Asian Oceanian Radiology Forum 2018: International Education of Radiology in Asian Oceanian Countries

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According to the reports presented at the Fourth Asian Oceanian Radiology Forum (AORF) 2018, organized by the Korean Society of Radiology during the Korean Congress of Radiology in September 2018 in Seoul, there is an increasing demand for the Asian Oceanian Society of Radiology and its member societies for international education in radiology in the Asian Oceanian region. In AORF 2018, the national delegates of the Asian Oceanian radiological partner societies primarily discussed their societies’ activities and current status of international education in radiology.

Keywords: Radiology; International cooperation; Asia; Oceania

INTRODUCTION

At the Korean Congress of Radiology (KCR) 2018, the Fourth Asian Oceanian Radiology Forum (AORF) was organized by the Korean Society of Radiology (KSR) to discuss international education of radiology in Asian Oceanian countries. Representatives discussed the current status and future perspectives of radiological education in their countries, with a focus on the role of the Asian Oceanian Society of Radiology (AOSR) in promoting international education. National delegates of the following radiological societies from Asia and Oceania, including the president or executive members, were invited to this meeting to share their perspectives: the Bangladesh Society of Radiology and Imaging (BSRI), the Indian Radiological and Imaging Association (IRIA), the Radiological Society of Kazakhstan (RSK), the Hong Kong College of Radiologists (HKCR), the Philippine College of Radiology (PCR), the Singapore Radiological Society (SRS), the Vietnamese Society of Radiology and Nuclear Medicine (VSRNM), the Chinese Society of Radiology (CSR), the Royal College of Radiologists of Thailand (RCRT), the Japan Radiological Society (JRS), the Radiological Society of the Republic of China (RSRC) (Taiwanese Radiological Society [TRS]), the Mongolian Radiological Society (MRS), and the KSR.

The current status of radiological education in the representatives’ societies was presented mainly focusing on their societies’ number of members, training of members, and attendance of overseas conferences by the members. In this paper, we summarize the presentations made by each representative of the AORF at the KCR 2018, including the discussions and conclusions about the current status, expectations of AOSR, recommendations and suggestions for AOSR, and their societies’ support of AOSR for promoting international education in different radiological societies of Asia and Oceania (Fig. 1).

Bangladesh Society of Radiology and Imaging

The BSRI was established in 1981 with 40 members, and
always interested in collaborating with other societies for bilateral exchange programs; some radiologists have taken fellowship or other educational programs in India, Singapore, the United States, and Thailand.

Indian Radiological and Imaging Association

The IRIA was established in 1931, with an aim of promoting the study and practice of radiology in India, and currently, there are more than 16000 members. Out of the total population of 1.35 billion people, annually, there are a total of 25000 radiologists and 750 residency positions available in India. The IRIA has 23 chapters, and each chapter independently organizes monthly clinical meetings, periodic continuous medical education (CME) programs, seminars, and workshops for the education of its members. The academic wing of the IRIA is called the Indian College of Radiology and Imaging (ICRI), and all academic and teaching activities of the IRIA are promoted by the ICRI. The IRIA publishes the *Indian Journal of Radiology and Imaging*.

A large number of members of the IRIA attend overseas conferences and meetings. A total of 26 members attended the KCR 2017, with approximately 20 members conducting oral and scientific poster presentations. In the RSNA 2017,
77 educational exhibits and 32 scientific abstracts from India were accepted. Moreover, 182 Indian radiologists attended the ECR 2018, and 236 members watched the conference through live webcast.

The IRIA provides travelling fellowship grants for international conferences, such as the ECR, International Congress of Radiology (ICR), Asian Oceanian Congress of Radiology (AOCR), RSNA, and KCR; there are six such fellowships granted to each of the international conferences. The IRIA organized three KSR-IRIA friendship symposiums in 2013, 2015, and 2016, with an attendance of more than 400 people in each symposium. The IRIA also hosted the AOCR 2018 in January 2018 in Mumbai, India, with a total attendance of 4500 people, including international delegates, in addition to AOCR 1992 and ICR 1998 in the past.

