



# The Growing Problem of Radiologist Shortage: Malaysia's Perspective

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In Malaysia, compared with advanced countries, the need for more radiologists has become a pressing issue. With only 870 registered radiologists catering to a population of 33.57 million, the ratio is 3.9 per 100000 individuals [1]. Contrastingly, countries such as the United Kingdom (5.5–7:100000), Europe 12:100000), the United States (6.76–29.45:100000), and Singapore (6.6:100000) have significantly higher percentages of radiologists in the population [2]. This brief article updates Malaysia's unique healthcare model, the current distribution of radiological premises, the need for more radiologists and potential solutions to address this shortage.

## Healthcare Model in Malaysia

Malaysia's healthcare system combines government-provided services such as those provided by the Ministry of Health (MOH), Ministry of Defense, university-based (teaching hospitals), and private healthcare. Since

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most university hospitals are government-funded, both government and university hospitals are classified as public-sector healthcare providers. In Malaysia, approximately 75% of the population resides in urban areas, and under the current model, most of the healthcare burden (60%–70%) falls within the public health system [3]. Of the 2150 registered, licensed radiological premises in Malaysia, only 20% are government-owned, whereas 80% are in the private sector, primarily in urban areas. Private sectors account for these large numbers, essentially general practitioners' premises with screening X-rays, but are interpreted by radiologists. There are 314 hospitals with radiology services, almost equivalent numbers in the government and private sectors [4]. Regarding the number of imaging equipment, a discrepancy exists where more equipment is in urban areas in the private sector than in the government sector. For example, there are 99 versus 192 computed tomography (CT) units in the government and private sectors, respectively, and 65 versus 197 mammography units in the government and private sectors, respectively.

## Producing More Radiologists

To tackle this shortcoming, Malaysia implemented measures to increase the number of radiologists. Currently, seven teaching hospitals participate in joint board examinations of radiology specialists. On August 27, 2021, the National Postgraduate Medical Curriculum was launched to deliver a unified and structured curriculum for training specialists throughout Malaysia, including radiologists. Approximately 70–80 radiologists are produced annually by these seven universities. The radiology training post is highly competitive in Malaysia, with stringent qualifying

criteria comprising a medical specialist pre-entrance examination (MedEx), pre-entrance radiological knowledge examination, and interviews. Moreover, the MOH Malaysia has joined to address the specialist shortage by introducing a parallel pathway for radiology training programs, such as utilizing external fellowship examinations of the Royal College of Radiologists (RCR) United Kingdom and Royal Australian and New Zealand College of Radiology (RANZCR) while being trained in government hospitals. Those who certify following the training completion via the parallel pathways for the radiology training program will be asked to work in facilities under the MOH. The projected model is based on needs, the burden of services, and Malaysia's target of becoming a developed nation by 2035.

### Placement of Radiologists in Rural Settings

Malaysia faces the challenge of placing radiologists in rural areas. Due to economic constraints, many rural clinics and smaller hospitals do not have the facilities to support advanced imaging techniques, such as CT scans. Consequently, placing radiologists in these areas becomes less viable. Simultaneously, the rural posting affects the work-lifestyle balance craved by younger radiologists. They may have young children and prefer places with more competitive or well-known school locations. Handling this issue is vital to ensure equitable access to radiological services nationwide. As most healthcare providers in rural areas, the MOH employed rotational posts of newly gazetted radiologists in rural areas to ensure the continuity of radiology services.

### Quality of Radiographic Interpretations

Studies have highlighted concerns regarding the accuracy of plain radiographic interpretations by trainees and non-radiologists. Evaluation of plain radiographs by trainees or non-radiologists revealed an overall accuracy rate of 69% [5]. To mitigate this problem, the government is exploring the implementation of teleradiology as a potential solution that allows the remote interpretation of radiological images and enables access to expert opinions, even in areas without resident radiologists.

### CONCLUSION

The need for more radiologists in Malaysia poses a

significant challenge to the healthcare system, particularly in rural areas. Current efforts are underway to produce more radiologists through training programs and external examinations. Additionally, the government is exploring teleradiology for improved access to accurate radiological interpretations. Addressing these issues will ensure equitable healthcare services and meet the growing demand in Malaysia for radiological expertise.

### Conflicts of Interest

The authors have no potential conflicts of interest to disclose.

### Author Contributions

Conceptualization: Norlisah Mohd Ramli. Data curation: all authors. Formal analysis: Norlisah Mohd Ramli. Project administration: Norlisah Mohd Ramli. Resources: all authors. Writing—original draft: Norlisah Mohd Ramli. Writing—review & editing: all authors.

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