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South Asia Centre for Medical Physics and Cancer Research (SCMPCR)
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Cancer affects people in all countries regardless of their age, gender or socio-economic conditions. According to WHO, it is estimated that the global cancer burden will increase from 12.7 million new cases per year in 2008 to 21.4 million per year by 2030, with nearly two-thirds of all cancer diagnoses occurring in low- and middle-income countries. The South Asia region with its eight countries (Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka) has approximately one-fourth of the world’s and 40% of Asia’s population. This region is presently experiencing a shift in infectious disease to an increasing incidence of non-communicable diseases like cardiovascular and cancer. South Asian countries face a big challenge in all four key components of cancer control such as prevention, early detection, diagnosis and treatment. With respect to the global context, about 24.59% populations are present in South Asian area where the incidence of new cases is 10.23 % and the burden of cancer death is 68.85%. This well-known fact indicates that this region of the world requires improvement strategies in cancer management.

For a better oncologic care, a team consisting of physicians, medical physicists and technicians is necessary. However, unfortunately, in some countries including Bangladesh of this region, still medical physicists are not mandatory personnel in the public hospitals, which will lead to inaccurate diagnosis and treatment. In order to create awareness of the importance of medical physicists in cancer treatment, medical Physics education starts through some seminars at the BUET in 1996 in cooperation with the Task Group 16 “Medical Physics in the Developing Countries” of the German Society for Medical Physics (DGMP). As a result, a fully-fledged “Department of Medical Physics and Biomedical Engineering (MPBME)” was established in 2000 at Gono University, Dhaka. At that time, there was a tremendous lack of potentials and resources to continue this new subject. Therefore, a collaboration program between Gono University and Heidelberg University started under the financial support of German Academic Exchange Program (DAAD) in 2002. Until now, 90 manpower (teachers, physicians, medical physicists, technologists, PhD & MSc students) has already been received training through this collaboration.

However, being professional in medical physics discipline in South Asia region we have a long way to go compared to developed countries. Accreditation and certification of medical physicists is a pivotal issue nowadays, which requires defined residency training, qualified medical physicist (QMP) and accredited center in the respective country or region. Although medical physics education has already been established in Bangladesh and number of medical physicists is increasing gradually, still it is far from the goal due to the lack of national recognition and defined training program. Therefore, in order to address the aforementioned issues, South Asia Centre for Medical Physics and Cancer Research (SCMPCR) started its journey in July 2018 with a mission to advance cancer care practice in Bangladesh, and in other countries in South Asia by disseminating scientific and technical information, fostering the educational and professional development and promoting the highest quality medical services for patients. It will also expand its activities in other developing countries.
Medical Physics in Bangladesh has started its journey in the middle of 1990s. Being a chairman of the developing country of DGMP (K-16), Professor Dr. Golam Abu Zakaria has organized several seminars in Bangladesh from 1996 to 2000 with the cooperation of German Medical Physics Society (DGMP) to make medical physics accepted in Bangladesh. In spite of existence of International rule, presence of medical physicist is mandatory in radiology and radiotherapy. South Asia Centre for Medical Physics and Cancer Research (SCMPCR) is a centre of excellence for the training of medical physicists, doctors and technician in cooperation with different hospitals in Bangladesh and South Asia. SCMPCR is a project of ABT which is formed in 2018 with some philanthropic personnel. It will work to support local member countries to build highly skilled manpower and meet the increasing demand in cancer Treatment.

SCMPCR has organized Hands on workshop on “Application and Quality Control on Computed Tomography (CT)”. Bangladesh Medical Physics Society (BMPS), Department of medical physics & Biomedical Engineering (MPBME), Gono University, Square Hospitals Ltd were the co-organizer of this training program. The trainers were Prof. Katsumi Tsujioka and Mr. Kyohei Yamada from School of Health Sciences, Fujita Health University, Japan. Total 20 participants were participated from Gono Bishwabidyalay (GB) and Military Institute of Science and Technology (MIST).