The IRIA sends tutors and trainees for the AOSR Youth Club program. The IRIA recommends its young members for fellowships for various international conferences, and almost 150 members have benefitted in the last 2 years. The IRIA promotes international conferences, such as the AOCR, RSNA, KCR, and ECR, encouraging its members to attend these meetings.

**Radiological Society of Kazakhstan**

The RSK is a nonprofit, nongovernmental public organization established in 1977, with 377 full members and approximately 1000 corresponding members. The main aims of the RSK are the development and improvement of radiology in Kazakhstan, education and training of its members and young radiologists, cooperation with other national radiological societies, and integration into the European and Asian Oceanian radiology. It pays special attention to problems in training and education of radiologists and the creation of professional guidelines and standards. From 1988 to 2018, 40 people were educated in nuclear medicine and radiotherapy by the International Anatomic Energy Agency in collaboration with the RSK. From 1998 to 2010, 74 young radiologists from Kazakhstan have been trained with the European Association of Radiologists. Annually, 40 representatives attend the European Tutorial of Radiology and, in 2014, won grant for RSNA fellowship for 3 months. The RSK has also held the KSR-RSK friendship symposium on cardiothoracic radiology in 2017 and breast imaging in 2018.

In 2018, the RSK has become a full member of the AOSR. The RSK expects to continue its collaboration among society members and support the AOSR by actively participating in the AOSR activities, educating young radiologists, and developing future regional leaders for radiology.

**Hong Kong College of Radiologists**

The HKCR consists of diagnostic and interventional radiology, clinical oncology for therapeutic radiation and chemotherapy, and nuclear medicine, serving the whole population of Hong Kong (7,409,800 people) in 42 public hospitals and 12 private hospitals.

The HKCR has a statutory power to hold qualifying examination in radiology and award qualifications as a charitable and self-financing organization. It has a training curriculum, accrediting training centers and monitoring the progress of training. It holds regular structured training courses, scientific activities, seminars, symposiums, and workshops and accredits programs for CME and continuous professional development. It also publishes guidelines and standards to maintain good standard of practice. The HKCR has a journal named the *Hong Kong Journal of Radiology*.

The HKCR liaises with various international and regional radiological organizations and societies: the RSNA, European Society of Radiology (ESR), Asian Oceanian Society of Neuroradiology and Head and Neck Radiology (AOSNHNR), Asian Society of Cardiovascular Imaging (ASCI), International Diagnostic Course Davos, CSR, RSRC (TRS), JRS, KSR, Academy of Medicine, Malaysia, Academy of Medicine, Singapore, Royal Australian and New Zealand College of Radiologists, and Royal College of Radiologists. Approximately 20 radiologists attended the RSNA 2017 and approximately 57 radiologists attended the ECR 2018. A total of 609, 565, and 101 radiologists in Hong Kong are members of the ESR, AOSR, and AOSNHNR, respectively.

The HKCR runs programs for education grant, conference grant, and research grant for its members and radiologists from the mainland China and overseas travelling fellowship programs. HKCR has multiple joint scientific activities with regional and overseas organizations: the Society of Cardiovascular Magnetic Resonance, American Institute for Radiologic Pathology (AIRP), Asian Oceanian School of Radiology (AOSOR), International Cancer Imaging Society (ICIS), Medical Imaging Alliance and Radiation Oncology Alliance of Guangdong-Hong Kong-Macao Bay Area, and AOSOR Youth Club.
Philippine College of Radiology

The PCR runs inbound international radiology education programs. The inbound programs are available for foreign residents in 50 PCR-accredited training programs. There are 40 foreign radiology residents training in the Philippines. The radiology residency training program is a 4-year course and requires English as the language of communication. The rotations in the training program are based on modalities: general radiology (i.e., plain radiography or fluoroscopy) for 12–16 months, ultrasound and mammography for 7–12 months, computed tomography (CT) for 6–10 months, interventional radiology for 2–4 months, and magnetic resonance (MR) for 6–10 months. The subspecialty training programs are open only for local radiology residents. The subspecialty training programs consist of ultrasound for additional 6 months in 36 accredited training institutions, CT and MR for additional 12 months in 25 accredited training institutions, interventional radiology for additional 2 years in 8 accredited training institutions, radiation oncology for additional 3 years in 8 accredited training institutions (or 4 years in straight program), and nuclear medicine for additional 2 years in 6 accredited training institutions (or 3 years in straight program).

