solving practical, often local, problems in our BT clinic, as well as those of more global interest.

Background

BT treatments at this Radio-oncology Department date back several decades. Following the clinical implementation and the subsequent decommissioning of a Cathetron® afterloading unit (that used multiple cobalt-60 sources), the clinic acquired and used a Nucletron Selectron® afterloader (with several caesium-137 sources) to treat gynaecological (GYN) cases. This was the situation in 2006, when I started working at this Department as a faculty member, having left my Clinical/ Research Physicist job at the Royal Marsden Hospital and Institute of Cancer Research (University of London), Sutton, UK, to return to my birthplace. My BT experience at the time was fairly limited. This treatment modality, however, seemed an obvious area for improvement (along with external-beam radiotherapy). At the time, tandem-and-ovoids and vaginal cylinder treatments were planned manually based on an in-house orthogonal radiographic setup, in the absence of a commercial BT treatment planning system (TPS).

The *Selection* years

In a collaborative project with the aim of setting up Monte Carlo based BT treatment planning, the following two studies were carried out.

In the first study, the dose rate distribution delivered by a caesium-137 pellet source (as employed in the Selectron unit) was investigated using a Monte Carlo code. The results indicated that the anisotropy function decreased towards the applicator. In patient treatments using a cylindrical applicator with several active pellets, a large discrepancy between the result of simple superposition and Monte Carlo simulations was observed (Sina et al. 2009 & 2011).

In the second study, we used CT images in Monte Carlo based dose calculation for BT treatment planning, designing an interface software to create the geometry file required in the MCNP code. The aim of using the interface software was to facilitate the geometry set-up for simulations. Using the interface software reduced the overall simulation time. The use of CT images and transforming them into MCNP input file for dose calculation in BT was shown to be feasible and reasonably accurate (Moslemi et al. 2011). However, despite the fairly positive results obtained by this algorithm, the time required for image input and dose calculation was found to be too long with the available computing power.

A more practical solution in the form of an in-house 2D BT planning software that we called STPS, was explored. We performed a detailed and varied evaluation of STPS. This TPS showed submillimeter accuracy in its geometrical reconstructions. In terms of calculation accuracy, similar to Nucletron PLATO, as attenuation of the sources and applicator body was not considered, dose was overestimated at the tip of the applicator, but based on the available criteria, dose accuracy at most points were acceptable. Our results confirmed STPS's geometrical, dosimetric and operational reliability (Mosleh-Shirazi et al. 2012).

STPS was, therefore, used for clinical patient planning until our Selectron was decommissioned. We used it in a study that compared a technique that was utilized routinely in some centres at the time, which employed a wire marker to estimate the maximum rectal dose in cervix BT, versus the ICRU 38 recommendation. Our results added evidence that the wire technique underestimated the rectal wall hot spot dose significantly compared to the ICRU method (Mosleh-Shirazi et al. 2014).

3D image-based high-dose-rate brachytherapy

After the purchase of a BEBIG SagiNova® high-dose-rate (HDR) afterloader with a cobalt-60 source and its corresponding SagiPlan® 3D image-based TPS, we started various projects that helped its commissioning and improved its clinical implementation.

Commissioning

We first performed an independent assessment of source transit time for the SagiNova® afterloader. Although not a student project, one of the main investigators was indeed a postgraduate student. The results showed that the afterloader at that time did not apply transit time compensation and suggested a 0.2–0.5 s compensation for each arrival/departure dwell position from/to the afterloader (Kanani et al. 2019).

As part of a more wide-ranging student project, substantial effort was made to collate the current published information at the time to propose a comprehensive methodology for commissioning modern 3D-image-based TPSs for HDR GYN BT. The literature relevant to TPS commissioning was searched, studied and appraised. The developed up-to-date and concise template aimed to cover all dosimetric and non-dosimetric issues (Kanani et al. 2020). The template was then used for commissioning of the SagiPlan® TPS at our Department.

Inverse-planning optimization

Another student project aimed to find part of the parameters needed for implementation of inverse-planning for cervix cancer BT. Restricting the gradients of dwell times between adjacent dwell positions can potentially be beneficial in reducing the probability of hot/cold spots occurring, if the applicators/anatomy move. Our study aimed to quantify the impact of the SagiPlan® modulation restriction on plan quality indices in inverse optimization for cervix HDR BT. We found that, assuming a static geometry, degradation of plan quality resulted from restricting the dwell time homogeneity in min/max-based optimization. Therefore, setting modulation restriction to zero was suggested for the type of patient plans considered (Mosleh-Shirazi et al. 2019).

Recently, more students have been working on improving the quality and efficiency of GYN treatment planning, using both classical and artificial-intelligence approaches, as well as radiobiological-based optimization (unpublished).

Improved use of 3D images

We have been investigating various ways of improving the use of 3D images in GYN BT, for both CT- and MRI-based planning.

To achieve more accurate source-position and structure definitions in CT-based GYN BT planning, we first evaluated an iterative metal-artifact reduction (iMAR) algorithm, dual-energy CT (DECT) through virtual monoenergetic images, and a combination of iMAR and DECT for reducing metal artifact severity induced by Fletcher titanium applicators, the efficacy of which had not been reported at the time. The findings indicated that (a) iMAR reduces the severity of the artifacts caused by Fletcher titanium applicators for both single-energy CT and DECT, (b) a combination of iMAR and DECT is superior to either strategy alone, and (c) at low energies, DECT + iMAR also produces similar artifact reduction (Kanani et al. 2022).

We have also worked on MRI-based BT planning, which has helped to implement it clinically. We first developed a novel multi-purpose QC phantom, that we called AQuA-BT, and explored its applications in 3D image-based (particularly MRI-based) planning for GYN BT. The phantom was shown to be a useful tool for dosimetric and geometric quality control for this application (Kanani et al. 2023).

More recently, we have quantified the artifacts and image distortions in 1.5 Tesla MR images of the BEBIG Portio® multi-channel vaginal BT applicator. The applicator aims to provide better target dose coverage and sparing organs-at-risk compared to a single-channel cylinder. MRI artifacts and distortions of this applicator had not been reported. We found that the Portio® has a low level of artifacts and image distortions in 1.5-Tesla T2W images (Kanani et al. 2023).

Miscellaneous brachytherapy research studies

In contrast, there were a number of other BT studies done as part of various student projects that were not aimed at the needs of our BT clinic. A number of published papers came from these studies, which will not be described here for the sake of brevity and being outside the aims and scope of this article (Baradaran-Ghahfarokhi et al. 2010a and 2010b, Lotfi et al. 2011, Mosleh-Shirazi et al. 2012, Naghshnezhad et al. 2012, Mohammadyari et al. 2015).

Concluding remarks

Following a number of miscellaneous research projects around 2008-2015, the opportunities offered by postgraduate student thesis projects have been directed towards filling the gaps in equipment availability, etc. (mostly before the purchase of a modern afterloader and TPS) or improving the delivered BT quality since then. With the new equipment, our research has made a transition from addressing local needs to topics of more global interest. It is hoped that our shared experiences here is helpful to other medical physics professionals, especially those from centres in developing countries with links to academic departments.

Acknowledgements

The author would like to acknowledge the efforts of the postgraduate students from Shiraz University of Medical Sciences and Shiraz University whose projects have been described here, and their project co-supervisors and co-advisors, as well as his

colleagues at the Department of Radio-oncology and international collaborators, and thank everyone involved for their valuable contributions. Financial support by Shiraz University of Medical Sciences is also acknowledged.

About the Author:

Dr MA Mosleh-Shirazi is a UK-educated and board-certified medical physicist currently working as Associate Professor and Head of Radiotherapy Physics Unit at Shiraz University of Medical Sciences. He is currently the President of the Iranian Association of Medical Physicists and a Member of AFOMP's Awards & Honours Committee.

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Exploring the Convergence Mode and Aperture Shape Controller for Volumetric Modulated Arc Radiation Therapy Techniques

Dinesh Kumar Saroj[1,2], Dr.Suresh Yadav[3] Subhas Haldar[4], Ravindra Shende[2],

[1] *Department of Physics ,Rabindranath Tagore University, Bhopal , India*
[2]*Balco Medical Center, New Raipur , Chhattisgarh, India*
[3]*Gandhi Medical College , Bhopal, India*
[4]*Saroj Gupta Cancer Centre & Research Institute , Kolkata ,India*

Introduction:

In modern radiotherapy (RT), the volumetric modulated arc therapy (VMAT) technique is widely used for precise dose delivery to the target while minimizing radiation to surrounding tissues. It involves adjusting machine parameters such as the multileaf collimator (MLC), collimator jaws, dose rate, and gantry speed [1]. Planning is done inversely in the optimizer, optimizing dose distribution by dynamically adjusting beam aperture, dose rate, and gantry rotation.

Enhanced beam modulation in VMAT enhances organ-at-risk (OAR) sparing and ensures a highly conformal dose to the planning target volume (PTV). The Eclipse treatment planning system (TPS) enables users to amplify modulation by adjusting Convergence Mode (CM) settings in the optimizer. This allows users to decide the degree to which the minimization of the cost function of optimization parameters is extended. Prolonged minimization may improve OAR sparing and increase PTV conformity and homogeneity, though it may also lead to increased complexity in beam delivery. The complexity of treatment plans may influence dose calculation accuracy, treatment time, and the repeatability of treatment delivery [2]. Despite potentially resulting in relatively similar dose distributions, the choice of optimization strategies in VMAT planning can lead to significant variations in plan complexity.

To mitigate excessive modulation, the Aperture Shape Controller (ASC) tool, available in Eclipse Treatment Planning System (TPS) (Varian Medical Systems, Palo Alto, US) version 15·6 onwards, can be employed [3]. Existing evidence suggests that ASC has a modest impact on reducing plan complexity in specific cases, with varying effects on plan quality across different tumor sites [4]. The existing literature has suggested that ASC may contribute to reducing plan complexity while CM improves target coverage and OAR sparing [5]. The objective of this study is to systematically investigate the advantages and drawbacks of beam modulation in terms of PTV coverage, OAR preservation, and plan complexity. This exploration will encompass diverse ASC and CM settings in VMAT planning for patients with head and neck (H&N) cancer.

