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Radiology Education in Asia: Differences, Similarities, and Opportunities

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INTRODUCTION

Radiology is technology driven, rapidly evolving, and continually being transformed by innovative tools. Demand for radiologic services has been increasing consistently, and the expanding complexity of the field has resulted in subspecialization as a natural progression in many countries [1].

Many countries in Asia are expanding newly developed radiology programs that started in the past few decades [2]. The rapidity of their development places challenges related to standardization and administrative oversight. Recent efforts, such as the Asian Radiology Forum of 2015, are promoting collaborative exchange and intersociety collaboration among the radiology societies [2].

In the literature, there are not much data about radiology residency, subspecialization, research, and medical physics education in Asia, especially on a comprehensive, continent-wide scale. This aim of this study was to assess the radiology training infrastructure in Asia in order to compare and contrast unique educational experiences that can collectively improve radiology training worldwide.

METHODS

Medical School, Internship, and Residency

This study is a part of a worldwide survey on radiology education that spans countries in Africa, Asia, Latin America, and Europe [3-5]. For each continent, a comprehensive radiology survey (Table 1) was created and designed to analyze the state of radiology education. Each survey consisted of questions assessing medical school, radiology residency, internships, fellowships and subspecialties, medical physics, research, and accreditation, along with supplemental questions specifically targeted to each continent's specific audience.

Subspecialty Training

Apart from the overall infrastructure of radiology residency and subspecialty training, we also queried the number of radiology residency programs in each country as a measure of access to training. Subspecialty fellowship program availability and type were assessed, as well as the percentages of radiologists who must travel outside the country for further training.

Board-Certifying Examination and Research

The type of national or university-based board-certifying examination was questioned. Research requirements to finish residency training were assessed.

Medical Physics

The availability of a degree in medical physics and education of radiology residents in medical physics were queried.

The 17-item survey was distributed via e-mail from January to April 2016 using the International Society of Radiology's e-mail distribution list and also forwarded to radiology and medical physics colleagues abroad, for a total of approximately 55 recipients in Asia. There were no inclusion or exclusion criteria for radiologists or medical physicists. Two e-mail reminders to complete the survey were sent at approximately 4-week intervals.

In cases in which discordant responses were received from multiple respondents in any given country, we accepted answers from national radiology societies. If discrepant answers still persisted, we contacted these specific respondents via the provided e-mail addresses to validate and resolve the answers. Descriptive statistics such as percentage and range calculations were used to analyze and summarize data.

RESULTS

We received 41 separate responses (response rate, 75%), which represent 19 unique countries. As shown in Figure 1, results came from across the continent and were categorized by region as follows:

- East Asia: China, Hong Kong, Japan, South Korea, and Taiwan

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Table 1. List of survey questions

a. How long is medical school in your country excluding internship?
b. Is internship required in your country?
c. How long is the radiology residency/post-graduate training in your country including internship in number of years?
d. Please provide the number of radiology residency programs in your country (rough estimate if exact figure is not known):
e. Is subspecialty radiology fellowship training available in your country?
f. Which subspecialty fellowship trainings are available in your country?
g. What percentage of radiology residents travel outside your country for subspecialized radiology training?
h. Approximately how many radiologists are there in your country?
i. If subspecialty training is not present in your country, are week- or month-long courses for advanced training and credentialing in a particular subspecialty available from your national societies?
j. Are there research requirements for radiology residents/trainees to finish training?
k. If there is a research requirement to finish training, please explain. Otherwise, please skip this question.
l. What kind of national certifying examination or university-based examination is required for residents to be certified in radiology?
m. How many MRI scanners are available in your country?
n. What percentage of radiology/medical imaging procedures is done by nonradiologists?
o. Is there a degree option like MSc in medical physics in your country?
p. Who teaches medical physics to radiology residents in your country?
q. Are radiology residents formally examined for medical physics?