The PCR has a plan to shift to radiology training curriculum of the ESR. The rotations in the curriculum will be based on areas of interest and organ systems, such as neuroradiology, musculoskeletal radiology, and pediatric radiology. The total training period will be 5 years within 2 levels (3- and 2-year courses). The PCR has no regular outbound radiology fellowship program at the moment. However, outbound fellowship programs are intermittently run, sponsored by individual hospitals. It is estimated that approximately 20 Filipino radiologists undertake international educational opportunities, ranging from a week to a few years.

Radiologists in the Philippines attend overseas meeting such as the ECR, RSNA, KCR, Japan Radiology Congress (JRC), ASEAN Association of Radiology (AAR), and AOCR; we have also hosted the IVP program of the RSNA. Ten and 46 Filipino radiologists attended the ECR 2018 and RSNA 2017, respectively.

Singapore Radiological Society

The SRS, founded in 1977, is a nonprofit society of radiologists, nuclear medicine physicians, and radiation oncologists that aims to foster relationships between members through social and academic activities and promote links and friendships with fellow societies locally and overseas. The SRS consists of eight subsections and 459 members (3 honorary members, 106 life members, 137 ordinary members, 193 associate members, and 20 student members).

Singaporean radiologists attend the following overseas meetings: approximately 40 members annually for the RSNA, approximately 30 members annually for the ECR, approximately 5–10 members annually for the AAR, approximately 5 members annually for the AOCR, approximately 10–20 members annually for the KCR, and approximately 10 members annually for the JRC.

The SRS runs inbound fellowship programs in government and private hospital departments and invites lecturers through Human Manpower Development Program (HMDP) and during annual scientific meetings, such as the 2019 AAR Annual Meeting. It has various outbound educational programs, such as ultrasound training and lecture programs, in conjunction with the Myanmar Society of Radiology, the American Roentgen Ray Society (ARRS) 2019 Global Exchange featuring Asia, SRS technology transfer fellowship grant, HMDP, and department-specific educational grants. Government hospital grants support 200–300 members annually, the ARRS Global Exchange grant supports 3 members annually, and the SRS technology transfer fellowship grant supports 1 member annually.

Vietnamese Society of Radiology and Nuclear Medicine

The VSRNM was established in 1961 and has 8 subsocieties and 1300 members. The annual congress of the VSRNM is held in August, and there are separate national congresses of interventional radiology, ultrasound, and radiology technicians. The VSRNM has international relationship with multiple societies, including the AAR, AOSR, KSR, Société Française de Radiologie (SFR), Asian-Australasian Federation of Interventional and Therapeutic Neuroradiology (AAFTIN), and Asia Pacific Society of Cardiovascular and Interventional Radiology (APSCVIR).

Members of the VSRNM attended the following international meetings: the RSNA 2017 (n = 10), ECR 2018 (n = 4), APSCVIR 2018 (n = 6), AAFTIN 2018 (n = 10), Journées Françaises de Radiologie 2017 (n = 4), and Cardiovascular and Interventional Radiological Society Europe (CIRSE) 2017 (n = 4).
There is a high demand among Vietnamese radiologists for overseas education opportunities. Until now, the VSRNM has held three conjoined friendship symposiums with the KSR. The SFR also provides a fellowship opportunity for qualified VSRNM members. Currently, there are four Vietnamese radiologists in PhD programs in Korea, Japan, and Taiwan. The VSRNM is now looking to expand international opportunities for academic degrees (master’s or PhD degree) and short-term training courses for their young radiologists.