Materials and Method:

Our study included 10 Head-and-Neck cancer patients from our institute's database. These patients have previously received

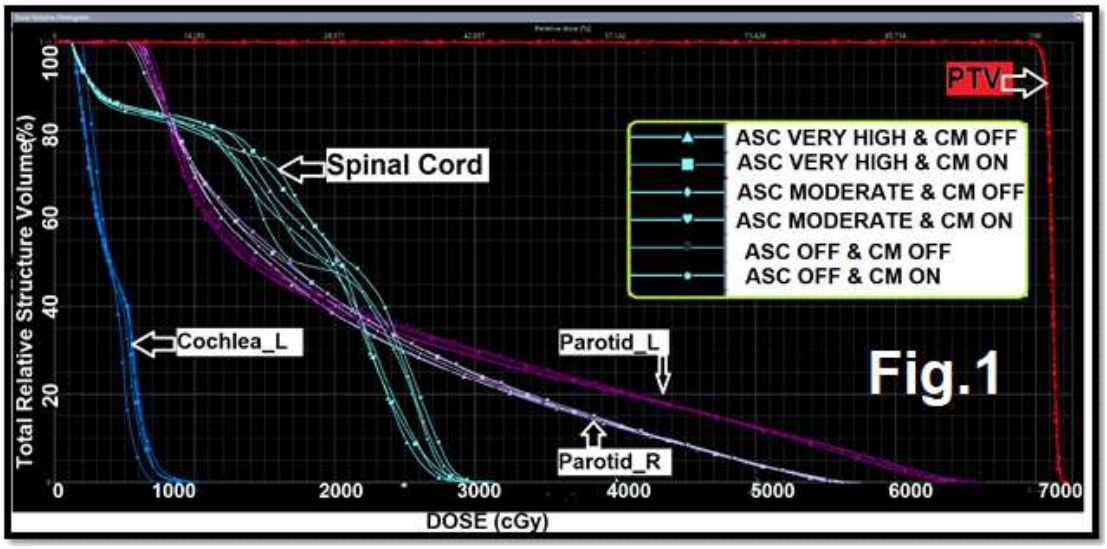

Figure 1: Shows the dose volume histogram of the PTV and OARs for various ASC and CM modes.

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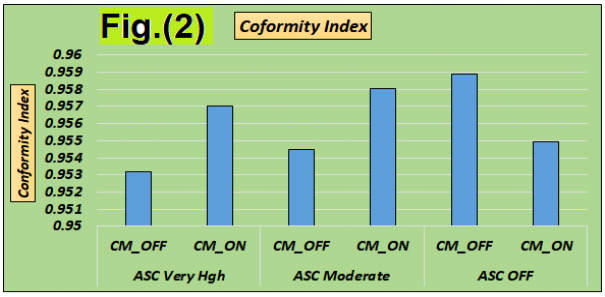

Figure 2: Shows the conformity index for the VMAT treatment plan for different ASC and CM mode settings.

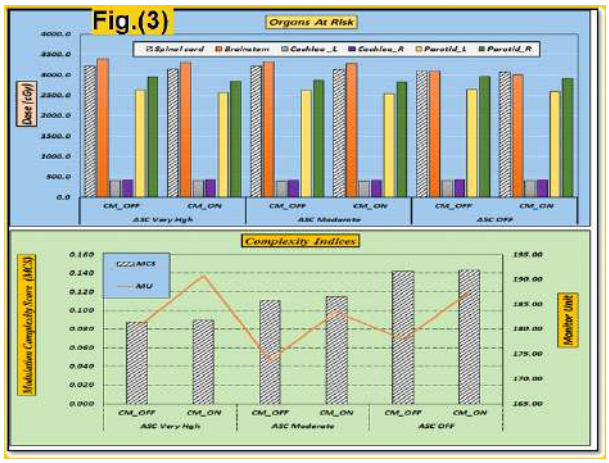

Figure 3: Illustrates the doses to OARs and complexity indices for variable settings of ASC and CM mode.

VMAT (6MV FF photon beam) treatment at our facility. Retrospectively, the plans were generated for the Varian True Beam linear accelerator (Varian Medical Systems [VMS], Palo Alto, US) with the Millennium 120 MLC. The plans were optimized with Photon Optimizer (PO) v16.1. And calculated with Analytic Anisotropic Algorithm (AAA) v116.1 with a grid size of 0·25 cm. The treatment technique, prescription, and plan normalization followed departmental protocols for the H&N treatment site. The H&N plans were optimized with three full arcs with collimator angles of 100, 3500, and 900. Simultaneously integrated boost (SIB) to the dose of 70/63/56 Gy in 2/1.8/1.6-Gy fractions was used in the planning. In the optimizer, the ASC has six options: 'off', 'very low', 'low', 'moderate', 'high', and 'very high'. The CM has three options: 'off', 'on', and 'extended'. To limit the number of comparisons, the number of ASC settings was limited to three: 'off', 'moderate' and 'very high'. The plan complexity was analyzed using the total MU and Modulation Complexity Score (MCS) for VMAT. The values range from 0 to 1, with a lower value indicating higher complexity [6].

Results and Discussion:

Figure 1 shows the dose volume histogram (DVH) for PTV and OARs with various ASC and CM settings. For the H&N patients, no significant differences were found for CI. However, the highest CI values are reported for ASC OFF and CM OFF mode, while they are lowest for ASC High with CM ON mode. The plan quality was in general not affected by a higher ASC setting; this is in agreement with previous studies on the ASC [7]. They followed a similar approach by not changing the objectives during the optimization. Figure 2 shows the doses of OARs for different ASC and CM modes. The lowest maximum dose for the spinal cord and brainstem is observed in ASC OFF and CM ON modes. The lowest mean doses for parotid left and right were reported in ASC Moderate and CM ON Mode. Cochlea average mean dose was reported to be the least in the treatment plan with ASC moderate and CM OFF mode. Figure 3 shows the complexity score and MU value variation for various ASC and CM settings. The treatment plans with higher MUs are the most complex. The average MU value for ASC moderate with CM ON was found to be lowest compared to ASC OFF and ASC very high for both CM ON and CM OFF modes. A higher ASC setting should reduce plan complexity. The most complex plans should be those where the ASC is turned off, and the least complex plans should be those with an ASC level of "very high". Treatment plans with ASC OFF were less complex than those with ASC very high and ASC moderate mode. This is a contradictory result as compared to previous findings. This could be because of the methodology and the complexity indices used to compute the complexity of the treatment plan.

Conclusion:

The ASC and CM modes were OFF, resulting in improved plan quality in terms of target conformity. ASC OFF and CM OFF resulted in a simple plan. A treatment plan with ASC moderate and CM ON helps to reduce the MU.

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The Neurons of the Medical Physics

Cesar Younan
Lebanon

It is so beautiful to excel in a certain field but the most appreciated things is to know that your contribution has a great benefit on the patient care especially in the field of medical physics. The more new techniques in cancer treatment or in medical diagnostics are presented, the more the need of a knowledge update.

If medical physics can be considered the brain in radiation therapy treatment and medical imaging,t here must be some certains neurons that connects young Physicits to that brain. Certainly Professor Zakaria is one of these neurons guiding the new generation toward to professional level espacially in the south Asia region. Because Medical Physics has no borders Professor Zakaria has never hestiated to expand his sharing courses worldwide.

Many Medical Physicists outside the south Asia region have found interest in such continuous education. To make the SCMPCR more attractive to the attendees, Professor Zakaria did not save any of his connections across the world for the gain of the new generation. From Germany , China , Japan, USA ,Poland , and other countries very known lecturer for their precious career have been taking part in this Job. It was a great honor to meet and get some of the experience of highly honoured professors and they are many as like Professor Hartman, Prof Kukolowich. That without the contribution of Professor Zakaria one could not have been able to be connected to such great founders of the medical physics era.

The roadmap of connecting the past with the present will definitely offer the young generation a better and easier future along this struggle against cancer. Whereas some people have sacrified their life career to destroy humanity, others have in contrary have sacrified their life for helping others making a good difference in saving lifes or at least trying to do their best. This work would not have been successful without a great team especially from Bangladesh that never give up even under so hard life conditions.

Afterall success is the result of many trials. As one of the young generation, i am happy to look forward as every year for the upcoming interested lectures offered by the SCMPCR. One can summarize that continuous education in medical physics can be definitely considered as the continuous bread that a medical physicist needs to stay tuned und refreshed.

Dosimetric consequences due to several ignored variations in Head and Neck Radiotherapy: A Literature Review

Anjali Jha, Shishan Yadav, Sumit Gupta

Birat Medical College Teaching Hospital (Birat Cancer Institute), Biratnagar, Nepal

Introduction:

Head and neck cancers radiotherapy are subject to significant variations due to tumor shrinkage, weight loss and positional changes away from isocenter during radiotherapy. These changes may prevent the prescribed dose delivery to tumor volumes and may cause significant toxicity by increasing the dose to the organs at risk (OARs). These mentioned variations are generally overlooked or ignored. Various literatures reported that 1% decrease in dose will decrease around 0.5% - 5.0% probability for tumour control, with corresponding values for normal tissue complications of around 2-3%. With the use of highly conformal IMRT/VMAT treatment plans these alterations have a more critical impact than for conventional RT due to steep dose gradient between the edge of target volumes and critical OARs. We referred to some literatures to quantify the dosimetric impact due to these small variations.

Results & Discussions:

Radaideh et al[1] studied the dosimetric impact due to weight loss. For this study two anatomical head and neck (H&N) phantoms were designed using Perspex material: phantom A, representing the patient before starting the treatment, and phantom B, representing the same patient after weight loss. Measured doses at various regions at both phantoms were compared with the constraint doses. The maximum dose (Dmax) to OARs increased in all patients' plans without adjustments. At the optic nerve, the Dmax increased by 9.4 Gy (25.5 %), brainstem by 29.8 Gy (46.8 %), and the parotid glands increased by 12.4 Gy (40.3 %). When the adjustment is not considered, the average dose difference between the delivered doses and planned doses by TPS increased from 1.6 to 3.5 Gy to the range of 4.1 to 29.8 Gy due to tumor shrinking and weight loss. These changes in the external contour, shape, and location of the target and critical structures appeared to be significant after the 21st fraction and could have potential dosimetric impact when highly conformal treatment techniques are used. The study suggested to do another CT scan and to design a new plan for the next 22nd–33rd fractions. This study also suggests to do careful clinical monitoring using portal imaging if there is 5% loss of body weight.

