



# Radiology Loading and Coverage Hours in Indonesia

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## INTRODUCTION

Radiology loading and coverage hours are heavily influenced by the type of healthcare facility, the population it serves, and the available resources. This brief article provides a perspective on the healthcare model in Indonesia, the current distribution of radiologists and healthcare facilities, and possible measures to alleviate existing challenges through governmental policies.

## Radiologists Pool in Indonesia

Indonesia is responsible for 3.45% of the world's total population and is the fourth most populated country. Moreover, Indonesia's population is approximately 276 million, with an estimated life expectancy of 69.93 years for men and 73.83 years for women. The population growth rate in 2023 was approximately 1.13% [1]. The vast geography of over 17000 islands poses significant challenges in ensuring equitable access to healthcare services. With only 2161 registered radiologists across nations, the ratio is 1.2 per 100000 individuals; thus, the

demand for radiological services often exceeds the available manpower [2]. In 2022, 101 new radiologists completed residency training [3]. With a rate of around 100 radiologists every year, matching the density of 7.6 radiologists per 100000 individuals as observed in the nearest neighboring country, Singapore, would theoretically take over 100 years [4]. We also face significant challenges with the uneven distribution of healthcare facilities. Provinces such as Java and Sumatra have readily accessible healthcare facilities, and their cities have a higher radiologist ratio than that of the national average. Several remote provinces, such as West Papua, do not have sufficient numbers of radiologists for their population. Bridging this healthcare gap requires focused efforts to provide more resources and services to less-developed regions.

## Current Healthcare Model in Indonesia

Indonesia's healthcare model encompasses various healthcare providers, combining both the public and private sectors. As stated in Ministry of Health (MOH) Regulation No. 56/2014, the classification of hospitals in Indonesia is based on their ownership, resulting in two categories: Public and Private. Public hospitals are managed by the MOH and various other ministries, the Regional Government, Military/Police, and state-owned enterprises. Private hospitals are managed by private organizations with commercial objectives. The public sector is largely represented by government-provided services, including those offered by the MOH and other government-funded institutions. University-based teaching hospitals often receive government support and contribute to the public healthcare landscape. In Indonesia, approximately 56.7% of the population is concentrated in urban areas. The public health system carries the predominant share of healthcare responsibilities as these

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hospitals often serve as referral centers, offering specialized care, advanced medical technologies, and a comprehensive range of services [1]. The performance and efficiency of a government hospital are indicative of the overall strength and effectiveness of the public healthcare system. As a benchmark, they contribute to shaping healthcare policies and guidelines, thus influencing standards of care across the entire nation.

The Indonesian government also established Badan Penyelenggara Jaminan Sosial (BPJS) Kesehatan, a national health insurance program, to provide affordable and accessible healthcare services for all citizens. Introduced in 2014, the program aims to ensure that Indonesians have access to essential medical care without facing a significant financial burden. Through BPJS Kesehatan, individuals can receive a range of health services, including hospital stays, medications, and various medical treatments [5].

## Challenges and Future Directions

In Indonesia, the challenges in radiology loading and coverage hours are multifaceted and influenced by the dynamics of the healthcare system. The implementation of the national healthcare insurance BPJS Kesehatan, mandated by law, has led to a surge in patient numbers, increasing the workload on radiologists [6]. This escalation is particularly notable given the limited availability of radiological facilities, further intensifying the pressure on healthcare facilities to provide efficient radiological care. The strain on resources becomes evident as the demand for radiological examinations increases within the framework of the BPJS, thereby impacting timely diagnosis and treatment. However, a low doctor-to-patient ratio remains a significant obstacle, leading to prolonged waiting times and reduced consultation durations, thereby affecting the healthcare professional's ability to provide personalized and timely care. National Referral Hospitals have numerous advanced imaging tools. Consequently, hospitals can conduct a wider array of examinations, thereby increasing the workload for radiologists. In addition, in large hospitals, the increased number of patients, both inpatients and outpatients, consequently increases the workload of each radiologist. Based on data from the Cipto Mangunkusumo Hospital, a national referral center, approximately 10000–12000 radiological examinations, 1100 CT scans, and 730 MRI examinations were performed each month. With a total of

25 radiologists, each radiologist will perform approximately 24 examinations on each working day. These figures exclude other radiological examinations, such as radiography and ultrasound, that also require reporting by radiologists.

To address these challenges, Indonesia's MOH has initiated health transformation programs encompassing six pillars of transformation: primary services, referral services, health resilience systems, health financing systems, health human resources, and health technology [7].

## CONCLUSION

Although radiology loading hours focus on optimizing resource utilization, coverage hours address overall accessibility. Initiatives by the MOH aim to transform healthcare services. However, persistent challenges, including a low doctor-to-patient ratio and increased demand under the BPJS, necessitate ongoing efforts to enhance healthcare delivery, optimize patient outcomes, and build a resilient healthcare system that meets the evolving needs of the Indonesian population.

## Conflicts of Interest

The author has no potential conflicts of interest to disclose.

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