The workshop started with the inaugural program on 20th August 2018 at Square Hospital Limited, Dhaka Bangladesh. The scientific session was started with the lecture of “Quality Control of Computed Tomography” by Prof. Katsumi Tsujioka. After that, Mr. Kyohei Yamada delivered the lecture on “Method of Computed Tomography”. On the other hand, the practical session was held at Square Oncology and Radiotherapy Center from 14:00 to 16:00 by Prof. Tsujioka with the title “Application and QC of CT”.

The Gammex ACR CT Phantom is the training material which is designed to provide physicians for a comprehensive peer review of their CT facility, personnel qualifications, image quality and quality assurance programs. It can be used for initial QA assessment and routine monthly QA testing to help ensure that patients are receiving the lowest possible CT dose. This course was an opportunity for medical physicists regions to obtain first-hand information on the Computed tomography in imaging field and beneficial to clinical medical physicists who are working in radiotherapy modality using CT. After the training session, trainers visited the SCMPCR Office and share the innovative ideas and gave a small token of love to SCMPCR.
South Asia Centre for Medical Physics and Cancer Research (SCMPCR) is a forum for the medical physicists of the South Asian countries to improve the educational and professional cooperation. To increase the qualification of medical physicists, SCMPCR has arranged their second hands on workshop titled “Dosimetry and Treatment planning” held on 4th to 6th October, 2018 at SCMPCR training room and Ahsania Mission Cancer and General Hospital. The Sessions were organized on different topics of treatment planning and dosimetry. The trainers were Prof. Dr. Golam Abu Zakaria and Prof. Frank Hensley from Germany and Mr. K. Kanakavel and Mr. Sujit Debnath from PTW (India).

The Workshop started on 4th October 2018 at 9 am through the Inaugural program at the SCMPCR training room. After inaugural program, scientific session was started by Prof. Dr. Frank Hensley with the lecture “Quality assurance – The core assignment of medical physics”. Moreover, “Dosimetry of high-energy photon and electron beams: Comparison of different international protocols” lecture was presented by Prof. Dr. G A Zakaria. PTW Expert Mr. K. Kanakavel was presented a lecture on PTW Water phantom MP3-M and MEPHYSTO Software and Detectors, Relative Dosimetry and pitfalls. End of the lecture, practical session was trained by Mr. K. Kanakavel with the topics on PTW OCTAVIUS Family, PTW detector arrays.

In day 2 of the workshop, practical session was arranged at Ahsania Mission Cancer and General Hospital (AMCGH), Dhaka. This hands-on practical session was trained by PTW and German expert with the topics on Measurements of Output Factors, Response of different detectors, Absolute Dosimetry, Treatment planning-I (Xio and Monaco), Octavius System for Patient and Linac Consistency QA. After practical session participant, Trainer, SCMPCR staffs and SCMPCR members were enjoyed Bangladeshi food in Gala Dinnar at Royal Cousine Resturent, Uttara, Dhaka.

In day 3 of the workshop, Prof. Dr. G A Zakaria presented a lecture on “Overview of advanced treatment techniques”. After this scientific session, practical session on 3DCRT treatment planning (Eclipse), IMRT and VMAT treatment planning (Eclipse) was trained by Prof. Dr. G A Zakaria and Prof. Dr. F. Hensley. Furthermore, PTW Experts was arranged another practical session on dosimetry. The session covers, Analysis of PDDs & Profiles, Output factor & absolute dosimetry, Analysis of patient specific QA results using Verisoft and Analysis of Linac consistency QA. Moreover, SCMPCR examination committee took an examination after all those scientific and practical session. Prof. Dr. H. A. Azhari, presided the closing ceremony where each participant addresses their opinion regarding the workshop.
Training Report on Target Volume Definition, Treatment Planning and Evaluation (November 2018)
Mr. Mohammadullah Shemanto

The SCMPCR is a non-profit global health organization that believes all cancer patients deserve access to the best treatment, care, and support. We decrease premature mortality from cancer by channeling humanitarian donations of life-saving oncology products to underserved populations in countries where those products are not locally available. We enable effective solutions for access to treatment by partnering with the major cancer institutions and patient associations in low- and middle-income countries. SCMPCR is the first fully integrated capacity development centre, which brings together under one roof the two building blocks of capacity development – training and technical assistance, and we believe the centre will build on this unique advantage, and over time evolve as a model for others to emulate. The SCMPCR trains patient leaders group to improve local health systems and foster change within their communities and develop leaders capable of advocating for the needs and rights of cancer patients in South Asia.

