

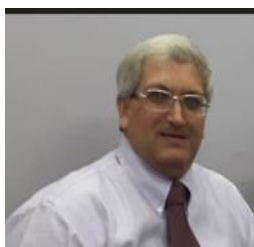
Meet the expert

Advancing Radiation Safety, Quality, and Medical Physics Education in South Asia

Interview with

Dr. Syed Mansoor Naqvi

Assistant Professor and Medical Physicist at Aga Khan University, Pakistan.



*Dr. Syed Mansoor
Naqvi*

Interview taken by

Dr. Mary Joan,

Professor & RSO, Christian Medical College and Hospital, Ludhiana, India



Dr. Mary Joan

The South Asia Center for Medical Physics and Cancer Research (SCMPCR) continues its “Chat with Expert” series by highlighting distinguished professionals who have made remarkable contributions to medical physics, radiation protection, quality assurance, and education across South Asia. Through this initiative, the SCMPCR Newsletter seeks to preserve inspiring professional journeys, encourage collaboration, and provide guidance for the next generation of medical physicists.

In this edition, we are honoured to feature Dr. Syed Mansoor Naqvi, an accomplished medical physicist, educator, researcher, and radiation protection expert from Pakistan. Currently serving as Assistant Professor and Medical Physicist at Aga Khan University, Dr. Naqvi has over three decades of experience in teaching, radiation safety, quality assurance, diagnostic imaging, and nuclear medicine.



Dr. Naqvi has played a pioneering role in strengthening radiation protection practices and medical physics training in Pakistan. He established an Optically Stimulated Luminescence (OSL)-based in-house radiation dosimetry laboratory at Aga Khan

University and introduced nationally significant training initiatives including “Radiation Protection for Healthcare Professionals” and “LASER Safety for Healthcare Professionals.” He is also the Founder President of the Pakistan Organization of Medical Physicists and has actively contributed to regional professional development through SCMPCR collaborations and educational activities.

With extensive involvement in quality management, radiation safety committees, academic mentoring, conference organization, and international collaborations, Dr. Naqvi represents the evolving role of the modern medical physicist; bridging clinical practice, education, research, leadership, and patient safety.



In this conversation with Dr. Mary Joan, Dr. Naqvi shares his professional journey, perspectives on medical physics development in South Asia, the importance of quality and radiation safety culture, the future of medical physics education, and his vision for strengthening regional collaboration through SCMPCR.

MJ: We are delighted to feature you in the SCMPCR Newsletter “Chat with Expert” series. Could you kindly share your early journey and what inspired you to pursue medical physics as a career?

SMN: Even though I was fascinated by physics, I was apprehensive about pursuing Medical Physics as a career, but my exposure to biophysics during my university years helped me lean towards this field. I also wanted to do something that directly helped people. I learnt that radiation could be harnessed for diagnosis and treatment of patients, and that physicists were the ones ensuring it was safe and effective. It was the perfect blend of science and service which aligned with my interests.

MJ: You have worked extensively in radiation safety, quality assurance, nuclear medicine, PET-CT, and diagnostic imaging. How has the role of medical physicists evolved over the past three decades?

SMN: It has changed a lot, back in the day, people thought of us mainly as the “machine checkers.” Now, we’re part of the clinical decision-making, teaching and research teams. We’re involved in patient safety, research, and even policy making. In short, we’ve gone from being the quiet folk in the labs to being recognized as essential partners in patient care, while still being involved with our calculations and machines.

MJ: You established an Optically Stimulated Luminescence (OSL)-based radiation dosimetry laboratory at Aga Khan University. What motivated this initiative, and how has it contributed to radiation safety practices in Pakistan?

SMN: The motivation was simple, we needed a in-house reliable and modern way to monitor personnel radiation exposure. While comparing various options like TLDs or film-based dosimetry, OSL emerged as the most convenient solution amongst all. Today, it’s helping not only our institute but also many hospitals and other radiation based entities across Pakistan.

MJ: As Founder President of the Pakistan Organization of Medical Physicists (POMP), what were the major challenges faced during the early development of the organization?

SMN: Building awareness, credibility, and unity were our major challenges. Convincing people that medical physics was a profession worth organizing around wasn’t easy. Some thought we were just “technicians with fancy titles.” but looking back, those struggles gave POMP its strong foundation and enabled us to build a name for our profession.

MJ: You have organized numerous radiation protection and laser safety training programs for healthcare professionals. Why do you think such educational initiatives are important in South Asia?

SMN: Knowledge is power, and in this case, it’s also safety and protection. Many healthcare workers don’t realize the risks until their training is completed and they gain some experience. These programs are like giving them a safety toolkit before they enter a more practical aspect of their career. Furthermore, they create a ripple effect, trained professionals spread awareness to their colleagues creating a culture of safety.

MJ: Quality assurance and patient safety remain central responsibilities of medical physicists. How can institutions strengthen a culture of quality and radiation safety in clinical practice?