- South Asia: Bangladesh, India, and Sri Lanka
- Southeast Asia: Malaysia, the Philippines, and Thailand
- Western Asia: Iran, Israel, Lebanon, Oman, Pakistan, Saudi Arabia, Syria, Turkey, and the United Arab Emirates

After addressing discrepant responses, the answers were consolidated into the following tables: Table 1 references the survey

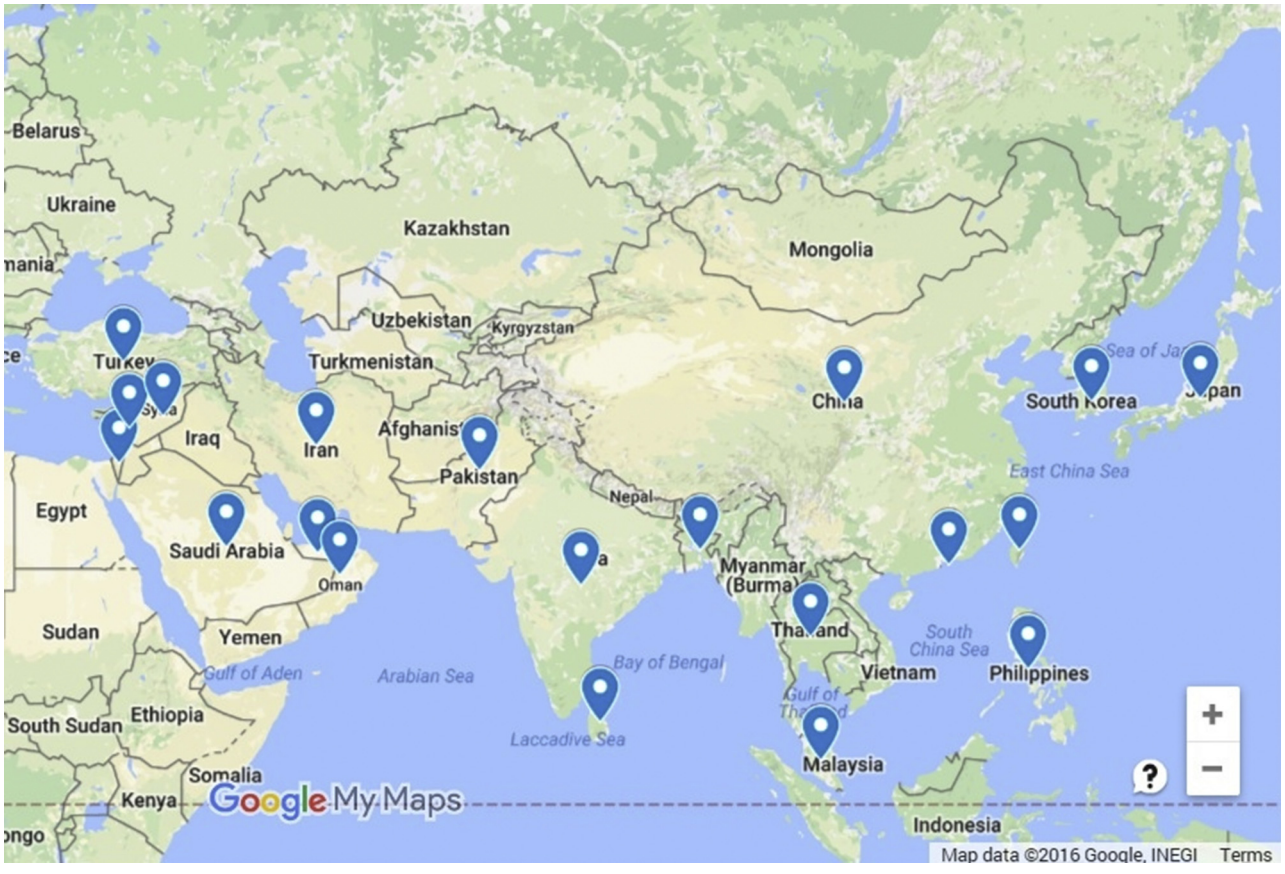

Fig 1. Survey responses representing countries across the Asia continent.