



# Summary of the Proceedings of Asian Oceanian Radiology Forum 2025: Key Challenges in Radiology Clinical Practice across the Asia-Oceania Region

Indian Radiological and Imaging Association

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## Abstract

### Keywords

- Artificial Intelligence
- Workforce
- Infrastructure
- Teleradiology
- Sustainability

The Asian Oceanian Radiology Forum at the AOCR 2025 discussed the key challenges in clinical radiology practice. The participating societies were invited to submit their report addressing the current situation in their country or region. The session also focussed on identifying common bottlenecks and possible solutions including financial sustainability, expansion of training and inclusion of artificial intelligence (AI).

## Key Challenges

- **Workforce Shortages and Increasing Demand** - The shortage of trained radiologists is a major challenge, worsened by the rising demand for diagnostic imaging due to aging populations and chronic diseases. Rural areas particularly suffer from a lack of specialists.
- **Unequal Distribution of Radiology Services** - Many countries in the Asia-Oceania region face disparities in radiology access, with urban centers having advanced imaging technology while rural areas lack essential services. Economic constraints further limit access to timely diagnostics.
- **Outdated Infrastructure and Equipment** - Many health-care systems rely on outdated imaging equipment, affecting diagnostic accuracy. The high costs of acquiring and maintaining MRI and CT scanners pose challenges to modernization.
- **Artificial Intelligence (AI) Integration and Regulatory Challenges** - While AI offers significant potential in radiology, its adoption is hindered by financial constraints, lack of clear regulations, and concerns about data privacy. AI remains primarily used for single-task imaging interpretation.

- **Financial and Reimbursement Challenges** - Inadequate insurance coverage and reimbursement issues make it difficult for radiology practices to sustain operations. The shift toward value-based care requires justification for imaging studies, adding financial pressure.

## Proposed Key Solutions

- **Workforce Development** - Expand residency and fellowship programs, provide financial incentives, and promote mentorship.
- **Infrastructure Improvement** - Modernize imaging equipment, establish public-private partnerships, and enhance radiology access.
- **AI Integration** - Develop regulatory frameworks, fund AI research, and train radiologists in AI applications while maintaining human oversight.
- **Financial Sustainability** - Advocate for better reimbursement models, introduce sustainable funding, and implement cost-sharing strategies.
- **Teleradiology Expansion** - Use remote imaging interpretation for underserved areas, build regional collaboration networks, and adopt cloud-based solutions.

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## Introduction

Indian Radiological and Imaging Association hosted the Asian Oceanian Radiology Forum 2025 held at the 23rd Asian Oceanian Congress of Radiology. The meeting took place on 23rd January 2025 in Chennai trade center where the leaders in medical imaging where leaders in medical imaging from the Asia-Oceania region discussed key challenges related to clinical radiology practice.

The following societies submitted a report and presented the point of view of their respective country or region: Uzbekistan Radiology Society (URS), The Royal Australian and New Zealand College of Radiologists, Hong Kong College of Radiologists, The Indonesian Society of Radiology, Japan Radiological Society (JRS), Korean Society of Radiology (KSR), College of Radiology Academy of Medicine of Malaysia, Nepal Radiologists' Association, Singapore Radiological Society, Sri Lanka College of Radiologists, Taiwan Radiological Society, Radiological Society of Thailand, and Vietnamese Society of Radiology and Nuclear Medicine

The session focused on identifying major challenges in radiology clinical practice across the region, exploring collaboration opportunities, and developing potential solutions. Experts shared insights into their health care systems, highlighting concerns affecting radiology services, workforce development, technology integration, and patient care.

## Key Challenges

Key challenges which were discussed are as follows:

1. **Workforce Shortages and Increasing Demand**  
The shortage of trained radiologists remains a significant challenge. The increasing demand for diagnostic imaging, driven by aging populations and chronic diseases, has placed immense pressure on professionals. The limited number of subspecialists in interventional radiology, oncology imaging, and pediatric radiology further constrains service delivery.
2. **Unequal Distribution of Radiology Services**  
Many countries face disparities in radiology services, with urban centers being well-equipped while rural areas lack specialists and advanced imaging technology. Economic constraints and logistical challenges exacerbate this issue, limiting access to timely diagnostics.
3. **Outdated Infrastructure and Equipment Shortages**  
Several health care systems rely on outdated imaging equipment, affecting diagnostic accuracy and efficiency. The high costs of acquiring and maintaining magnetic resonance imaging (MRI) and computed tomography (CT) scanners pose barriers to modernization. A lack of standardized imaging protocols and quality assurance measures further complicates service delivery.
4. **Financial and Reimbursement Challenges**  
Financial constraints impact radiology practices, with inadequate insurance coverage and insufficient reimbursement for imaging procedures. The shift toward

value-based care requires radiology departments to justify imaging studies, creating financial limitations in public and private sectors.