Neubauer et al[2] studied the assessment of shoulder position variation and its impact on IMRT and VMAT doses for head and neck cancer. They found that shoulder motion was 2-5 mm in

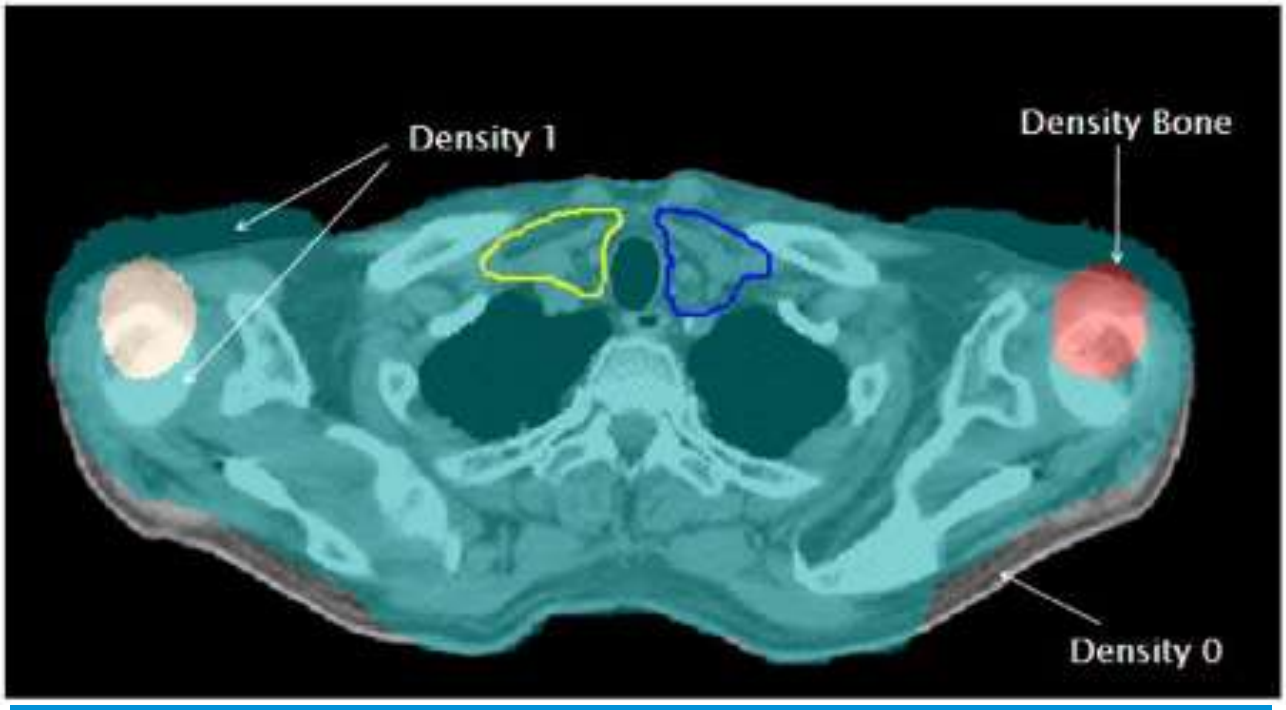

Fig. 1: Shift in body contour due to improper alignment of shoulder

Nepal

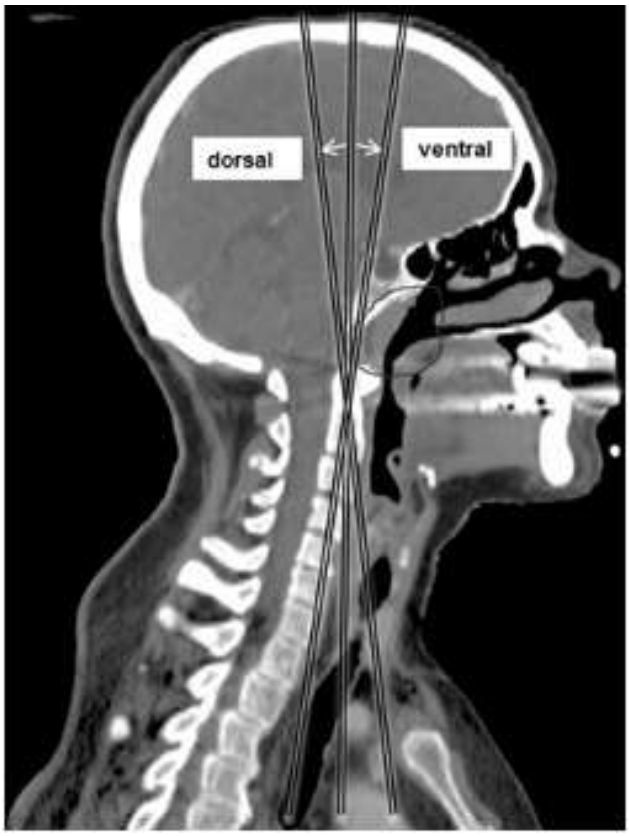

Fig. 1: Schema of pitch in ventral and dorsal direction in a patient with NPC.

each direction on average but reached up to 20 mm. Superior shifts resulted in coverage loss, whereas inferior shifts increased the dose to the brachial plexus. These findings were generally consistent for both IMRT and VMAT plans. Over a course of observed shifts, the dose to 99% of the CTV decreased by up to 101 cGy, and the brachial plexus dose increased by up to 72 cGy. The position of the shoulder affects target coverage and critical structure dose, and may therefore be a concern during the setup of head and neck patients, particularly those with low neck primary disease. This study recommends to use 5 Point mask if lower neck is being treated to fix the shoulder appropriately. They further recommend to perform daily imaging for proper shoulder alignment and compare it to Digitally Reconstructed Radiographs (DRR). The angle of the clavicle in an AP image can also indicate a superior shoulder shift if it is steeper than it appears in a DRR. If possible, the shoulders or humeral heads can also be used as a secondary alignment point in Cone Beam CT setup. If imaging data is not available due to field of view limitations, indexing the position of shoulders to the treatment couch via mask marks should at least help to avoid superior shifts.

Sonja Stieb et al[3]; demonstrated the dosimetric influence of pitch in patient positioning for radiotherapy of long treatment volumes like nasopharyngeal cancer radiotherapy. They found that the deviation in dose to the planning target volume is increasing with the degree of pitch with mean changes of up to 2% for NPC. The most affected OAR in NPC patients is brainstem (max. dose +6.0%) and spinal cord (max. dose +10.0%) when tilted by 3° dorsally and lenses (max. dose +3.3%), oral mucosa (mean dose +2.6%) and parotid glands (mean dose +4.3%) when tilted by 3° ventrally. They concluded & recommended that pitch should be corrected with 6DoF treatment couch which might be clinically beneficial by executing these corrections without repositioning the patient.

Conclusion:

Radiotherapy technologist (RTT) should observe minutely to all the possible changes which have adverse effect in the era highly conformal radiotherapy and should take appropriate actions to resolve in order to maximize therapeutic ratio.

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Resourceful commitment and strong collaborations to unveil proficient medical physicists in South Asia

Interview with Experts

"Dipl. Ing. Hierholz started her career as a radiation therapist in 1986 and ventured into medical physics in early 90s. She is serving as the chief medical physicist at the 'Institut für Radioonkologie und Strahlentherapie, Klinikum Darmstadt GmbH' since 2004. Her personal interactions with Prof G A Zakaria in early 2006 lead to hear active involvement in teaching and training of medical physicists and radiation oncologists of the region ever since. She was personally present in many of the training programs held in Bangladesh and also hosted many medical physicists from Bangladesh and India at her institute for periods of training varying from weeks to months. She personally and privately steered many collaborations between institutes to benefit physicists and radiation oncologists of South Asia, especially Bangladesh and India."

South Asia Centre for Medical Physics and Cancer Research (SCMPCR) is pledged to empower medical physicists and enhance medical physics services and cancer research in South Asia with its ultimate goal to benefit patients and the mankind. With a multitude of teaching and training programs, the challenges of medical physicists in the region are met head on and SCMPCR is crossing its infancy to childhood gloriously through collaboration and co-operation. Visionaries of medical physics from the region took initiatives even before the inception of SCMPCR to deal with the heterogeneous demands of the region. SCMPCR added momentum to these activities and stands strong with innovative and efficient training programs and activities. The SCMPCR newsletter aims to promote medical physicists and medical physics activities in the region nurturing sustainable collaborations and co-operations.

For this issue of newsletter, we are privileged to have Dipl. Ing. Kirsten Hierholz (KH) to share her experiences and insights. Here is a snippet of the chat with Dipl. Ing. Hierholz by Dr. Mary Joan (MJ) regarding her contributions and involvement in establishing a well-structured training program for empowerment of medical physicists in South Asia especially Bangladesh.

MJ: Glad to have this opportunity to hear you. You are involved in cancer care for about four decades now. Would you please share your early experiences and what prompted you to venture into medical physics as a career?

KH: It is a pleasure and honour for me to have the opportunity to give some of my experiences in the field of medical physics to you. After graduating from high school I started a vocational training for radiation therapists with the idea to work in the field of diagnostic radiology. The profession of medical physicists was completely unknown to me. I was already attracted to working as a radiation therapists through the close cooperation between medicine and technology. Then, however, as part of my training, I also got to know radiotherapy and the medical physicist employed in the clinic there. Treatment was carried out on a cobalt device and the *treatment plan* was calculated manually using tables. At that time, there was no software available that could be used to create treatment plans. We were also shown some quality assurance on the Cobalt device and from that day on it was clear to me that I wanted to become a medical physicist. With some research, I was able to find a suitable course of study that included both medical and technical knowledge, with a focus on radiotherapy contents. As I found out again and again later, this was a very good foundation for my work in radiotherapy.

MJ: The process of becoming a medical physicist in Germany differs from that in South Asia. Please elaborate on the important aspects?

KH: A lot has changed in Germany in recent decades. The prerequisite for the ability to work independently as a medical physicist in Germany has always been a degree in natural sciences, followed by a two-year practical phase. During this time,

the application of theoretical knowledge in practice is to be learned. Today, many universities offer dedicated courses of study in medical physics, which creates a broad theoretical knowledge for later work. Many clinics, including ours, offer special training positions which help the young colleagues to complete their training period (nowadays reduced to 18 months) without financial problems. This is a great relief, because my generation often had to serve these years gratuitous. The experienced medical physicists act as mentors, who at the end of this period have to certify the knowledge of the young colleagues (according to a specified catalogue of tasks) and confirm their suitability for this responsible profession. It was only a few years ago that this catalogue of tasks was introduced to ensure standardised training regardless of the institute in which it takes place. At the end of the training, the trainees receive a special document issued by the authority which is the permission to work as a medical physicist.

MJ: You have personally nurtured many collaborations for medical physicists and radiation oncologists from South Asia. Please enlighten us on the early status and challenges?

KH: It was at the end of 2006 when the first two colleagues from NICRH Dhaka (medical physicist and radiation oncologist) visited our institute. At that time, the linear accelerators for NICRH had been ordered, but not yet installed. This posed great challenges for both us and our two trainees. Since there were very few linear accelerators in operation in Bangladesh at that time, training opportunities there were very limited and their knowledge was mainly theoretical. So we tried to pass on as much as possible of our knowledge about basic quality assurance and also how to deal with the treatment planning system as well as using modern techniques in treatment planning. That's why I still have great respect for the performance of these colleagues who had to commission the first linear accelerator in NICRH Dhaka - with this training of just 10 weeks. And we found that all subsequent guest students had more prior knowledge due to the experience they had already gained in their home country. It was a great pleasure for me to see that medical physics in Bangladesh is developing more and more.