SCMPCR has organized a hands-on training program entitled “Target Volume Definition, Treatment Planning and Evaluation” on the 17th of November, 2018 at Dhaka Medical College and Hospital (DMCH). It was co-organized by Bangladesh Society of Radiation Oncologists (BSRO). The trainers was Associate Prof. Robert Semrau from Radiotherapy Bonn-Rhein-Sieg Troisdorf, Bonn Germany and Dr. Qazi Mushtaq Hussain Dhaka Medical College and Hospital, Dhaka, Bangladesh. Total 17 participants were participated from different government medical college and hospital of Bangladesh in this workshop.

The Workshop started on 17th November 2018 at 9 am through the Inaugural program at the Dhaka Medical College and Hospital (DMCH). The scientific session was started by Prof. Dr. G A Zakaria with the lecture “Overview of advanced treatment techniques”. After Scientific session, practical session was trained by Associate Prof. R. Semrau and Dr. Qazi Mushtaq Hussain at Department of Radiotherapy, Dhaka Medical College and Hospital, Dhaka, Bangladesh. The practical session demonstrate Contouring of Prostate, Cervix, Stomach and Esophagus. At the end of the practical session, Prof. Dr. Hasin Anupama Azhari, presided the certificate distribution and closing ceremony where each participant addresses their opinion regarding the outcome of the workshop.
Dr. Katsumi Tsujioka  
Associate Professor  
Fujia Health University

Congratulations to SCMPCR.

I held the “SCMPCR Hands-on Workshop: Application and Quality Control on Computes Tomography (CT)” at Dhaka in August 2018. And, I am the first visitor to the SCMPCR office. I and my student “Mr. YAMADA” went to the secretariat before opening. There is a very good location. In the near future, it will be the center of education and research of medical physics in Bangladesh and South Asia area. We hope that young medical physicists and students in Bangladesh and South Asia area use the SCMPCR office like their own home. That way, SCMPCR will lead to great success. We promise to cooperate for the brilliant future of SCMPCR.

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**Feedback Message from the Trainer**

Dr. Frank Hensley  
Medical Physicist  
Kopf Clinic  
University of Heidelberg

I am enthusiastic for the great achievement of setting up and organizing this beautiful center in such a short time. The winter school on Quality Assurance and Treatment Planning was perfectly organized and prepared. The impressive inquest and lively participation and discussions of act with the attendance were a great pleasure and fund. I wish all of you at the center and all course participants great success and all the best for you future.
Mr. K. Kanakavel
Senior Medical Physicist
PTW, India.

SCMPCR has taken very good initiative to conduct Medical Physics Training Program which is very useful for all learners. This 3 days program was very fun and interactive. Being a Medical Physicist I am happy and will be a part of this program.

Dr. Robert Semrau
Associate Professor
Radiotherapy Bonn Rhein-Sieg
Bonn, Germany

SCMPCR has organized a hands-on training course titled ‘Target Volume Definition, Treatment Planning and Evaluation’ which is very useful for both Medical physicists and Radiation Oncologist. The Lecturers, presentations and hands-on training of the workshop was well satisfied the intended quality. It was designed to train the radiation oncologists in the field of advanced treatment planning especially to determine the exact tumor target volume for the treatment of cancer patients. The hospitality and management of the workshop by SCMPCR staffs was fantastic. However, I am very much grateful to be the part of this workshop arranged by SCMPCR.
Ms. Taznin Ishrat  
B.Sc. Student  
Department of Biomedical Engineering,  
Military Institute of Science and Technology (MIST), Dhaka, Bangladesh.

South Asia Centre for Medical Physics and Cancer Research had arranged a wonderful Hands on Training entitled “Application and Quality Control on Computed Tomography (CT)”. It was a great program for the medical physicists and biomedical engineers for gathering knowledge about quality control of CT. Prof. Katsumi Tsujioka and Mr. Kyohei Yamada from School of Health Science, Fujita Health University, Japan were the trainers of this training. I am very thankful to the organizer for arranging such a training program and giving opportunity to obtain first-hand information on the Computed Tomography in imaging field. It was helpful to have some practical experience about medical physics what we have learned only in theory.

