Can FMA (Noise) 1989 Prevent Occupational Noise-Induced Hearing Loss? An Evaluation using Fault Tree Analysis

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Abstract
Introduction: Factory and Machinery Act (Noise Exposure) Regulation 1989 (FMA [Noise] 1989) has been implemented in Malaysia for nearly 30 years, but noise-induced hearing loss (NIHL) cases is still rising. Fault tree analysis is a top-down approach to analyzing incidences of failures; starting with establishing the single top event that will eventually cause NIHL, followed by identification of the contributing factors to the top event which are the immediate or basic events. Through its visual, structural and deductive approach; FTA is able to depict the temporal sequence of events and their interactions in a formal and logical hierarchy. Materials and Methods: Employees with permanent standard threshold shifts (PSTS) underwent further assessment confirming the presence of NIHL. A single common fault tree was constructed based on six cases of PSTS. The top event is the PSTS. Intermediate and basic events were identified and mapped with relevance to the provisions in the FMA (Noise) 1989 indicating how failed control measures have resulted in the PSTS cases. Results: The constructed fault tree with its branches illustrated how breach or noncompliance of FMA (Noise) 1989 resulted in the eventual top event (NIHL). Conclusion: FTA provides a standardized perspective of errors within the system in preventing NIHL.

Keywords
Author Keywords: FTA; NIHL; FMA (Noise) 1989

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