MJ: We know that the status and situations are much different today with some advantages as well as differing challenges. How do you look at the present scenario?

KH: I think the opportunities to get a good education have changed drastically for the better in recent years - since I have been observing the situation in the Asian region. At the same time, developments in our field have led to major changes, which also require rapid change in training. This is certainly the biggest challenge at the moment, both in Asia and here in Europe. However, what I notice when reading the SCMPCR newsletters is a good development to further improve health care in the Asian region. Especially due to the rapid developments in our field, it seems to me more important than ever to network and maintain contacts in order to be able to exchange professional ideas.

MJ: Kindly share your most memorable experiences in your collaborations?

KH: I think these are two experiences which have been most memorable. First, a rather private one, namely the long-standing friendship with a radiation oncologist and her family, who joined as a trainee for three months. The friendship that developed at that time eventually led to an unforgettable private trip to Bangladesh, where we visited both Dhaka and other parts of the country (Srimangal and Sundabarns). In Dhaka, we also visited the NICRH and Dhaka medical college and hospital to give workshops in treatment planning and quality assurance. Here we were met with so much interest and hospitality that even these days remain in our memories. The friendship, which still exists 15 years after the training, continues to be a very enriching experience despite the distance.

The second memorable experience was the participation on the 1st ICMPROI in 2011. I joined this meeting together with two radiation oncologists from Darmstadt (Prof. Dr. Bernd Kober and Dr. Christine Voith). I was very impressed by the enthusiasm with which this congress was organized at that time, with what great hospitality we and all the other invited guests were received. Also the joy all colleagues from abroad showed in passing their knowledge to the participants of the conference was impressive. And finally it was a pleasure to see how much all participants were interested in further education.

MJ: In this era of technological advancements and artificial intelligence, how do you see the prospects for medical physicists and radiation oncologists?

KH: I see that our work itself is changing. Many processes are simplified by technological advances; processes are less time-consuming and labour-intensive than they used to be in former time. At the same time, however, a different kind of work is emerging. From my point of view, many decisions will continue to be individual decisions of the radiation oncologist and the medical physicist that cannot be made automatically or standardized.

In Germany, treatment concepts are changing towards higher doses with only a few fractions and the use of adaptive radiotherapy is on everyone's lips. However, this requires more manpower directly during treatment, in verifying the quality of adaptive treatment plans and also the imaging system.

I think artificial intelligence will support us, but humans will still be needed to control the systems and so I continue to see great demand for well-trained, committed medical physicists.

MJ: What would be your advice to young medical physicists and radiation oncologists of South Asia for career development?

KH: What I also recommend to my young colleagues here in Germany: First of all, they should try to get a good theoretical basis through suitable studies tailored to medical physics. And for practical work in routine work with patients – start with the simple before moving on to complex cases. Let me give you an example: Dealing with the details of the measurement of small fields only makes sense if I know and can determine the limits of the mechanical accuracy of a linear accelerator. You have to take the time to learn simple, basic things.

Because from my point of view, what makes a really good medical physicist is the ability to recognize, explain and then correct mistakes. The control of the technical systems that relieve

us of work, but on which we must not blindly rely, will increasingly be the task of medical physicists.

MJ: We know you are assiduously planning better prospects and opportunities for the radiation professionals of the region. What are your visions for SCMPCR?

KH: I believe that SCMPCR can help and is already helping to standardize the training and knowledge of its young colleagues. The trainings that took place in our clinic certainly helped my colleagues a little, but it often seemed like a drop in the ocean to me. Individually certainly an enrichment, but the effect was then also limited to the individual. It is precisely through the opportunities to participate in online training courses and hands-on trainings that more young colleagues can be reached with comparatively little effort.

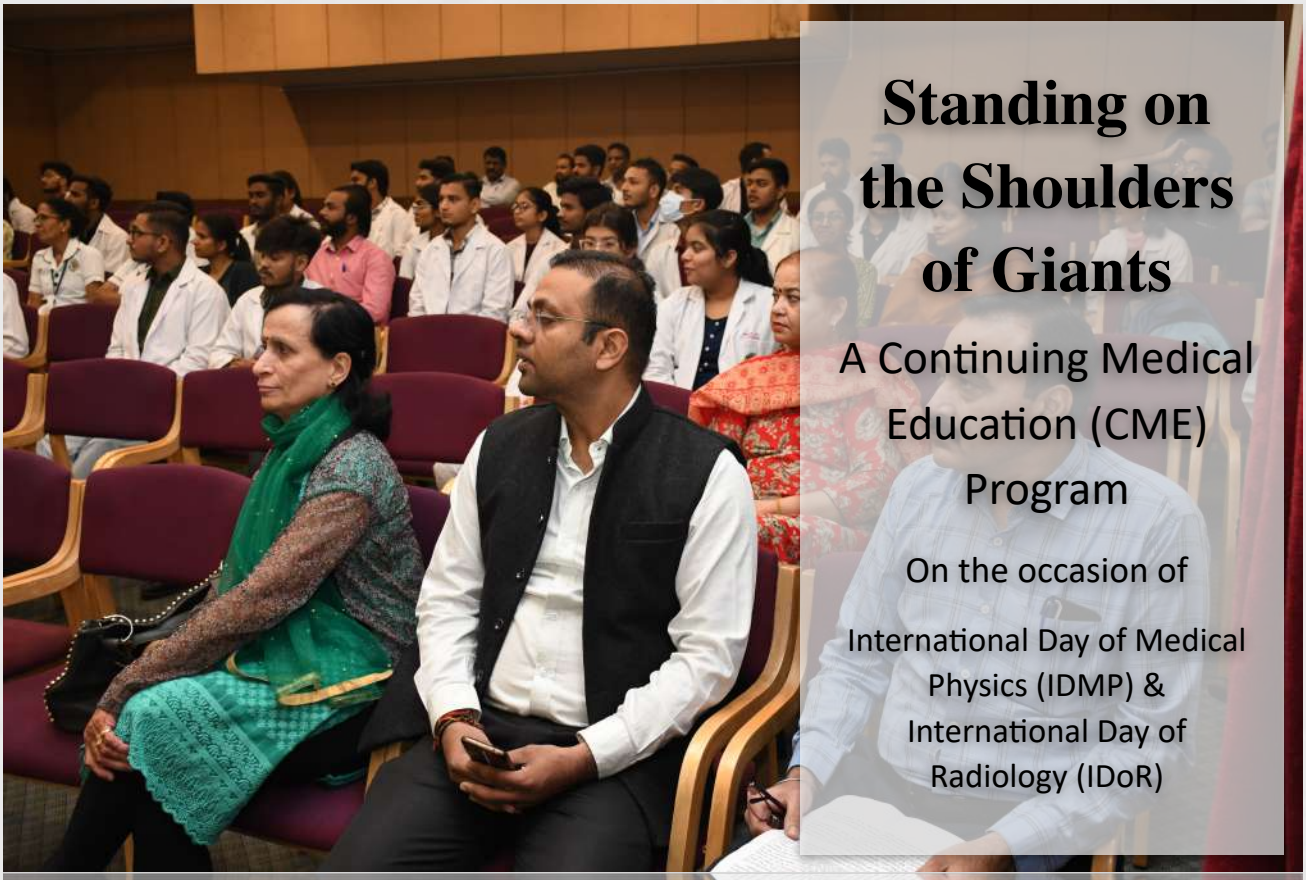
For comparison, the German Society for Medical Physics was founded in 1968, more than 50 years ago. University degree programmes specializing in medical physics, standardized quality assurance and treatment procedures can also be traced back to the work of professional societies. However, the example also shows that it takes time.

But: The more students know about the SCMPCR and recommend it to others, the better known the field becomes and the more likely it is, that funding from the government will be received.

And: With every well-trained medical physicist and radiation oncologist, the care of patients in the country also improves.

MJ: Yes, indeed. Radiotherapy is specialization were the optimum care to the patients can be delivered only when the multidisciplinary team of medical physicists, radiation oncologists, radiation technologists, nurses and other members work in coordination and mutual understanding. This is often a challenge due to gaps in educational and professional training. I am sure the teaching and training programs spearheaded by SCMPCR will be instrumental in minimizing these gaps and ensuring the best quality treatment and care to the cancer patients. Thank you very much for your pioneering efforts and the extra miles you have gone to improve these training programs. Thank you very much for sparing your time to share your experiences and vision for the clinical training programs that is going on in South Asia. The solidarity and camaraderie you exhibited in strengthening the teaching, training, professional status of not only medical physicists, but also other radiation professionals from the region ensuring quality patient services. Looking forward to continuing cooperation and collaborations with you. Thank you very much.

Dr Mary Joan is Associate Professor and Radiological Safety Officer at Christian Medical College and Hospital Ludhiana, India. She is Chair, Professional Relations Committee AFOMP, Member- Science Committee IOMP and Executive Committee AMPI-NC and Co Editor-in-Chief of SCMPCR Newsletter.



Standing on the Shoulders of Giants

A Continuing Medical Education (CME) Program

On the occasion of

International Day of Medical Physics (IDMP) & International Day of Radiology (IDoR)

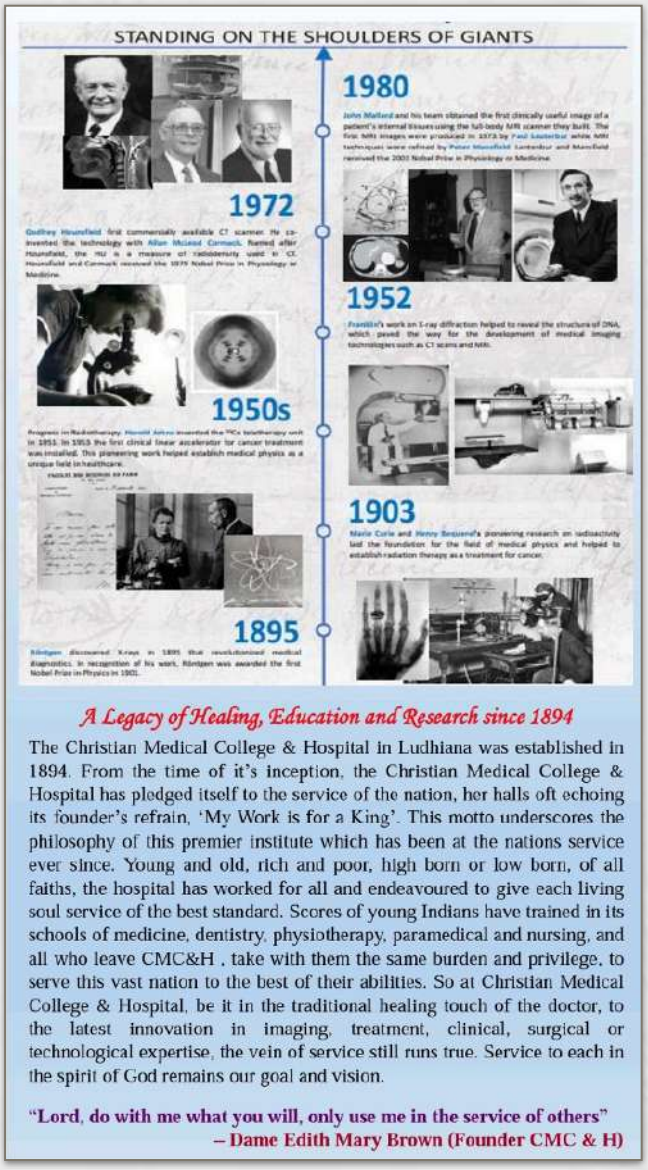
On November 8, 2023, the Departments of Radiation Oncology and Radio Diagnosis at Christian Medical College & Hospital, Ludhiana, organized a Continuing Medical Education (CME) Program under the theme 'Standing on the Shoulders of Giants.' This event commemorated the International Day of Medical Physics (IDMP) and the International Day of Radiology (IDoR)-2023. The CME, accredited with 3 credit hours by the Punjab Medical Council, was held at the Guy & Constable Auditorium, Christian Medical College and Hospital, Ludhiana.

