FIVE YEARS OF INTERNATIONAL DAY OF MEDICAL PHYSICS CELEBRATION IN GHANA – THE EXPERIENCE


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Abstract—The celebration of the International Day of Medical Physics (IDMP) was instituted by the International Organization for Medical Physics (IOMP) in 2013. This initiative was aimed at promoting the role of medical physicists in the worldwide medical scene. During the celebration, national and regional member organizations join the mother organization (IOMP) to organize series of events to mark the day. In Ghana, the Ghana Society for Medical Physics which is affiliated to the Federation of African Medical Physics Organizations (FAMPO) and the IOMP has actively celebrated the IDMP in Ghana on every 7th November since its inception in 2013. This has given the medical physics profession a huge publicity in the country. Based on IOMP’s theme for the year, the society selects appropriate speakers and topics reflecting the given theme. Previous speakers have included medical physicists, radiologist, radiation oncologist, nuclear medicine physician, radiation protection practitioners and oncology nurse. The background of participants at such events includes medical physicists, radiation protection practitioners, lecturers, radiologists, oncologists, regulators, allied health professionals, students, media and the general public. The IDMP celebrations in Ghana have been very educative and successful. It is vital that the medical physics society continues to keep engaging other health professionals, general public and media, by making them aware of the extremely dynamic and crucial role medical physicists play in the healthcare delivery with respect to diagnostic medical imaging, radiotherapy, nuclear medicine and radiation protection.

Keywords—IOMP, IDMP, Ghana, Medical Physics

I. INTRODUCTION

Medical physics practice in Ghana began in the 1970s when physicists were trained in developed countries (mostly in Europe) by the kind support of the Government of Ghana (GoG), International Atomic Energy Agency (IAEA) and other organizations [1]. Upon the return of the trained medical physicists, many of them practised with the Ghana Atomic Energy Commission (GAEC), a research institution charged with the peaceful promotion and application of nuclear techniques. Some of the medical physicists also offered clinical services to hospitals. They undoubtedly contributed to the growth of the profession through education, training, clinical and research work [1, 2]. Their pioneering activities drew attention and interest to the medical physics profession, and subsequently influenced the establishment of two state owned radiotherapy centres in Accra, the capital of Ghana, and Kumasi, the second major city. Subsequently, a third radiation oncology centre which is privately owned has been built in Accra [1].

Currently, training of medical physicists in Ghana is done locally in order to provide the requisite work force for Ghana’s radiotherapy, nuclear medicine and diagnostic radiology programmes. Plans are on-going to expand and upgrade existing infrastructure in radiotherapy practice by the introduction of advanced radiotherapy techniques and equipment. Equipment available in radiotherapy practice in Ghana include Co-60 teletherapy unit, linear accelerator, low dose rate (LDR) Cs-137 brachytherapy unit, high dose rate (HDR) Co-60 brachytherapy unit, LDR I-125 prostate brachytherapy system. In diagnostic radiology, there is transition from screen film radiology to digital radiology, with a significant increase of diagnostic imaging equipment, as well as mushrooming of private imaging centres. Imaging systems available in Ghana include computed tomography, magnetic resonance imaging, mammography, conventional X-ray, dental X-ray, dual energy X-ray absorptiometry (DEXA) and fluoroscopically guided X-ray equipment.

The local training of medical physicists started in 2004, with the introduction of M.Phil Medical Physics programme by the University of Ghana (UG). This was hosted by the School of Allied Health Sciences (SAHS) of the College of Health Sciences. In 2007, the programme was relocated to the Graduate School of Nuclear and Allied Sciences (SNAS) of the University of Ghana, and has since been hosted at the Ghana Atomic Energy Commission (GAEC)
SNAS was established in 2006 by collaboration between GAEC and UG with key support from International Atomic Energy Agency (IAEA). The goal of the School was to promote postgraduate university education and training for preservation and enhancement of nuclear knowledge in Ghana and Africa [3, 4]. In 2008, PhD Medical Physics was also introduced. With time, the Department of Medical Physics grew from initially admitting local students to admitting foreign students from across the Africa Region [2]. The department has become a hub of medical physics training in the sub-region, attracting a number of foreigners from some African countries. This has boosted the number of trained medical physicists locally in Ghana and other African countries.

II. GHANA SOCIETY FOR MEDICAL PHYSICS (GSMP)

In line with the statutes and byelaws of the International Organization for Medical Physics (IOMP), the Ghana Society for Medical Physics (GSMP) was established in 2011 with an ultimate aim of promoting the application of physics to medicine [5]. The Society serves as checks and balances on the activities of professional medical physicists and contributes to the training of medical physics students in Ghana. GSMP is mandated to regulate activities of medical physicists in Ghana as required by the Health Professions Regulatory Bodies Act 2013 (Act 857) [6]. At the International level, GSMP is affiliated to the Federation of African Medical Physics Organizations (FAMPO) and the IOMP. GSMP operates with a Constitution, Code of Ethics and Practice Standards, and achieves its objective through the following:

- Encouraging advancing and disseminating technical information, theory and practice of medical physics and related fields.
- Promoting a high level of ethical practice among medical physicists.
- Ensuring that medical physicists are engaged in technical procedures, which form part of patient care and treatment and
- Ensuring that medical physicists undergo certification examination and are licensed to practice.