5. **Artificial Intelligence (AI) Integration and Regulatory Concerns**  
AI offers potential benefits but faces regulatory, financial, and operational hurdles. Many countries struggle with guidelines for AI use, concerns about data privacy, and high implementation costs. AI is mainly used for single-task imaging interpretation, but its broader application remains uncertain.
6. **Administrative Burden and Medico-Legal Concerns**  
Radiologists face increasing administrative work, compliance requirements, and medico-legal pressures. Defensive medicine practices contribute to higher imaging volumes. Standardized protocols and structured reporting can help mitigate errors.
7. **Training, Education, and Retention of Talent**  
Continuous education and training in radiology are necessary, particularly for subspecialties and emerging technologies. Retention challenges persist as radiologists seek better opportunities abroad. Expanding residency and fellowship programs is crucial.

## Proposed Solutions

1. **Workforce Development and Retention:** Expand residency slots and fellowship programs, offer financial incentives and career growth opportunities, and promote mentorship and knowledge sharing.
2. **Strengthening Radiology Infrastructure:** Modernize imaging equipment and ensure regular maintenance, develop public-private partnerships for funding, and improve accessibility to radiology services.
3. **AI Adoption and Regulatory Frameworks:** Establish AI governance bodies for standardized protocols, provide funding for AI research and implementation, and train radiologists in AI applications while maintaining human oversight.
4. **Financial Sustainability and Reimbursement Reforms:** Advocate for reimbursement models reflecting radiology complexity, introduce sustainable funding models for AI and infrastructure, and develop cost-sharing strategies for access to advanced imaging.
5. **Expanding Teleradiology Services:** Utilize teleradiology for expert interpretations in underserved areas, develop regional collaboration networks for image sharing, and integrate cloud-based solutions for efficiency.

## Summary

Marat Khodjibekov, Yulduz Khodjibekova, and Lalita Yunusova represented URS and stated that the education system in Uzbekistan is designed to provide thorough training for medical professionals. The URS has a membership of over 300 active professionals, contributing to a total of more than 1,000 radiologists nationwide. A further significant challenge confronting the URS pertains to the absence of precise

statistics concerning the number of radiologists and the availability of radiological equipment within the country. In response, the URS has initiated a comprehensive inventory of all radiological equipment across Uzbekistan in 2024, an initiative that has received approval from the Ministry of Health of the Republic of Uzbekistan. The URS's third task is to implement a Unified Structured Reporting System. This initiative involves the development of standardized reporting templates for various imaging modalities, such as CT, MRI, and X-ray, to ensure they include essential elements for accurate examination reporting. The fourth task for the URS focuses on the integration of AI in radiology practice.

John Slavotinek, President, The Royal Australian and New Zealand College of Radiologists presented on "The future of modern radiology." Issues common to most modern medical settings include an aging population, increasing comorbidity, rising societal expectations in an environment of economic constraint, workforce shortage, increasing regulation, and the rapid evolution of technology and AI. Environmental sustainability, Diversity, equity, inclusion, burnout, and societal stability are also important issues. The clinical value of radiology is at a peak and demand, workload and workforce pressures are now considerable. AI and technology offer both risks and opportunities with regard to workforce pressures. Although prediction of future impact upon radiology is difficult, the sciences have also resulted in AI, genomics and gene technology, synthetic biology, nanotechnology, theranostics, and quantum computing. Undertaking research to demonstrate the value of radiology beyond simple image interpretation will also be critically important. The world of medicine is also changing and liquid biopsy is likely to contribute significantly to diagnosis, monitoring, and patient management in future.

Given the rapidly changing landscape of medicine and radiology, demonstration of our value and greater patient contact and patient impact (e.g., interventional radiology, Multidisciplinary teams) will be important to maintain our currently central and indispensable role in patient care.