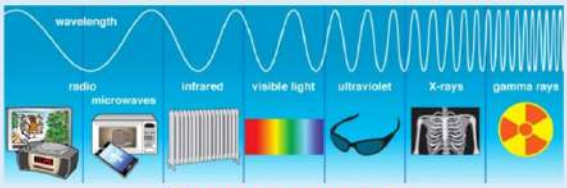
The contribution of Medical Physics to healthcare is multi-dimensional, and it has improved healthcare tremendously. The recent advancements in medical physics, particularly in radiodiagnosis, radiotherapy, nuclear medicine, and various fields, especially using ionizing radiation, have made monumental sprints. To bring and recognize the contribution of Medical Physics to healthcare, the International Organization for Medical Physics (IOMP) has started to celebrate November 7, the birthday of Madam Marie Curie, as International Day of Medical Physics (IDMP) since 2013. The main purpose of IDMP celebrations includes motivating the organization of activities that promote medical physics globally, increasing the profession's visibility and outreach to fellow professionals and the general public. Since the 7th day of November 2013, the very first International Day of Medical Physics, where various academic and teaching institutes showcased medical physicists' contributions to healthcare globally, it continues to be celebrated annually. The discovery of X-rays on November 8 1895, by German physicist Prof Wilhelm Roentgen revolutionized medical

diagnosis and treatment. The anniversary of this discovery is celebrated worldwide as IDoR in recognition of the remarkable contributions made by radiological imaging and radiotherapy to health care and the role of radiation professionals in providing quality care to patients.

Christian Medical College and Hospital Ludhiana has consistently been at the forefront of providing the best diagnostic and treatment facilities for patients since 1894. The teaching and training program for radiotherapy technologists at CMC Ludhiana dates back to the early 1960s, and the MD Radiation Oncology program at the institute has completed 30 years. The departments of Radiation Oncology and Radio Diagnosis collectively decided to commemorate IDMP and IDoR in 2023, with more than 260 healthcare professionals and trainees attending the CME.

The CME started with the inaugural ceremony, which was graced by Dr William Bhatti, Director, CMC and Hospital, Ludhiana, Dr Jeyaraj Pandian, Principal Christian Medical College Ludhiana, Dr Allen Joseph, Medical Superintendent, CMC Hospital and Dr MK Mahajan Chief Guest and keynote speaker. The inaugural program started with a prayer by Rev. Fr. Alex Peter and an invocation song by the radiotherapy choir. Dr Pamela Jeyaraj, Prof and Head of the Department of Radiation Oncology and the Organizing Chairperson of the CME, formally welcomed all the guests and delegates. Dr Harish Gambhir spoke about IDMP and IDoR and threw light on the objectives of the CME, highlighting the contributions of Madame Marie Curie and Prof W C Roentgen. Dr. William Bhatti emphasized the importance of remembering the pioneers and their contributions and stated that we learn and grow in the process. Dr. Jeyaraj Pandian highlighted the importance of scientific acumen and shared insights to define and design research goals for dealing with the





Scientific Schedule

(8th November 2023 Wednesday)

Morning session

Time	Proceedings	Chairperson
08.00AM- 08.30AM (30 min)	Registration	
08.30AM- 09.30AM (60 min)	Inauguration	
09.30AM- 10.00AM (25+5 min)	Standing on the shoulders of Giants **Dr M K Mahajan**	Dr. Harish Gambhir Dr. Gurpreet Kaur Thiara
10.00AM- 10.30AM (25+ 5 min)	Recent Advances in Neuro-Intervention **Dr Rajeshwar Sahonta**	Dr. Pamela Jeyaraj Dr. Amit Batra
10.30AM- 11.00AM (25+5 min)	Irradiation of cellular blood components- Transfusion Medicine perspective **Dr Gurpreet Kaur Thiara**	Dr. Roma Issac Dr. Harpreet Singh
11.00AM-11.30AM (30 min)	Tea	
11.30 AM-12.00Noon (25+ 5 Min)	Advancements in radiation dosimetry **PTW**	Dr. Mary Joan Dr. Abraham P Abraham
12.00Noon-12.30PM (25+ 5 Min)	Personnel Monitoring: What we should know? **Dr Abraham P Abraham**	Dr. Shekhar Kapoor Dr. Julie Mathew
12.30PM-01.00PM (25+5 Min)	Improving patient safety in Radiology- Minimizing human errors **Dr Vineet Alexander Joseph**	Dr. Manbir Singh Dr. Sunil Varghese
01.00PM-01.30PM (25+5 Min)	Facts and Myths in Radiation Protection **Mrs Manjinder Kaur Dhanoa**	Dr. Kamlesh Passi Dr. Gurbhej Singh Dr. Paul Sudhakar
01.30PM- 01.45PM (15 Min)	Poster Rapporteur **Dr Mary Joan**	Ms. Meghalamani Dr. Samuel David Dr. Lydia Solomon
01.45PM-02.00PM	Prize Distribution and Valedictory Function	

disease burden of the country. He also appreciated the efforts of the Department of Radiation Oncology for organizing this CME. Dr. Allen Joseph spoke on the need to keep everyone updated with advanced treatment options and developing necessary skills and conveyed the IDMP and IDoR greetings. Prof Dr MK Mahajan, a pioneer of radiation oncology in the region and giant in view of his services, took the audience through the development of radiation and radiation oncology at CMCH Ludhiana. The inaugural ceremony concluded with Dr. Mary Joan, Associate Professor, Radiation Safety Officer (RSO), and Organizing Secretary of the CME, expressing gratitude to the entire invited faculty, delegates, and the support team.

The theme of this year's IDMP celebrations was 'Standing on the Shoulders of Giants', and it inspires us to continue our collective commitment to improving patient care, advancing medical technology, and enhancing the overall well-being of our communities. The IDMP day is dedicated to raising awareness about the role of medical physicists in healthcare and their contributions to the well-being of patients. Medical physicists play a crucial role in areas such as radiation therapy, diagnostic imaging, and nuclear medicine, ensuring the safe and effective use of medical technology. The International Day of Medical Physics serves to highlight the importance of their work in improving the diagnosis and treatment of diseases and promoting the well-being of individuals worldwide. The rapidly evolving applications of physics in medicine demand a new set of skills as well as outlooks to meet the challenges efficiently and successfully. This CME offered a forum for radiation professionals of various healthcare streams to come together and share invaluable experiences for improving the practice of applications of radiation in medicine. The scientific program included a keynote talk by veteran radiation oncologist and former Professor and Head of the Department of Radiation Oncology, CMC Ludhiana, on the theme 'Standing on the Shoulders of Giants'.

He has emphasized not only the contributions of giant scientists and clinical medical physicists to the field of radiation oncology but also reiterated the importance of the role of medical physicists in routine clinical activities of radiation oncology and academic and research work. Dr Harish Gambhir, Sono-Radiologist, CMCH Ludhiana and Dr Gurpreet Kaur Thiara, Transfusion Medicine Head, CMCH Ludhiana, moderated the session. Following the keynote address, Dr Rajeshwar Sahonta, Associate Professor of Neurology and Interventional Neurology, spoke about the 'Recent Advances in Neuro-Interventions, moderated by Dr Pamela Jeyaraj, Radiation Oncologist and Dr Amit Batra, Interventional Radiologist. CMCH Ludhiana has a dedicated gamma blood irradiator facility for blood and blood components. Dr Gurpreet Kaur Thiara, Head of Transfusion Medicine, talked about 'irradiation of cellular blood components: transfusion medicine perspective' moderated by Dr Harpreet Singh, Head of Radiation Oncology, Mohan Dai Oswal Cancer Hospital, Ludhiana and Dr Roma Issac, Head of, Pathology, CMCL Ludhiana. The discussion covered indications and contraindications for blood irradiation, including guidelines on when to use irradiated blood. Following the talk, participants engaged in a brief quiz on blood irradiation. After the tea break, Dr. Mary Joan, Medical Physicist, and Dr. Abraham P Abraham, Radiation Oncologist, moderated the presentation of a promotional video from PTW highlighting advances in radiation dosimetry.

The next talk was on 'Personal monitoring: What we should know' by Dr Abraham P Abraham, Radiation Oncologist, moderated by Dr Shekhar Kapoor, Head, Oral Medicine and Radiology, CMCH Ludhiana and Dr Julie Mathew, Christian Dental College Ludhiana. The next talk was on 'Improving Patient Safety in Radiology- Minimizing Human Errors', by Dr Vineet Alexander Joseph, a third-year PG resident in Radio Diagnosis, moderated by Dr Manbir Singh, Head, Urology, CMCH Ludhiana and Dr Sunil Varghese, ENT, CMCH Ludhiana. Varying situations in Radiology in radiation safety and physical safety were discussed in the session, along with practical examples from Urology and ENT. Following that, Mrs Manjinder Kaur Dhanoa, Tutor and Senior Radiotherapy Technologist discussed the Facts and Myths in Radiation Protection. This session was moderated by Dr Kamlesh Passi, Senior Medical Physicist, Mohan Dai Oswal Cancer Hospital; Dr Paul S John, Head of neurosurgery, CMCH Ludhiana; and Dr Gurbhej Sing, Head of cardiology, CMCH Ludhiana. A thriving discussion followed, including various practical situations and challenges in neurosurgery and cardiology and even considering patient safety and patient doses.