Feedback Message from the Trainee

Ms. Thilini Wickramasinghe  
Physicist  
Apeksha Hospital, Maharagama, Sri Lanka.

Actually attending the SCMPCR Hands-on Workshop on Dosimetry and Treatment planning was one of the best opportunities I’ve ever had, because it covered important facts and techniques regarding Dosimetry and Treatment Planning. As a newly appointed Physicist, this 3 days workshop helped me to improve my subject knowledge which I have already practiced at my working place. Workshop was very well organized and presented not only theories but also very informative practical. I liked the fact that all the lecturers tried to get the participants involved by making it a discussion. Thank you very much for giving us this opportunity, keep it up and looking forward another informative workshops near future.
Mr. Gurvinder Singh
Assistant Professor
Department of Radiological Physics,
SMS Medical College & Hospital, Jaipur, Rajasthan, India.

I have attended the workshop as an Indian delegate. It was very well planned and nicely executed workshop which covered dosimetry as well as treatment planning perspective. The lectures delivered by Prof. Hensley and Prof. Zakaria on basic dosimetric protocols and techniques were informative. Also, technical talks by PTW representative were informative as well as useful for a medical physicist working in Radiotherapy planning and dosimetry. Demonstration of acquisition of the dosimetric parameters( PDD, TPR, beam profiles etc.) was very well executed in groups along with treatment planning. Planning case discussion and comparison part was best in my opinion.

Food, ambiance, entertainment, hospitality etc. was good. Overall, I enjoyed the program and give my heartiest congratulations to the organizing committee to execute such an event in a very small period.

Dr. Tannima Adhikary
Registrar
Radiotherapy Department, Dhaka Medical College Hospital, Bangladesh.

I want to thank , "South Asia Centre for Medical Physics and Cancer Research (SCMPCR) & Bangladesh Society Of Radiation Oncologist (BSRO) for arranging workshop on “Target Volume Definition, Treatment Planning & Evaluation” and giving me the privilege to participate in it. For the better treatment of cancer patients ,now advanced technique of radiotherapy is a must. For these purpose , to know about the target volume delineation is the first step. The workshop was all about the basics which was a need for the beginners. Many of the things discussed were fairly elemental, which was very beneficial for the participant who attended that day. The resource persons ( both our own & foreign) were very informative and their method of delivery was so easy to understand. It was very interactive which profited all the participants enormously. I hope in near future SCMPCR will arrange more & more of these type of workshop and give us the opportunity to take part and enrich our knowledge.
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<tr>
<th>Time</th>
<th>Program Description</th>
<th>Participant</th>
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| Feb’19| Program Type: Awareness and Screening  
Program Title: Awareness and Screening program for Breast Cancer.  
Venue: Dhaka, Bangladesh.                                                                                                                                                  | Breast Cancer Patient from Dhaka Region.                                                         |
| March’19| Program Type: Training for Medical Physicist  
Program Title: Commissioning of Linear Accelerator : Basic and Advance Treatment Techniques.  
Venue: Dhaka, Bangladesh.  
Trainer Region: Germany, Taiwan and India.  
*EBMP accredited program.                                                                                       | Medical Physicist from India, Nepal, Srilanka, Maldives and Bangladesh.                           |
| May’19| Program Type: Awareness and Screening  
Program Title: Awareness and Screening program for Lung Cancer.  
Venue: Dhaka, Bangladesh.                                                                                      | Lung Cancer Patient from Dhaka Region.                                                          |
| June’19| Program Type: Training for Radiation Oncologist  
Program Title: Precision Oncology Advancements in Cancer Care.  
Venue: Dhaka, Bangladesh.                                                                                      | Radiation Oncologist from India, Nepal, Srilanka, Bhutan, Maldives and Bangladesh.             |
| July’19| Program Type: Training for Radiation Oncologist  
Program Title: Dose Volume Histogram Evaluation.  
Venue: Dhaka, Bangladesh.  
*Supported By Senior Experten Service, Germany.                                                                                                                                    | Technologist from Bangladesh.                                                                   |