Ivan Wong on behalf of Hong Kong College of Radiologists stated that Hong Kong faces significant challenges due to a rapidly aging population and a rise in chronic diseases. With one in five residents aged 65 and over in 2021, this figure is projected to rise to one in three by 2039. The public hospital system is experiencing a shortage of doctors, including radiologists, and allied health professionals like radiographers and nurses. To address these issues, the Hong Kong government has implemented strategies to retain local talent while welcoming foreign-trained medical professionals. Embracing technology is also a key component in overcoming these challenges. The strategic goals for Hong Kong's public hospital system from 2022 to 2027 include developing smart hospitals that utilize advanced technologies and AI to enhance service delivery.

Marcel Prasetyo on behalf of Indonesian Society of Radiology stated that there are only 2,534 radiologists serving approximately 283,487,931 citizen, and they are distributed unevenly across the country. Most of the radiologists are concentrated in Java island, which has a relatively more

advanced imaging equipment in comparison to other islands. In terms of subspecialization, most of the radiologists are doing general imaging. On the other hand, other specialist (clinician) produced more subspecialists than radiology, especially in the past 5 years. These subspecialists demand radiology services that are more accurate, rigorous, detailed, and comprehensive. While the society is still working on the subspecialization/fellowship program, we need other solutions to deal with the situation along the way. Some of our radiologists have already taken a step further by pursuing fellowships in foreign countries; however, the number is still very limited. So far, the society has established collaborations in continuing radiology education with various institutions, such as Radiological Society of North America (RSNA), Taiwan Radiological Society, Rad-Aid International, Radiology across Borders, etc. However, further collaboration with other international societies is essential to developing more comprehensive training programs.

Masahiro Jinzaki, Vice president of JRS, stated that The Japan Radiology Congress, which integrates JRS with the Japanese Society of Radiological Technology and the Japanese Society of Medical Physics, is the second-largest conference globally after RSNA in terms of the number of participants. Current challenges in Japanese radiology are severe shortage of radiologists (Japan has only 7,000 practicing diagnostic radiologists, compared with 30,000 in the United States). JRS recommends limiting radiologists' cross-sectional imaging reports to four per hour to maintain quality. As a solution, we have introduced preliminary interpretations (STAT reporting) by radiographers, although limited to the emergency field. Another solution is the utilization of AI integration. One of the challenges in implementing AI is how to pay the cost of installation and operation. In 2022, JRS introduced a system in which an additional insurance fee of \$5 per patient per month is charged, provided that appropriate image management is in place. However, the number of hospitals eligible for this system is very limited. Moving forward, we would like to continue discussing with Asian Oceanian Congress of Radiology (AOOCR) who should reasonably pay the costs of AI and how AI can be effectively utilized in clinical practice.

Seung Eun Jung, on behalf of the KSR, highlighted the significant challenges facing radiology practice within the Korean health care system. Health care services in Korea can be categorized into four types: essential and urgent care, essential but nonurgent care, essential but unnecessary care, and unnecessary care. A concerning trend has emerged where unnecessary imaging procedures continue to rise, while the workforce dedicated to essential care is shrinking across clinical specialties. Korean radiologists are facing multiple urgent challenges. The sharp increase in imaging procedures has placed immense pressure on the workforce, exacerbating burnout and worsening staffing shortages. This has led to an uneven distribution of radiologists, with rural areas particularly affected. Additionally, the commercialization of health care has driven the overutilization of imaging services, leading to wasted resources and escalating health care costs. Meanwhile, an aging population is further

increasing the demand for imaging, yet radiologists often remain undervalued within the health care system. To address these issues, KSR has implemented several strategic initiatives. These include actively participating in the *Choosing Wisely* campaign, strengthening international collaborations with organizations such as RSNA, ESR, AOSR, International Society of Radiology (ISR), and other national societies to share expertise and adopt global best practices. KSR is also reinforcing national guidelines, advancing AI integration and imaging expertise, and promoting radiologists' roles within multidisciplinary teams. These efforts are essential to ensuring a sustainable and high-quality radiology practice in Korea.