**Chinese Society of Radiology**

The CSR was founded in 1937, and the first national congress of radiology was held in Beijing in 1956. There has been a steady increase in the number of Chinese radiologists attending international radiology meetings. A total of 340 Chinese radiologists attended the RSNA 2017, in which 12.3% of the oral presentations and 13.6% of the scientific posters were presented by Chinese attendees. A total of 530 Chinese radiologists attended the ECR 2018, and there was a special conjoined program called “China day” in the meeting. The annual scientific meeting of CSR was held in Suzhou in 2017, and more than 10000 radiologists attended the meeting.

For international education, the CSR has strived to invite many distinguished radiologists from overseas for lectures, and the RSNA workshop has been held in China annually since 2005. The Strategic Partnership to Advance Radiology Knowledge program of the CSR is an international learning opportunity that helps young Chinese radiologists to study abroad for a short period of time spanning 1 to 3 months. At a hospital level, diverse international education opportunities, such as overseas fellowship programs, are being provided to young radiologists.

The CSR now envisions strategic partnerships with both regional and international radiological societies by promoting international communication and cooperation and fostering globalized, visionary, future radiologists.

**Royal College of Radiologists of Thailand**

The RCRT has authorities to supervise and control boards of training in radiology under the regulation of the medical council of Thailand. As of now, eight institutions have been approved for training in radiology. A total of 17 and 18 Thai radiologists attended the RSNA 2017 and ECR 2018, respectively. Thai radiologists prefer to attend subspecialty meetings rather than general radiology meetings, and a total of 168 radiologists attended international subspecialty meetings in 2017–2018.

Although there is no official fellowship program available for foreign nationals in Thailand, some individual hospitals provide such programs. The RCRT has held many conjoined symposiums with different partner societies including the RSNA, KSR, American Society of Neuroradiology (ASNR), and AIRP. A friendship symposium is being organized between the RCRT and KSR. There are no outbound education opportunities supported by RCRT, but individual hospitals offer such programs to their young doctors. There is one Thai radiologist who benefited from the AOSR fellowship program and spent 2 months at Yonsei University Hospital in 2017.

**Japan Radiological Society**

The JRS was established in 1950 and has 9300 members, including radiologists, physicists, and researchers. Radiology in Japan is relatively unique; the number of staffs in a university hospital is usually small, consisting of approximately 10 to 30 members. Because of the small number of radiologists in the university hospitals, radiology in Japan is oriented toward general radiology rather than subspecialty radiology.

A total of 778 Japanese radiologists, which is approximately 8% of the entire members in Japan, attended the RSNA 2017; 415 Japanese radiologists, approximately 5% of the entire members, attended the ECR 2018. The JRS has several types of international education programs: exchange of speakers with ARRS, ESR, KSR, CSR, RSNA, SFR, Deutsche Roentgengesellschaft, Societa Italiana di Radiologia Medica, and Turkish Society of Radiology, with memorandum of understanding (MOU) formally written between the ARRS, ESR, and KSR, and fellowship exchange programs with the SFR and Japanese-German Radiological Affiliation.

**Radiological Society of the Republic of China (Taiwanese Radiological Society)**

The RSRC (TRS) has 1022 active radiologists and 271 residents in training. The members of RSRC attend the overseas meetings, such as the RSNA, ECR, and ASCI. In 2017, 107 radiologists attended the RSNA, 34 radiologists attended the ECR, and 13 radiologists attended the ASCI meetings. Approximately 100 radiologists attend the RSNA annually. The RSRC has encouraged the members to
participate in the international educational programs. Some radiologists in the RSRC participated in the Asia-Pacific Congress of Interventional Oncology (one in 2017 and five in 2015), 13 members participated in the conjoined course of the RCRT-AIRP in 2016, and three members in 2017 and eight members in 2018 attended the International Intense Course for Interventional Radiology. Approximately one representative radiologist in the RSRC participates in the clinical educator development program of the ARRS annually. There are many available international courses in RSRC, such as acute stroke treatment hands-on workshop, interstitial lung disease expert forum, and the KSR-RSRC friendship symposium. Approximately 500 symposiums and educational courses were held in Taiwan during the past 5 years. Participation in the overseas meetings and international programs depends on variable supports, such as full or partial support by the RSRC or support by the host society.