Presently, there are about sixty-five (65) trained medical physicists in Ghana, with the distribution as clinical medical physicists (30%), medical physicists in academia (20%), medical physicists in research (15%) and unemployed (35%).

There have been capacity building programmes and projects in Ghana for the profession of medical physics such as:

- Academic, clinical and professional collaboration projects
- Participation in IAEA Technical Cooperation research projects
- Involvement in IOMP activities [7]

III. INTERNATIONAL DAY OF MEDICAL PHYSICS (IDMP) CELEBRATIONS BY GSMP

The IOMP instituted the celebration of the International Day of Medical Physics (IDMP) in 2013. This initiative was aimed at promoting the role of medical physicists in the worldwide medical scene where national and regional member organizations join the mother organization (IOMP) to organize series of events such as seminars, symposia and public lectures, and other activities to draw gatherings and for practitioners and the general public to receive in-depth information about the profession.

Since the inception of the IDMP in 2013 by the IOMP, the GSMP has actively celebrated the occasion in Ghana on 7th November of each year. The observance of the IDMP has given the medical physics profession a huge publicity in Ghana among other professional bodies such as Ghana Society for Radiologists, Ghana Society for Radiographers, Ghana Association for Radiation Protection, etc. and the general public. Based on the theme for each year, the Society selects appropriate speakers for its celebrations.

As part of the strategies to boost recognition of the IDMP celebration in Ghana, at least two weeks to the celebration, it is extensively publicized through banners and posters. Figure 1 shows the poster that was designed for the 2017 edition of the IDMP celebration in Ghana.
Table 1: Symposia for International Day of Medical Physics (IDMP) Celebration in Ghana from 2013-2017.

<table>
<thead>
<tr>
<th>Year</th>
<th>IOMP Theme</th>
<th>Speaker/Topic</th>
<th>Summary of Presentations</th>
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<tbody>
<tr>
<td>2013</td>
<td>Radiation Exposure from Medical Procedures: Ask the Medical Physicist</td>
<td>Prof. C. Schandorf: Radiation Exposure from Medical Procedures: Ask the Medical Physicist</td>
<td>(i) Medical Physicist’s role in the medical team for diagnoses and treatment of diseases (ii) Medical Physicist’s involvement in equipment purchase, acceptance testing, commissioning, effective use &amp; maintenance of equipment, quality assurance &amp; quality control of medical procedures including dosimetry, protection of the patient, staff &amp; public.</td>
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<tr>
<td>2014</td>
<td>Looking into the body-Advancement in imaging through Medical Physics</td>
<td>(i) Mr. E.C.K. Addison: Role of Medical Physics in Ultrasound Imaging (ii) Dr. A.N. Mumuni: Role of Medical Physics in MRI Applications (iii) Dr. A. Ankrah: Nuclear Applications in Medicine (Nuclear Medicine) (iv) Dr. S. Asiamah: Computed Tomography Applications in Medicine</td>
<td>(i) Physics Principles of Ultrasound Imaging (ii) Physics &amp; basic principles in CT (iii) Application of CT in Medicine (iv) Physics of MRI &amp; Clinical Applications of MRI (v) Safety in MRI (vi) Radiosotopes applications in imaging and therapy</td>
</tr>
<tr>
<td>2016</td>
<td>Education in Medical Physics: The Key to Success</td>
<td>(i) Dr. S. Inkoom: Norwegian Partnership Programme for Global Academic Cooperation (NORPART) on Ghana-Norway Collaboration in Medical Physics and Radiography Education (ii) Dr. M. Afadzi: Sharing of Experiences as a Student in Norway (iii) Prof. C. de Lange Davies: Education and Training in Medical Physics: The Norwegian Experience</td>
<td>(i) Education &amp; training (theory &amp; practical) of Medical Physics, Radiation Protection &amp; Radiography Education in Ghana &amp; Africa. (ii) Academic Experience at Norwegian University of Science &amp; Technology (NTNU) ; Teaching, Learning the Research Environment, &amp; Student Life in Norway (iii) Biophysics, Physics and Medical Technology Program at NTNU (Master &amp; PhD) (iv) Future of Medical Imaging. Nanoparticels Research with Ionizing Radiation &amp; Ultrasound</td>
</tr>
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</table>
In addition, at the end of the celebration, journalists publish in the media a summary of what transpired during the celebration [8, 9].

A list of speakers and their topics reflecting IOMP’s theme for the year is presented in Table 1. Figure 2 shows a group photograph of participants of the 2017 IDMP celebration in Ghana, under the theme “Providing a Holistic Approach to Women Patients and Women Staff Safety in Radiation Medicine”, which was organized by the Ghana Society for Medical Physics.

IV. CONCLUSIONS
For five (5) continuous years, GSMP has observed the celebrations of IDMP in Ghana. The celebrations have been very educative and successful. The participants have come from several backgrounds such as medical physicists, radiation protection practitioners, lecturers, radiologists, oncologists, regulators, allied health professionals, students, media and the general public. It is the expectation of GSMP that Ghana would use the IDMP celebration to influence the application of physics in medicine in health care delivery in Ghana and the rest of Africa.

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CONFLICT OF INTEREST
The authors hereby declare that there is no conflict of interest in the publication of this article.

REFERENCES


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