Farhana Fadzli and Norlisah Mohd Ramli represented College of Radiology, Academy of Medicine of Malaysia, and stated that radiology in Malaysia faces a range of challenges, including workforce shortages, technological limitations, and gaps in subspecialty expertise. Addressing these issues requires local and international strategies to ensure equitable access to quality radiology services. With 948 radiology specialists serving 359 hospitals, Malaysia experiences an uneven distribution of radiologists, particularly in nonurban regions. High workloads in public hospitals contribute to burnout. Radiologists are expected to be the "primary physician" of sorts, being asked to exclude all important diagnoses and decide which subspecialty the patient needs referral. Outdated imaging equipment and AI adoption barriers due to cost and skepticism hinder diagnostic capabilities. Shortage of subspecialists results in generalists handling complex cases. Establishing fellowship programs and referral networks, alongside joint international fellowships, can bridge this gap. Strategic international engagement in training, technology access, and policy alignment is crucial for advancing radiology in Malaysia. Collaborative efforts, such as those with AOSR, can elevate radiology standards and ensure sustainable growth.

Saroj Sharma on behalf of Nepal Radiologists' Association stated in his presentation that radiology in Nepal has seen steady advancements over the past two decades. However, persistent challenges remain, particularly in maintaining conventional radiology facilities. The sector faces severe shortages in infrastructure, human resources, and technology. Few key challenges were limited infrastructure and equipment, shortage of radiology professionals, lack of integration and institutional support, and unauthorized radiology practice by inadequately trained sonologists in rural areas. Radiology in Nepal faces considerable challenges in infrastructure, workforce, and resources. However, innovations such as teleradiology, AI, and international collaborations present viable solutions. With continued investment, Nepal can strengthen its radiology sector and improve health care delivery.

Charles Goh on behalf of the Singapore Radiological Society emphasized that there is an increasing demand for radiological services due to an aging population and increasing prevalence of chronic diseases. Singapore is projected to become a "super-aged" society by 2026 due to rising life expectancy and declining birth rates. Furthermore, advances

in MRI, CT, and molecular imaging enhance diagnostics but also increase workload and complexity. Progressive opening of new hospitals and imaging centers to meet rising health care needs is exacerbating the demand for radiologists. Shortage of radiologists has resulted in longer wait times for scans and reports. The need to safeguard patient data against misuse and data breaches has led to increased data privacy and security measures, posing challenges in operations, education, research, and AI implementation. A shift to a capitation funding model, with an emphasis on value-based care demands more judicious use of advanced imaging techniques. Measures to mitigate these challenges include implementation of appropriateness criteria to reduce low value imaging, adopting standardized reporting systems to ensure objective assessment and management, use of AI, and fostering international collaboration to share best practices, and promote advocacy and leadership in evolving areas such as AI and sustainability.

Harsha Dissanayake on behalf of Sri Lanka College of Radiologists stated that radiology in Sri Lanka, despite facing some challenges, has significant potential for growth and improvement in clinical practice, particularly with the increasing demand for quality diagnostic services. Serving a population of 22 million, the country is supported by approximately 200 consultant radiologists working primarily in the government sector. The radiology infrastructure includes well-established facilities in national hospitals and teaching/provincial general hospitals, with essential technologies like CT, MRI, and interventional radiology available in key centers. Many district and base hospitals are also equipped with basic imaging tools such as CT and ultrasound, ensuring broad coverage of diagnostic needs.

While there are challenges such as a shortage of trained radiologists and technicians, underfunding, and high patient volumes, there is an opportunity to enhance the system through targeted investments and innovations. The heavy workload and potential for burnout can be mitigated by improving support systems and embracing technological solutions like AI and telemedicine, which can assist in faster and more accurate diagnoses, even in resource-limited settings. International collaborations with global radiology societies, such as the AOSR and Indian Radiology and Imaging Association, has the potential to provide resources, knowledge-sharing, and funding, helping to bridge the gaps and elevate the standards of radiology services in Sri Lanka.

Li-Jen Wang on behalf of the Taiwan Radiological Society stated that the radiology sector in Taiwan faces significant challenges that impact clinical practice and patient care, including workforce shortages, reimbursement issues, AI integration, education, and public engagement. The growing demand for imaging services, driven by an aging population, exacerbates the strain on radiologists, who face stagnant interpretation fees despite increasing workloads. Taiwan Food and Drugs administration (FDA) has approved more than 100 AI-based medical device licenses between 2020 and 2023 moving in with AI expansion, but its integration requires proper training, infrastructure, and governance to prevent misuse. He suggested that radiology education must

evolve to include AI literacy and subspecialization while fostering research in advanced imaging techniques. Additionally, stronger public engagement and collaboration with other medical specialties are essential to enhancing the perception of radiologists' contributions to health care. Addressing these challenges requires a concerted effort from policymakers, the Taiwan Radiological Society, and health care stakeholders to ensure the continued advancement of radiology in Taiwan.

