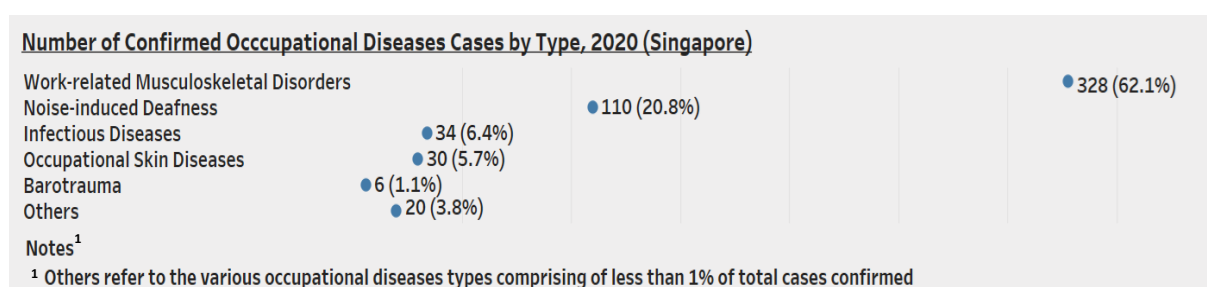


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Noise-Induced Deafness in Singapore

Noise-Induced Deafness (NID) refers to hearing loss that occur gradually over a long period of time as the result of exposure to continuous or intermittent loud noise [1].

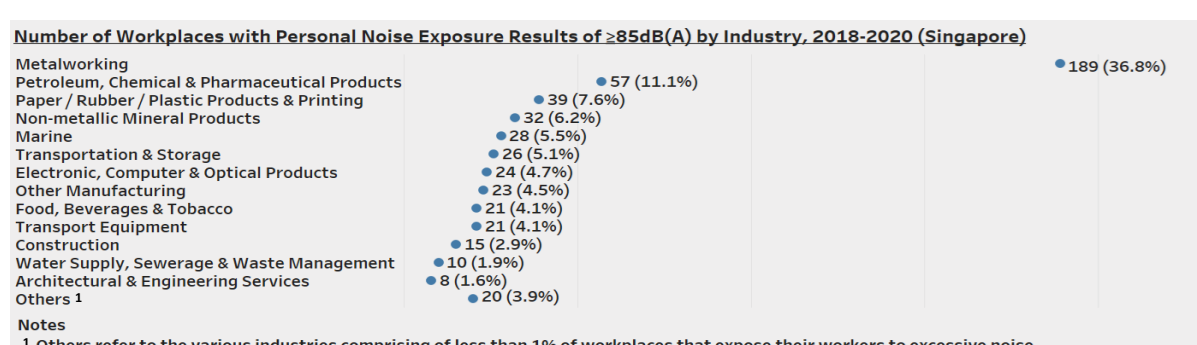
Worldwide, an estimated 16% of disabling hearing loss in adults is attributed to occupational noise [2]. In Singapore, 1,093 workers were diagnosed with NID in the last 5 years, accounting for 35% of the confirmed occupational diseases cases. In 2020, NID was the second highest contributor to occupational diseases after Occupational Musculoskeletal Disorder [3].



Source: Ministry of Manpower, Workplace Safety and Health Report 2020

Occupational Noise Exposure in various Industries

Workplaces where persons are likely to be exposed to excessive noise are required to conduct regular hygiene monitoring to measure their workers' exposure to noise under the WSH (Noise) Regulations. Based on the noise monitoring results submitted over the past 3 years, it was found that Metalworking industry was the top contributor to workplaces with workers exposed to excessive noise levels of ≥ 85 dB(A) over an 8-hour workday. About 7 in 10 of these workplaces had workers exposed to noise levels of ≥ 90 dB(A) [3]. The noisy processes in the metalworking industry include grinding, punching, shearing, forming, and stamping.



Source: Ministry of Manpower, Workplace Safety and Health Report 2020

Symptoms and effects of NID



Source: Healthy Hearing [5]

Consequences of NID include poor cognition, sleep disorders, impaired communication with coworkers and family, anxiety, irritability, and decline in self-esteem [2]. It has been suggested that noise exposure induces reaction of the autonomic nervous system and endocrine system, leading to increased secretion of stress hormone, which in turn may lead to an increased risk of hypertension, coronary heart disease, and stroke [2]. Relating to Workplace Safety and Health, NID among workers has been significantly associated with an increased risk of workplace injuries probably due to the decrease in ability to monitor the work environment (e.g. warning signals, equipment sounds) [2].

NIOSH Sound Level Meter App

To protect exposed employees from the adverse effects of noise, every workplace with a noise hazard should implement a comprehensive Hearing Conservation Programme (HCP). Measuring workers' exposure to noise in the workplaces is a key element of the HCP. One portable and easy way to do so is using the NIOSH Sound Level Meter (SLM) app. It is an iOS based sound level meter app that measures and characterizes occupational noise exposure similar to professional sound level meters. Besides measuring the instantaneous noise level, the app also reports important parameters including the run time (total time), the A-weighted Equivalent Sound Level (LAeq), the Maximum Level measured during the current run time, the C-weighted Peak Sound Pressure Level (LCpeak), the Time-Weighted Average (TWA) and Dose [4]. It is free for download (<https://apps.apple.com/us/app/niosh-slm/id1096545820>) and a convenient method for employees to self-monitor their noise exposure levels, empowering employees to protect their health.



Source: NIOSH Sound Level Meter App [4]

Insights

- 1) Companies may use Hierarchy of Control method to improve noise level at work: Elimination of hazard (most effective), substitution of hazard, engineering control by isolation from hazard, administrative control by changing the way people work, and use of PPE (least effective).
- 2) More organisations are beginning to incorporate Buy Quiet initiative to improve noise level in workplaces. The initiative includes development of Tools with noise data available for tool buyers, users and manufacturers of powered tools

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- 4) Sound Level Meter App, National Institute for Occupational Safety and Health (NIOSH)
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