A poster-making competition on the theme 'Standing on the Shoulders of Giants' was organized for the graduate students to promote awareness and to nurture all-round development. An enthusiastic participation from students comprising 52 posters and 2 models upheld the spirit of the IDMP celebrations. The rapporteuring of posters was done by Dr Mary Joan. Mr Nikhil Mathew and Ms Harshpreet Kaur won the first and second prizes for the model, and Ms Vedika Choudhary, Ms Samreen Ansari and Ms Komal Pal won the 1st, 2nd and 3rd Prizes in the poster, respectively. Dr Samuel David, Associate Director, CMCH Ludhiana presented the results and awards to the winners. Following the prize distribution, the CME ended with a vote of thanks and the ethos of 'Standing on the Shoulders of Giants' strongly reverberated in all participants.

SCMPCR EBAMP Accredited Hands on training (HW 7) on precision radiotherapy at SGCCRI, Kolkata, India


এই শহর

আর্লি টু রাইজ! আজ নয়া মন্ত্রে শুরু মাধ্যমিক পরীক্ষা

নির্দিষ্ট দিনে বেতন অমিল, স্যালারি ঢুকল একদিন পর

উচ্চশিক্ষায় মোট পড়ুয়া ভর্তিতে পাঁচ নম্বরে বাংলা

ভাগের মা, তাই দূষণে গঙ্গাপ্রাপ্তি খোদ গঙ্গারই

Times of India https://timesofindia.indiatimes.com/city/kolkata/hands-on-training-on-precision-radiotherapy-in-kolkata/articleshowprint/107369683.cms 1/2

KOLKATA: One of Kolkata's oldest cancer specialty hospitals is imparting hands-on training of precision radiotherapy. The four-day international workshop at Saroj Gupta Cancer Centre & Research Institute (SGCCRI), Thakurpukur, will conclude on Sunday, the World Cancer Day. The collaborative effort with SCMPCR, a project of Alo-Bhubon Trust from Bangladesh is being attended by experts from Bangladesh, Nepal, Bhutan and SriLanka. The training programme titled "Quality Assurance in Precision Radiotherapy" is aimed at contributing to the advancement of medical physics and cancer research and is being organised to commemorate SGCCRI's golden jubilee.Many distinguished professors and expert trainers from around the world, including Dr Golam Abu Zakaria (Cologne, Germany), Dr Biplab Sarkar (Apollo Cancer, Kolkata), Dr Ganesh (India), Dr Raju Srivastava (Belgium), Carlos Bohorquez (USA), Dr Florian Kamp (Germany), Krakus Zelch, and K. Kanakavel, some participating as trainers. Attended by more than 50 delegates – all medical physicists from the neighbouring countries, hospital officials are hopeful of strengthening capabilities, fostering collaboration, and contributing to the continuous improvement of patient care in the field of precision radiotherapy.

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THE TIMES OF INDIA

Hands on training on precision radiotherapy in Kolkata

TNN | Feb 2, 2024, 10.43 PM IST

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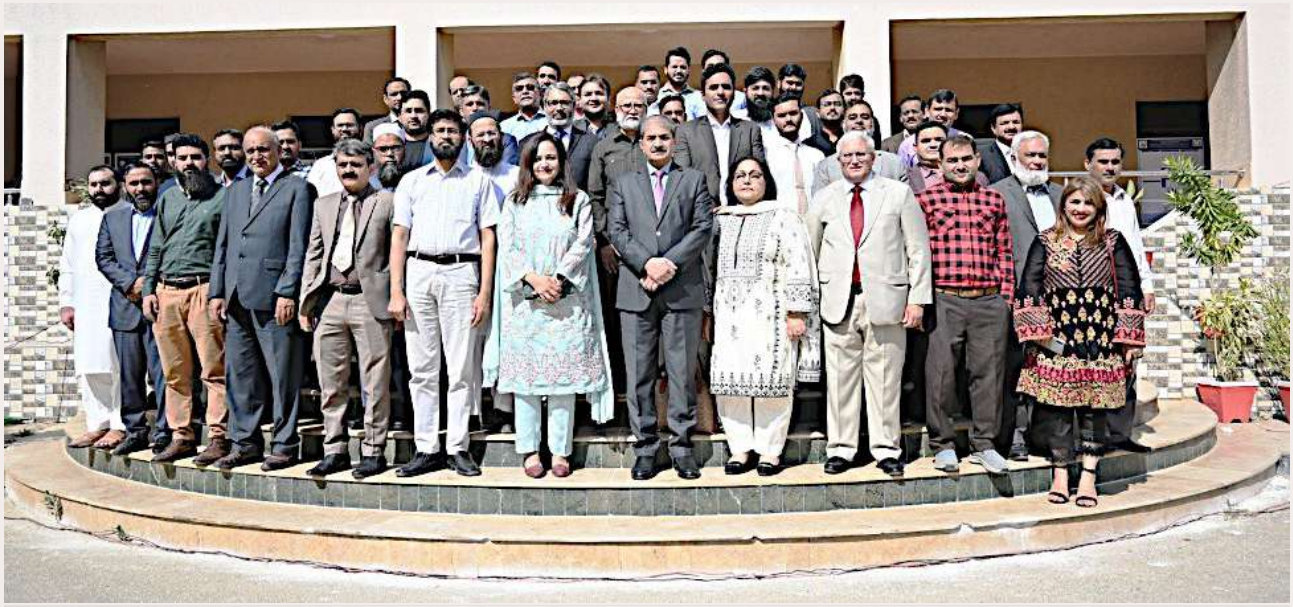
Celebrating Excellence in Medical Physics: 6th Annual Conference on International Day of Medical Physicist at KIRAN Hospital Karachi, Pakistan

By Dr. Atif Masood, Conference Secretary , Principal Medical Physicist, Karachi, Pakistan



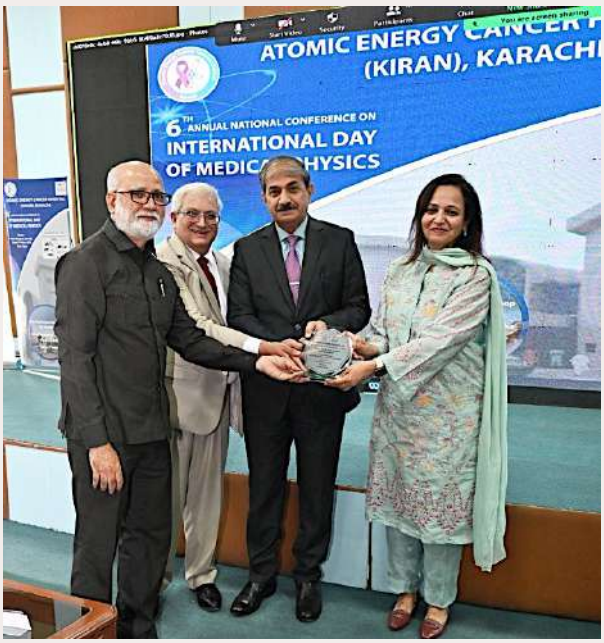
We are thrilled to share the exciting news of the successful celebration of the International Day of Medical Physicist at Atomic Energy Cancer Hospital (KIRAN), Karachi in collaboration of Pakistan organization of Medical Physicist (POMP). The Karachi Institute of Radiotherapy and Nuclear Medicine (KIRAN) is a cancer hospital in Karachi, Pakistan under the administrative control of the Pakistan Atomic Energy Commission. KIRAN is one of nineteen medical centers in Pakistan providing patients access to diagnostic and treatment facilities either free of charge or at subsidized rates. This momentous event took place on 11th November 2023, bringing together experts, professionals, and enthusiasts in the field of medical physics to acknowledge and celebrate their invaluable contributions to healthcare.

The International Day of Medical Physicist is observed worldwide to recognize the essential role those medical physicists play in ensuring the safe and effective delivery of radiation therapy and imaging services. AECH-KIRAN took this opportunity to honor and highlight the accomplishments of its dedicated team of medical physicists who work tirelessly to advance patient care and contribute to the field's advancements.

The event commenced with a warm welcome and the recitation of the Holy Quran by Mr. Haroon, setting a spiritual tone for the symposium followed by national anthem of Islamic Republic of Pakistan. The event commenced with a warm welcome address by Mr Muzaffar Hussain, Deputy Chief Scientist, AECH-KIRAN, who emphasized the crucial role that medical physicists play in the healthcare system. Dr. Shazia Fatima Director AECH-KIRAN highlighted the pivotal role of Medical Physicist in bringing the best outcome of treatment options and resources. The event's chief guest, Dr. Masood Iqbal, Member Science at PAEC, shared valuable perspectives. The audience was then treated to insightful presentations and discussions on the latest developments in medical physics, featuring prominent experts in the field.

The first oral talk was delivered by Ms. Zainab Ronaq, she is a vital member of POMP and serving as Senior Medical Physicist at Dr. Ziauddin Hospital, she highlighted the aims, objective and achievements of Pakistan organization of Medical Physicist (POMP), she also shared the scientific and academic activities organized by the POMP members in their limited capacity, resources, and playing a vital role to strengthen healthcare system specially to cancer patients. The members of medical physics community putting a lot of efforts in terms of their intellectual abilities and embark a significant and healthy impact for the betterment of medical facilities. Dr. Asrar Ahmed from PIEAS provided enriching perspectives about Education, clinically residency, and certification requirements to become a professional medical physicist.

The session concluded with a poignant video tribute dedicated to the late Dr. Khalid Mehboob, who dedicated over 30 years of service to the Pakistan Atomic Energy Commission at various Nuclear Medicine and Radiotherapy centers across Pakistan, including NIMRA in Jamshoro and AEMC in Karachi. Retiring from PAEC on 28th October 2022, Dr. Mehboob departed from this world on 7th September 2023. In recognition of his outstanding contributions, Chief Guest Dr. Masood Iqbal,



Member Science, PAEC, posthumously awarded the Lifetime Achievement Award to the family of Mr. Khalid Mehboob (Late).

The second segment featured a series of engaging talks, both in-person and virtually, showcasing a dynamic platform for knowledge sharing. Notable speaker Mr. M. Mubashar Hussain discussed about "Radiochemical Purity (RCP) Tests Analysis of Radiopharmaceuticals Labeled, Hot Lab practice at INOR, Abbotabad", Mr. Waqar Ahmed, shared "Psychological Impact of Radiation Versus its Physiological Effects: Radiation Workers' Perspective in Medical Centers NORIN, Nawabshah", Dr. Mansoor Naqvi from AKUH shared his views about "Cost of quality in radiology", Ms. Noreen Marwat, NORI, Islamabad discussed her experience about "CyberKnife SRS & SBRT Planning, Comparison Between Fixed cone and IRIS collimators plan" Mr. Asad Zameer, NCCI, Karachi gave his views on "Gating Vs Non-gating Verification Beam delivery" and Mr. Masood Mehmood from SSDL, PINSTECH, Islamabad discussed "services provided by the Secondary Standard Dosimetry Lab (SSDL), PINSTECH, Pakistan". The virtual session included a presentation on features & capabilities of Monaco a comprehensive TPS by Mr. William Starbuck from Elekta.