SMN: It starts at the top. Leadership must show that safety isn't optional, it has immense value and not just only a goal. Institutions can strengthen the culture of quality and radiation safety by providing a safe working environment, promoting knowledge of radiation risks and controlling them, minimizing unsafe practices, supporting addressing of incident reports, and sharing responsibility among workers. Regular training, audits, and open discussions help too. I would also like to add that celebrating small wins keeps everyone motivated.

MJ: You have been actively involved in accreditation activities, ISO quality systems, and Joint Commission-related initiatives. How do these experiences complement the work of medical physicists?

SMN: There was a time when Quality Management Systems (QMS) were considered only for services, businesses and industry but now its importance is realized more widely and even IAEA has issued QMS related guides and regulatory bodies are slowly striving to adopt them. They make sure we don't just *say* we're safe and consistent, we *prove* it. Accreditation forces us to document, standardize, and continuously improve. For physicists, it's like having a checklist that ensures our science translates into real-world patient safety. I would also like to mention that medical physicists can play a vital role in Quality Management Systems(QMS) as they are already trained in quality assurance and documentation. They can easily strive to develop their professional competence and growth in QMS.

MJ: What are the current opportunities and challenges for medical physicists working in South Asia?

SMN: There are many opportunities as new radiation therapy, imaging, nuclear medicine facilities and advanced technologies are emerging. The challenge is coping up with the need of trained professionals. We need more training programs and relevant applicable regulations to fulfill the human resource requirements.

MJ: Artificial intelligence, automation, and advanced imaging technologies are rapidly transforming healthcare. How should young medical physicists prepare themselves for these changes?

SMN: AI has progressively entered in every walk of life. I strongly recommend our young physicists to concentrate on the basics of data handling and numeric computational methods. This will make learning data sciences, and interpreting AI outputs more convenient. Stay curious, stay adaptable, and you'll thrive in today's world.

MJ: You have mentored many students and trainees over the years. What qualities do you believe are essential for young professionals entering medical physics?

SMN: Professionalism, competence and skills are not the only tools one needs to excel; curiosity, patience, kindness and a sense of humor also matter. You'll spend hours troubleshooting machines, so being able to have fun does help. Integrity is non-negotiable, and resilience will carry you through the tough days. And always remember, patient care is at the heart of everything we do.

MJ: Research and regional collaboration are increasingly important in advancing medical physics. How can SCMPCR further strengthen collaborative research and educational activities across South Asia?

SMN: By being the platform that connects us. Joint workshops, shared research projects, and exchange programs for professionals and students can make a huge difference. South Asian Association for Regional Cooperation (SAARC) can also be a forum to Imagine a student in Nepal learning from a lab in Pakistan, or a physicist in Sri Lanka collaborating with colleagues in Pakistan or Bangladesh or India, that's the kind of synergy we need.

MJ: The SCMPCR Newsletter has become an important platform for professional interaction and visibility in the region. How do you view the role of newsletters and scientific communication in strengthening the medical physics community?

SMN: Newsletters are convenient platforms to share our achievements and learn what others around us are doing. They keep us updated, connected, and inspired. These are generally

counted as representative of a particular organization or community but their consistency starts to build impact and slowly motivate the contributors to share something more than news or a report, rather, their original scientific publications.

MJ: What future directions do you foresee for radiation protection and quality assurance programs in developing countries?

SMN: I see more digital tools, more affordable technologies, and stronger integration into national health systems. The future is about making safety accessible for all, being practical, not just theoretical.

MJ: In your opinion, what areas should SCMPCR focus on more actively in the coming years?

SMN: SCMPCR has already significantly contributed to medical physics education, training, and advocacy. Particularly in the field of radiation-therapy. I feel that diagnostic radiology, nuclear medicine and radiation protection require attention. Another area of concern is the use of LASER in medicine, as a matter-of-fact, policy making and regulations need to be developed for LASER usage just like radiation protection. This will not only improve the patient and healthcare providers' safety but will also open another professional opportunity.

MJ: Finally, what message or advice would you like to share with young medical physicists across South Asia regarding professional growth, ethics, and patient-centered care?

SMN: Avoid short-cuts. Medical physics is demanding, but it's also deeply rewarding. Stay humble, stay ethical, be professional, keep yourself updated and think big. And remember sometimes the best breakthroughs happen when you're having fun with your work.

MJ: Dr. Naqvi, thank you for sharing your remarkable professional journey, insightful perspectives, and invaluable advice with our readers. Your lifelong commitment to advancing radiation protection, quality assurance, medical physics education, and professional development has been truly inspiring. Your vision for strengthening regional collaboration, nurturing future generations of medical physicists, and fostering a culture of safety and excellence reflects the very mission of the South Asia Centre for Medical Physics and Cancer

Research (SCMPCR). We sincerely appreciate your time and willingness to share your experiences with the SCMPCR community. On behalf of the SCMPCR Newsletter Editorial Team, I extend our heartfelt gratitude and wish you continued success in all your future endeavors. We look forward to your continued leadership and contributions toward advancing medical physics across South Asia and beyond.