Wiwatana Tanomkiat on behalf of the Radiological Society of Thailand stated that interobserver agreements on CT and MR findings are increasingly replacing the need for invasive procedures including histology and laparotomy. The Picture Archive and Communicating System is becoming one of the most important health databases and platforms, and is a key component of the government's digital health policy. Planning for the sustainable future requires comprehensive consideration of the entire patient journey. Before examination, long waiting times and a shortage of radiologists, especially in the rural areas, are partially addressed through the teleradiology and outsourcing. AI has been adopted by public health units to interpret chest radiographs for tuberculosis screening. However, external validation with the local databases, provided by the Royal College of Radiologists of Thailand, is required as a qualification before AI systems can be certified by the Food and Drug Administration. During examinations, the increasing use of CT scans presents challenges related to radiation and contrast media safety highlighting the importance of the "first do no harm" notion in the radiological diagnostic services.

Pham Minh Thong, President, Vietnamese Society of Radiology and Nuclear Medicine, stated in his presentation that Vietnam faces significant challenges in radiology clinical practice due to its growing population of 100.1 million and an increasing demand for diagnostic and interventional radiology services. Despite having approximately 125,000 doctors, the country struggles with an insufficient number of radiologists, leading to an overwhelming workload in public hospitals. Each radiologist may examine 80 to 100 patients daily, particularly for ultrasound procedures. Moreover, private hospitals account for only 6% of total hospital beds, further straining public health care facilities. Key challenges are overburdened public hospitals, shortage of radiologists, long working hours, inadequate equipment, and administrative and financial barriers. Addressing these challenges requires investment in training, collaboration, and innovation. Strengthening international partnerships and promoting AI use will be critical in enhancing radiology services and meeting the increasing health care demands in Vietnam.

## Conclusion

The meeting highlighted the need for collaboration to address radiology challenges in the Asia-Oceania region. Workforce shortages, financial constraints, AI integration, and infrastructure limitations require coordinated strategies. By leveraging international partnerships, enhancing training, responsibly adopting AI, and advocating for policy reforms, radiology services can meet the growing demands of modern health care. The session concluded with a commitment to ongoing collaboration and innovation in radiology practice.

### Note

This article was prepared based on presentations delivered at Asian Oceanian Radiology Forum held during the 23rd Asian Oceanian Congress of Radiology and 77th Annual Conference of Indian Radiological and Imaging Association in Chennai Trade Centre, India on 23rd January 2025.

Prof. Umesh Krishnamurthy, Past President Indian Radiological and Imaging Association, presided the meeting, Dr. Dinesh Chinchure moderated the session, and Dr. Mohammed Shakeebuddin Kashif co-ordinated for the program and prepared the manuscript.

The presentations were given by Prof. Yulduz Khojibekova, Board Member, Uzbekistan Radiology Society, Dr. John Slavotinek, President, The Royal Australian and New Zealand College of Radiologists, Dr. Ivan Wong, President, Hong Kong College of Radiologists, Dr. Marcel Prasetyo, International Liaison, The Indonesian Society of Radiology, Prof. Masahiro Jinzaki, Vice President, Japan Radiological Society, Prof. Seung Eun Jung, President, Korean Society of Radiology, Dr. Farhana Fadzli, Council Member, College of Radiology, Academy of Medicine of Malaysia, Prof. Saroj Sharma, President, Nepal Radiologists' Association, Dr. Charles Goh, Vice President, Singapore Radiological Society, Prof. Harsha Dissanayake, Sri Lanka College of Radiologists, Prof. Li-Jen Wang, Board Member, Leader of Education and Research Committee, Taiwan Radiological Society, Dr. Wiwatana Tanomkiat, President, Radiological Society of Thailand, and Dr. Pham Minh Thong, Vietnamese Society of Radiology and Nuclear Medicine.

### Authors' Contributions

All collaborators read and approved the final manuscript. Dr. Saroj Sharma authorized the creation of this summary using their submitted presentation.

### Conflict of Interest

None declared.