After a lunch break and poster presentations competiotion, the symposium continued with a virtual session by Mr. Irakli Martashvili, Senior Clincal Application Specialist from VisionRT, who discussed about SGRT. Ms.Eleonora Lanzi, Software Sale Specialist from Varian Medical Systems, shared valuable insights of AI and ML: efficiency and automation throughout the planning process, followed by a much valuable presentation by Prof. Golam Abu Zakaria from University of Cologne, Germany, who discussed about training and career opportunities globally for medical physics graduates. Last oral talk was delivered by Ms. Sabina Saleem, she shared MS (Physics) thesis titled treatment planning comparison for intensity modulated radiation therapy vs volumetric modulated arc therapy in esophageal cancer.

One of the event's highlights was a healthy discussion, Q&A that delved into the challenges and opportunities in the realm of

medical physics. The exchange of ideas and experiences provided a platform for professionals to share their expertise and foster collaboration for future advancements in the field.

POMP in collaboration with Department of Physics, University of Karachi, organized a workshop for graduate and post-graduate students where a detailed and valuable experience was shared online by Dr. Wazir Muhammad, Florida Atlantic University, USA. Mishkat Ali Jafri along with Dr. Intikhab Ulfat, made a healthy interactive discussion about career counseling in which experts counseled and advised students about the future aspects and opportunities. Representatives from Pakistan Nulcear Regulatory authority (PNRA) shared their valuable experience about radiation detection and instrumentation they also exhibited their equipment, detectors, e.g. pocket dosimeters, survey meters etc.

KIRAN Hospital also organized engaging workshops and demonstrations, allowing attendees to explore cutting-edge technologies and techniques in medical physics. These hands-on experiences provided a unique opportunity for participants to enhance their skills and stay abreast of the latest innovations in the field.

The International Day of Medical Physicist celebration at KIRAN Hospital concluded with a ceremony recognizing the outstanding contributions of its medical physicists. Awards were presented to individuals who demonstrated excellence in their work, research, and dedication to advancing the field of medical physics.

The success of this event is a testament to KIRAN Hospital's commitment to fostering professional development, promoting innovation, and ensuring the highest standards of patient care. We extend our gratitude to all the participants, speakers, and organizers who contributed to making this celebration a resounding success.

As we reflect on this special day, let us continue to appreciate and support the crucial role of medical physicists in improving healthcare outcomes and shaping the future of medical technology.

Shields and souvenir were also presented to speakers and organizers of the event who played a vital role to make this event successful.. Thank you for your attention, and we look forward to more collaborative endeavors in the field of medical physics.

Members of organizing team: Mr. Asdar-ul-Haq, Head Medical Physics, Mr. Muzaffar Hussain (DCS), Dr. Atif Masood, Mr. Suhail Aksar, Dr. Mansoor Naqvi, President POMP, Syed Mishkat Ali Jafri from PNRA, and Medical Physicists from Dr. Ziauddin Hospital.

Sponsors: Pakistan Society of Nulcear Medicien (PSNM), Varitron Pakistan, Allmed solutions, MedEquips Pakistan, Danish international.

Pakistan

CEREMONIAL ACTIVITIES ON INTERNATIONAL DAY OF MEDICAL PHYSICS 2023 AT NORIN

International Day of Medical Physics (IDMP) is observed globally on 7th of November every year to commemorate the achievements of late Marie Curie. Following its tradition, Medical Physics Division (MPD) of AECH-NORIN, Nawabshah organized an event to celebrate this day under the theme "Standing on Shoulders of Giants". With breathtaking technological advances and adequate education & training, medical physics has been playing a vital role in establishing sustainable healthcare since its conception. Mr. Muhammad Waqar (Head MPD) and his team organized the program with great professional enthusiasm. MPD team invited the worthy Director Dr. Sadiq Hussain Nohario and NORIN Oncologists to share the festivity.

Worthy Director in his address emphasized the significance of the day. Mr. Touqir Ahmad Afridi (Sr. MP) added that without the application of latest modalities of medical physics, cancer treatment remains insignificant. Head MPD enlightened the participants about the role of medical physics in cancer treatment and expressed with gratitude his intentions to continue the same in the future.

Improvement of Radiotherapy in cancer care facilities and facing the challenges in Nepal

Bidyapati Jha
Department of Medical Physics, Bhaktapur Cancer Hospital, Bhaktapur, Nepal

Nepal is a landlocked developing country between two emerging economies, China and India. It is a small size Himalayan country has population about 29 million and of area 147, 181 Square Kilometer. This nation is also facing similar types of problems like other developing countries, lack of resources, lack of will power of government and the issues of brain drain. It is very obvious that radiotherapy is one of the main modalities for cancer treatment, about 70 % of the cancer patients need to take this facility once during their treatment.

The first radiation therapy facility was started in 1991 AD after the installation of Co-60 teletherapy machine from Theratronics at Bir Hospital, the oldest hospital at the central area of Kathmandu. This was followed by next teletherapy Co-60 from CIRUS in 1998, at Bhaktapur Cancer Care Centre, this is now Bhaktapur Cancer Hospital (BCH). This machine was donated by Rotary International and managed by Nepal Cancer Relief Society and the government of Nepal.

Table1: Radiotherapy facility in region wise.

SN	Institutions	Radiotherapy Facility	Locations
1.	BCH (Gov.)	Clinac-IX, Varian Co-60, Panacea	Kathmandu Valley
2.	Bir Hospital (Gov.)	Tomotherapy, Accuray (Under Commissioning)	Kathmandu Valley
3.	BPKMCH (Gov.)	True Beam, Varian Clinac-IX, Varian	Southern Nepal
4.	SKPCH (Gov.)	Versa-HD, Elekta (Under Commissioning)	Western Nepal
5.	Civil Service Hospital	Versa-HD, Elekta (Under Commissioning)	Kathmandu Valley
6.	NCH	True Beam, Varian	Kathmandu Valley
7.	KCC	Synergy, Elekta	Kathmandu Valley
8.	B & C Hospital	True Beam, Varian	Eastern Nepal
9.	Birat Medical College	True Bean, Varian	Eastern Nepal
10.	CMC	True Beam, Varian	Southern Nepal

Table 2 Statistical diagnosis of main cancer cases at Bhaktapur Cancer Hospital (BCH)for last 5 years.

SN	Diagnosis	2018		2019		2020		2021		2022		Total
		Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	
1.	Carcinoma Lung	256	198	270	240	204	148	255	341	270	244	2306
2.	Carcinoma Breast	1	320	7	338	1	259	9	396	10	487	1828
3.	Carcinoma Cervix	0	393		260	0	193	0	233	0	294	1373
4.	Carcinoma Oral Cavity	171	43	177	65	135	47	192	60	192	72	1154
5.	Carcinoma Head & Neck	187	70	144	51	96	30	132	42	143	58	953
	Total	615	1024	598	954	436	677	588	972	615	1135	7614

Considering the load of patient as well as the essentiality of a comprehensive cancer center here a cancer hospital B.P. Koirala Memorial Cancer Hospital (BPKMCH) came into existence and started radiotherapy facility in 1999 with help of Two Linear Accelerators, a CO-60 teletherapy and a HDR Brachytherapy under the partial support of Government of the Republic of China.

After the long gap, in 2015, a new cancer center, Kathmandu Cancer Centre (KCC), in private sector started radiotherapy facility with help of a Linac, Synergy, Electa and a HDR brachy. Just after a year, in 2016, Nepal Cancer Hospital & Research Center installed a Linear Accelerator, True Beam, Varian. After 2018 a True beam from Varian was installed in each one B & C Cancer Hospital, Birat Medical College, Chitwan Medical College (CMC), BPKMCH and Clinac- IX at BCH. Within 2023 a Versa HD is installed in a Civil Service Hospital, Sushil Koirala Prakhar Cancer Hospital (SKPCH), and a Tomotherapy machine at Bir Hospital, where 1st Co-60 teletherapy service was started in 1991. Table1 demonstrates the availability of radiotherapy facility in Nepal as a region wise.

Bhaktapur cancer hospital has been providing quality cancer treatment to patients across entire Nepal at the low cost with the help of governmental support. This hospital is giving radiotherapy facility from 6.30 AM to 11.0 PM daily for more than 100 patients including 3DCRT & IMRT with a Linear Accelerator, Clinac-IX. There are only three medical Physicist for radiotherapy service & radiation protection in BCH. The hospital provides HDR brachytherapy service and medical physicist play the vital role in the treatment of brachytherapy and work to implement new technologies. We are planning to start Stereotactic radiosurgery however it is delay due to lack of manpower, financial sources. Stereotactic radiosurgery is very precise form of radiotherapy which can be used in brain, lungs, liver and other parts of the body. It uses 3D imaging to target high doses of radiation to the tumor with less dose to the surrounding tissue. It can be completed in a single fraction while normal radiotherapy requires 20-30 fractions. The government of Nepal as well as in the hospital we have very limited budget in trainings so hope to work with SCMPCR and some other such type of organizations will upgrade the manpower in Bhaktapur Caner Hospital.

Unnimaya VS from Amrita Institute of Medical Science, Kochi, Wins Prestigious IOMP Poster 2nd Prize

KOCHI, India - In an outstanding display of academic excellence, Unnimaya VS of the Department of Radiation Oncology at the Amrita Institute of Medical Science, Kochi, has been awarded the coveted 2nd Prize in the IOMP Poster Competition. This achievement is a significant milestone in her career and a proud moment for the Amrita Institute of Medical Science.

Unnimaya's winning poster, titled "Evaluation of set-up errors using Delivery Analysis and ArcCHECK in Radixact X9," showcases her innovative research in the field of medical physics.

Congratulations to the winners of the ICMP Quiz!

The first prize was awarded to a group of talented students from Bharathiar University, Coimbatore, who are currently pursuing their M.Sc in Medical Physics. The team includes Arun Kumar, Gopikrishnan, Dharshini Sivakumar, Sameer Sahni, Ajay A S, and GT Sarvesh. Their academic year ranges from first to second year, showcasing a blend of fresh insight and developing expertise in their field. This achievement highlights their dedication and knowledge in Medical Physics, bringing pride to Bharathiar University.