**Mongolian Radiological Society**

The MRS has 350 active members, out of the total population of 3 million people, consists of 19 affiliated subspecialty societies, and publishes the Mongolian Journal of Radiology. The number of radiologists who attended overseas meetings in 2017 was 150, which include RSNA (n = 5), ECR (n = 7), KCR (n = 30–40), and Asian Congress of Abdominal Radiology (n = 85), and others (n = 20). In 2017, the MRS organized a conjoined session with the AOSOR. The MRS-KSR has organized several international education programs. There were several KSR-MRS friendship symposiums, including those on chest radiology in 2014, abdominal radiology in 2016, and obstetric and gynecologic radiology in 2018. Since 2011, eight radiologists from MRS have participated in the KSR international fellowship program. In 2016, the MRS signed an MOU with KSR. As of now, 144 Mongolian radiologists are international members of the KSR. In 2017, MRS organized training courses with Philips Healthcare: Digital Chest School, Cardiovascular Imaging Training, and the Elastography and Diffuse Liver Disease Training. In the future, the MRS needs to actively cooperate with regional radiology societies to achieve globalization and innovation in the field of radiology education.

**Korean Society of Radiology**

The KSR offers several inbound and outbound international educational programs. The KSR offers free KSR International Membership for foreign radiologists and scholars of related sciences. This international membership has several benefits, such as discount of KCR registration fee, free online access to the Korean Journal of Radiology, free online access to KSR website and E-learning system, free subscription to KSR news, and higher priority in the selection of KSR international fellowship.

The KSR has been running the KSR International Fellowship Program for the last 7 years. The objectives of the KSR International Fellowship Program are to promote research by specialists in radiology, to train them in Korean academic institutions, and to contribute to the distribution and improvement of radiology, encouraging mutual understanding and scientific cooperation among different countries. The grant for the program is application-selection base, and it includes a monthly support of 1,500,000 KRW (1350 USD) up to 3 months and airfare reimbursement with a maximum value of 1,000,000 KRW (900 USD), which makes the total grant up to 5,500,000 KRW (5000 USD). Additionally, the KSR and SFR run a fellowship exchange program, sending 2–6 international fellows to each country for up to 6 months since 2017.

The KSR supports many Korean radiologists for attending overseas academic meetings or training programs. The number of supported radiologists for each congress are 75 for the RSNA 2017, 68 for the ECR 2018, and 251 for the APSCVIR, Society of Interventional Radiology, Symposium Neuroradiologicum, Society of Breast Imaging/American College of Radiology Breast Imaging Symposium, European Society of Thoracic Imaging, ASNR, European Society of Gastrointestinal and Abdominal Radiology, European Society of Musculoskeletal Radiology, European Society for Paediatric Radiology, ASCI, European Thyroid Association, CIRSE, International Skeletal Society, Asian Conference on Tumor Ablation, and Asian Pacific Prostate Society conferences. A total of 394 radiologists have been supported annually by the KSR to attend overseas meetings. In addition, two volunteers for the RSNA Clinical Trials Methodology Work have been supported by the KSR annually.

Finally, many academic institutions have 1-year overseas training program, which is considered a scholarship program for subspecialty training. Each institution has its own program, and radiologists who are appointed for academic positions have this opportunity usually 2 to 3 years after their appointment. The number of radiologists who are in these institution-based programs is estimated to be...
approximately 20 annually.

