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The health screening measure for ionizing radiation workers under the labor insurance in Taiwan: A case study of dental assistant health management in a dental clinic

KEYWORDS

Labor insurance;
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measure;
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Dental assistants

In addition to the National Health Insurance (NHI), the Labor Insurance (LI) is another mandatory social insurance system administered by the government in Taiwan. Till the end of 2024, nearly 10.48 million people out of a total population of 23.4 million participated in the LI, accounting for 44.8 % of the total population. To prevent occupational diseases among the workers in the high-risk jobs and protect their health, the Bureau of Labor Insurance (BLI) proactively send letters to the insured units, reminding them that the workers exposed to high temperatures, noise, dust, other toxic substances, or working in the hazardous environments such as ionizing radiation can apply for an annual health examination to prevent occupational diseases from the BLI after having been insured for at least one year. The health examination fee is paid for by the BLI.¹

According to the Ionizing Radiation Protection Act (IRA), the radiation practice refers to any human activity that introduces new radiation sources or exposure pathways, or enlarges the scope of worker exposure, or changes the exposure pathways of existing radiation sources, thereby leading to either exposure of people or an increase in the number of people subject to exposure, for the purpose of

obtaining a net benefit. The occupational exposure refers to the exposure that incurs from practices, while the medical exposure refers to the exposure of patients and their helpers to ionizing radiation in the course of diagnosis or treatment of a disease. In addition, the radiation workers are the employed or self-employed persons who frequently engage in practice and are aware that they may be subject to exposure.²

Moreover, according to the current medical regulations in Taiwan, the dental assistants are not qualified to operate the dental X-ray machines. However, cleaning and preparation for dental X-ray photography are also part of their job responsibilities.³ They assist the dentists in their dental radiation practice. If necessary, they may stay in the X-ray room as helpers to assist patients (especially the special needs patients) to take dental X-ray photography smoothly. In fact, they may be subject to a higher risk of occupational or medical exposure. In addition to the dentists and the medical radiation technologists engaged in dental radiology, the dental assistants are also broadly defined as the dental radiation workers. Their work essentially meets the definition of the radiation workers in the IRA.² Therefore, the dental

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assistants should also benefit from the health screening measure for ionizing radiation workers under the LI. This article reported the process of dental assistants in a dental clinic participating in the LI health screening measure.

In this study, the complete process of the participation of the dental assistants in the LI health screening measure is shown in Fig. 1. A private dental clinic proactively applied to the BLI for the LI health screening measure for its dental assistants qualified as the radiation workers. After review and approval, the BLI notified the dental clinic of a list of eligible candidates. The dental clinic then forwarded a health examination certificate to each dental assistant who then proceeded to an approved medical

institution for the health examination. The examination contents for the radiation workers included 9 items as follows: (1) Investigation of work experience, living habits and subjective symptoms; (2) Investigation of past medical history of blood, skin, gastrointestinal, lung, eye, endocrine, and reproductive system diseases; (3) Physical examination of the head, neck, eyes (including cataracts), skin, heart, lungs, thyroid, nervous system, digestive system, urinary system, bones, joints, and muscle systems; (4) Mental and psychiatric examination; (5) Chest X-ray (large film) examination; (6) Thyroid function test including free T4 and thyroid stimulating hormone (TSH); (7) Examination of serum alanine aminotransferase (ALT) and creatinine; (8) Examination of red blood cell count, hemoglobin, hematocrit, white blood cell count, white blood cell classification, and platelet count; and (9) Examination of urine protein, urine sugar, urine occult blood, and urine sediment. After the examination, the medical institution notified the dental assistants of the health examination results. This health screening measure included 6 dental assistants, and all of them met the requirements. Their average age was 30 years old, and their average years of work experience in the dental clinic were 5 years. Among them, 4 assistants underwent the health examination and verbally reported that their health examination results were within normal ranges. From the participation of the dental assistants in the LI health screening measure in this study, as the dental radiation workers, it was their basic right to receive regular free health examinations every year, and they also had the freedom to choose whether to participate the health screening measure.

Under the LI, approximately 262,000 workers underwent the health screening measure in 2024, with a total cost of over 260 million NT dollars. The top three categories of workers examined are those exposed to noise (over 125,000 people), those exposed to dust (over 89,000 people), and those exposed to ionizing radiation (over 40,000 people).¹ According to the data from the Ministry of Health and Welfare, till January 2024, there were 16,384 dentists, 7040 dental clinics, and 194 hospitals with dental services in Taiwan. The ideal manpower requirement for the dental assistants was estimated to be approximately 47,000.⁴ Therefore, the dental assistants are likely to be the largest group of the ionizing radiation workers.

In fact, the dental assistants are a significant number of the dental care providers, yet very few receive the LI health screening measure. Given that the dental assistants face a higher risk of occupational or medical exposure in their workplace, the dental clinic operators should comply with the labor laws and provide the LI coverage for their dental assistants. They should also utilize health screening measure for ionizing radiation workers under the LI system as a strategy for the long-term health management for their dental assistants.

Declaration of competing interest

The authors have no conflicts of interest relevant to this article.

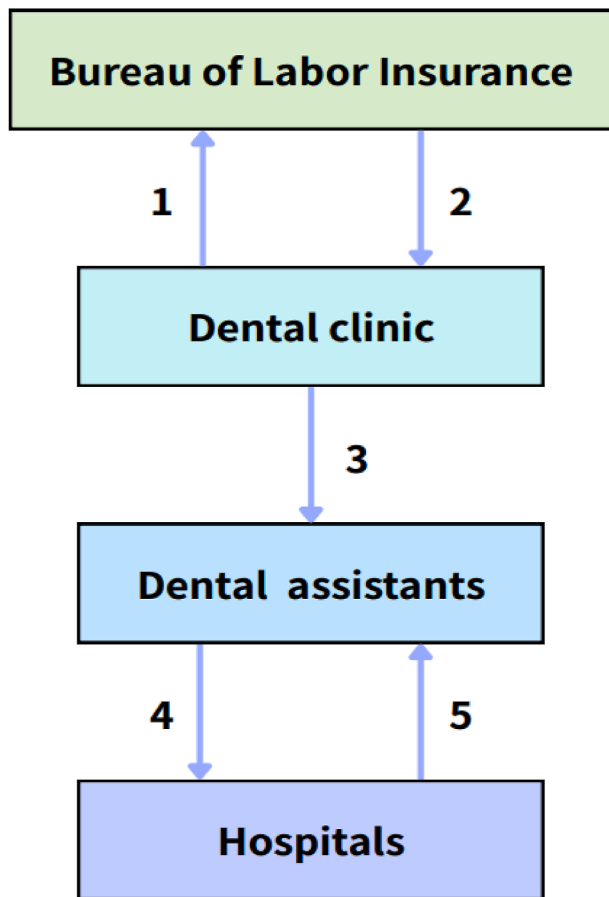


Figure 1 The health screening measure for the ionizing radiation workers under the Labor Insurance (LI) as the health management for the dental assistants in this study. The complete process of the participation of the dental assistants in the LI health screening measure was as follows: (1) A private dental clinic proactively applied to the Bureau of Labor Insurance (BLI) for the LI health screening measure for its dental assistants qualified as the radiation workers. (2) After review and approval, the BLI notified the dental clinic of a list of eligible candidates. (3) The dental clinic then forwarded a health examination certificate to each dental assistant. (4) The dental assistant then proceeded to an approved medical institution for the examination. (5) After the examination, the medical institution notified the dental assistants of the examination results.

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