Additionally, AK Siva, Krishna Nataraj V from Bharathiar University, Coimbatore, and Rakesh Patra, Satish Kumar Chaturvedi, and Roselin Panda from the National Institute of Science Education and Research, Bhubaneswar, formed another talented team and won the second prize. Each member, pursuing their MSc in Medical and Radiological Physics, has demonstrated exceptional knowledge and skill in their field.

Dr. Misba Hamid Baba Honored with IOMP Best Oral Presentation Award and Completes PhD

SRINAGAR, J&K – Dr. Misba Hamid Baba, a distinguished figure in Biophysics and Radiological Physics, has been awarded the IOMP Best Oral Presentation Award, marking a significant milestone in her already impressive career. Born and educated in Srinagar, Misba's journey from a brilliant student to a leading researcher is inspiring. She excelled at The Mallinson Girls School and Govt. Women's College, University of Kashmir, before obtaining her MSc in Biophysics with distinction from Government Institute of Science, Aurangabad. Misba furthered her expertise with a Post MSc Diploma in Radiological Physics from Osmania University, leading the batch with exceptional grades. Her PhD research at GLA University, titled "A study on Optimization and Verification of Radiotherapy treatment planning in Curative and Palliative Setup for better delivery of Radiation therapy," reflects her deep commitment to enhancing cancer treatment methods.

Currently serving as a Research Officer at RP-SKIMS, Misba is renowned for her swift learning and efficiency in diverse professional environments. Her research range, over 40 publications, and multiple training experiences underline her status as a significant contributor to Biophysics and Radiological Physics, making her a role model in the scientific community.

Dr. Alamgir Hossain Shines with IDMP and AFOMP Awards in 2023

RAJSHAHI, Bangladesh – In a remarkable achievement, Dr. Alamgir Hossain has been honored with both the IDMP Award and the AFOMP Award in 2023, marking a significant milestone in his illustrious career in the field of Medical Physics.

A distinguished alumnus of the University of Rajshahi, Dr. Hossain completed his B.Sc. Hons. in 2005 and M.Sc. in 2006 from the Department of Physics. His master's thesis, titled "Measurement of Technetium (99mTc) uptake by Thyroid using Gamma Camera," laid the foundation for his future research endeavors.

Dr. Hossain's journey from a volunteer researcher to an Assistant Professor in the Department of Physics at the University of Rajshahi is a testament to his dedication and expertise. His role in academia involves teaching both undergraduate and graduate students, while actively supervising M.Sc. theses in Medical Physics.

His academic journey took a pivotal turn in 2020 when he earned his Ph.D. in Medical Physics from Kyushu University, Japan. His doctoral thesis on "Automated Approach for Estimation of Grade Groups for Prostate Cancer based on Histological Image Feature Analysis" has added considerable value to the field. Dr. Hossain's contributions extend beyond academia; he is a prolific author with several publications in international journals and has actively participated in various training sessions, symposiums, and educational programs in medical physics.

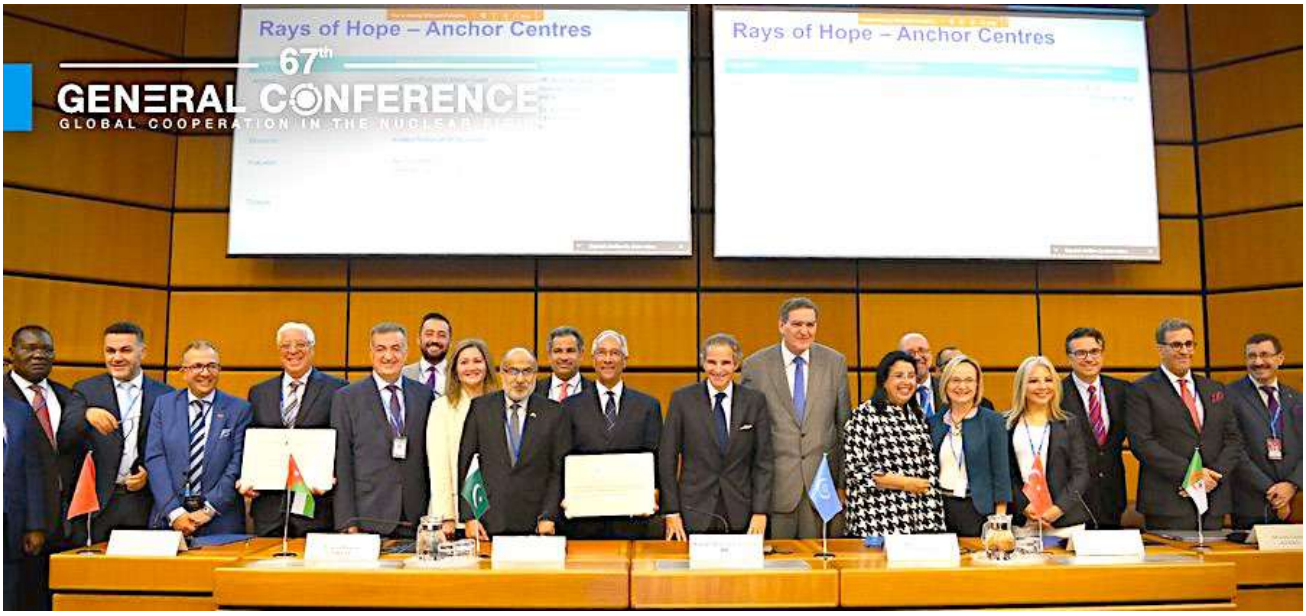
Dr. Hossain's professional affiliations are impressive, including memberships in BMPS, AFOMP, EFOMP, IPEM, and AAPM. His recent accolade as "Regular Associate (Medical Physics)" at the International Centre for Theoretical Physics (ICTP) in Italy further cements his standing in the global scientific community. The twin awards of IDMP and AFOMP in 2023 are not just personal achievements for Dr. Hossain but also a moment of pride for the University of Rajshahi and Bangladesh's scientific community at large. His relentless pursuit of excellence in medical physics continues to inspire many aspiring scientists and researchers in the field.

Congratulations !! Gleetus Thimothy from Dept. of Radiation Oncology, Apex Hospitals Pvt. Ltd. Jaipur, Wins Prestigious IOMP Poster 1st Prize

Gleetus Thimothy won the IOMP Poster 1st prize during the ICMP 2023 at Mumbai India for his paper titled "EVALUATION OF OPTIMAL MINIMUM SEGMENT WIDTH IN VOLUMETRIC MODULATED ARC THERAPY FOR PROSTATE CANCER-AN INSTITUTIONAL STUDY". He is the Senior medical physicist and RSO, Dept. Of Radiation Oncology, Apex Hospitals Pvt. Ltd. Jaipur.

Congratulations! Dr.Noramaliza Mohm Noor Honored with the Prestigious Golam Abu Zakaria AFOMP Best Young Leadership Award

Assoc. Prof. Dr.Noramaliza Mohd Noor started her career as an academician at the Department of Radiology, Faculty of Medicine and Health Science, UPM in 2012. She obtained her BSc (Medical Physics) and MSc (Medical Physics) from Universiti Sains Malaysia. She, then pursued her PhD in Radiotherapy Dosimetry at the University of Surrey, United Kingdom. Noramaliza is an active researcher in the field of Medical Physics, as evident from her involvement in more than 14 grants from government and industries where she serves as the principal investigator. She had published more than 60 articles in high impact journals from well-established publishers and also had two patents and one copyright. Currently, she held the position as the Head of Medical Physics Unit and also as a Radiation Protection Officer at the Teaching Hospital Universiti Putra Malaysia.



Rays of Hope Initiative

The Nuclear Medicine, Oncology, and Radiotherapy Institute (NORI) in Pakistan has been recognized as an 'anchor center' under the International Atomic Energy Agency's (IAEA) 'Rays of Hope Initiative'. Established in 1983 in Islamabad, NORI is the country's premier cancer hospital, fully equipped with state-of-the-art technology like the cyberknife. The designation, formalized in Vienna during the IAEA's annual general conference, enables NORI to play a crucial role in enhancing cancer research capabilities in Pakistan and the region. Anchor centers like NORI will train healthcare providers, participate in IAEA research, and mentor regional medical imaging and radiotherapy centers. This agreement aligns with Pakistan's commitment to nuclear safety and security, as emphasized by PAEC Chairman Dr. Raja Ali Raza Anwar at the conference. The country's nuclear energy strategy, which includes the construction of new power plants like the Chashma Unit 5, aims to address climate change while increasing the share of nuclear power in its energy mix.

SOUTH ASIA CENTRE FOR MEDICAL PHYSICS AND CANCER RESEARCH

(A Project of Alo Bhubon Trust)

SUBMISSION DEADLINE FOR NEXT ISSUE:
May 31, 2024

The main objectives of SCMPCR

To organise awareness, prevention, and screening program for cancer disease.

To provide adequate training to all personnel associated with cancer treatment.

To establish the clinical residency training program for medical physicists.

To develop the infrastructure of e-learning and library.

To establishment welfare home for poor cancer patients.

To build a self-help groups for cancer patients

To establish a team who will assist in the management and quality control (QC) procedure for the diagnostic radiology equipment in the districts levels.

SCMPCR was established on 3rd July 2018 and is comprised of a group of philanthropic personnel with representatives from different regions of South Asia to work on different projects. SCMPCR is an autonomous body under All Bhubon Trust (Alo-BT) and is accountable to its board of trustees/governors. It is a non-profit public partnership which will seek support from other sources. It shall work conjointly with various national and internationals organisations. The major activities of SCMPCR are: to produce skilled manpower, enhance health education and establish a welfare home for cancer patients.

MISSION

TO Achieve UNDP SDG-goal 3 & 4

OUR VISION

TO PROVIDE QUALITY SERVICES IN CANCER TREATMENT THROUGH TRAINING, EDUCATION INCLUDING E- LEARNING IN RADIOTHERAPY AND IMAGING DISCIPLINES.

GOALS OF SCMPCR

Major activities of SCMPCR are to produce skilled manpower, enhance health education and establish a welfare home for cancer patients.

UNDP SDG-goal 3 (Good Health & Well-being)

Awareness program for the mass people for different communicable and non-communicable diseases, especially for cancer patients.

UNDP SDG-goal 4 (Quality Education)

Arranging and conducting training programs to develop skilled manpower. It realizes the need to educate specially; women regarding the screening and prevention of cancer treatment under UNDP SDG-goal 4.

SCMPCR

PROJECT of ALO BHUBON TRUST (Alo-BT)

FIND US

B-66, Rd No:E/4, Eastern Housing, Mirpur, Dhaka-1216, Bangladesh.

info@scmpcr.org

+8801711-841063

www.scmpcr.org

OUR MOTTO

QUALITY EDUCATION AND HEALTH SCIENCE FOR PATIENT BENEFIT