The KSR has held many joint symposiums with other international societies. For example, the KSR holds a joint educational program with the European School of Radiology (ESOR) annually since 2012. The program is called the ESOR-Advanced Imaging Multimodality Seminars, and approximately 100 radiologists participate annually. The KSR also has held joint symposiums with the AOSOR since 2015, with the ICIS in 2012 and 2017, and with the RSNA from 2018.

Lastly, the Friendship Symposia held by the KSR are the most important outbound activities. Since 2012, the KSR has offered Friendship Symposia with 3–5 countries annually. The KSR supports three to six KSR speakers’ airfare, accommodation, and honorarium, and the local societies cover the venue and promotion of the program and the local speakers’ expenses. Through this program, the KSR expects to enhance radiology education in Asian countries and friendly relationship with partner societies. So far, the KSR has had Friendship Symposia with 12 societies, including the CSR, IRIA, Indonesian Society of Radiology, RSK, College of Radiology of Malaysia (MCoR), MRS, PCR, RSR, SRS, TRS, RCRT, and VSRNM.

Asian Oceanian School of Radiology/Asian Oceanian Society of Radiology

The AOSOR is an independent special task force organization of the AOSR. The AOSOR pursues education and training of radiology and scientific communication between the AOSR members to reach high academic level of member societies to unite the AOSR to a powerful international regional society in the future. The AOSOR has active projects, such as the AOSOR Conjoint Session, Visiting Professor Program, and the AOSOR Youth Club.

In 2017, there were several AOSOR Conjoint Sessions held in various countries, including those with the RSRC (TRS) in Taipei, Taiwan; SRS in Singapore; RCRT in Bangkok, Thailand; MRS in Ulaanbaatar, Mongolia; MCoR in Kuala Lumpur, Malaysia; KSR in Seoul, Korea; and HKCR in Hong Kong. In 2018, the AOSOR Conjoint Sessions were held with the Radiological Society of Thailand in Bangkok, Thailand; RSRC (TRS) in Taipei, Taiwan; JRS in Yokohama, Japan; KSR in Seoul, Korea; Uzbekistan Radiology Society in Tashkent, Uzbekistan; and HKCR in Hong Kong. Moreover, there are more projects to be held in 2019 and 2020.

The AOSOR Visiting Professor Program is a joint IVP program between the AOSR and RSNA. Four professors, two of each from the AOSR and RSNA, visit local hospitals for 2 weeks to conduct lectures, consultations, interpretations, and conferences. So far, this program has been run in Kuala Lumpur, Malaysia, in 2017; in Jakarta, Indonesia, in 2018; and in Yangon, Myanmar, in 2019.

The AOSOR Youth Club is an educational, social, and academic program that aims to foster the future core steering group of the AOSR. It aims to establish a network of future AOSR leaders based on a sense of companionship resulting in a three-dimensional AOSOR Youth Club alumni network and sustain the future of AOSR as a more united society in the Asian Oceanian region. The AOSOR Youth Club is a 3-day course with approximately 15 trainees from member societies. It has also 10 tutors for leadership, logics, management, and basic methodology. The AOSOR Youth Club 2017 was held in Seoul, Korea, on November 9–12, 2017, with 15 trainees, 6 basic leadership tutors, 10 society leadership tutors, observers, and local supporters.

The director of the AOSOR Youth Club 2017 was Byung Ihn Choi, and the codirector was Seung-Hyup Kim. The AOSOR Youth Club 2018 was held in Hong Kong on November 18–21, 2018. Moreover, the AOSOR Youth Club was held in Nagoya, Japan, on October 16–19, 2019, and will be held in Cairns, Australia, in November 2020.

CONCLUSION

The current status of international radiology education in the Asian Oceanian radiology societies is heterogeneous. However, it has been made clear from the presentations that there is a common and increasing demand for international radiology education among the Asian Oceanian radiology societies. We hope to increase the opportunities for such international education by further strengthening intersociety collaborations and communication. Working together, the Asian Oceanian radiology societies aim to provide quality education opportunities to their members throughout the region, with the mutual goal of advancements in clinical practice, research, and education.

Conflicts of Interest
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