ABSTRACT

Purpose: "How to get a reliable assessment of the daily whole body vibration A(8) exposure without measurements ?" The Association of Medical & Social Centers (ACMS), the main employers' organization dedicated to workforce occupational health & safety in Paris region was tasked with an assessment of the OSEV2017 tool. The objective of this study is to optimize the association members' and ACMS staff resources by minimizing measurements.

Methodology. Back in 2015, 116 ACMS logistics case-studies based on on-field measurements data 2009 to 2014 were analyzed, featuring forklift trucks and driver-on-board pallet trucks. Findings were input as parameters in 3 well-renowned tools: the Whole Body Vibration calculator (WBV-HSE), the OSEV2015 and the OSEV2017. The *in-situ* measured A(8) exposure values are compared against those calculated via the 3 tools, the benchmark being the EU Directive exposure limit values (0.5 and 1.15 m/s^2), as drafted in "box plot". The data probabilistic interpretation carried-out to compare the tools' results against those obtained via the ACMS measurement campaign, is founded on calculations of the sensitivity, the specificity, and on the study of the agreement between the two methods by graphic approach "Bland-Altman plots".

Results. The studied tools Whole Body Vibration calculator (WBV-HSE) and OSEV2015 tend to over-estimate daily exposure A(8) levels compared to measurement studies for the two types of equipment. The results of OSEV2017 look closer to field values ($\pm$ 0.02 bias). The on-board driver pallet trucks sensitivity and specificity are higher than the forklift trucks ones.

Conclusion. The OSEV2017 is the most reliable estimation tool among the 3 ones studied and may be used to assess the vibration risk. The OSEV upgrade has been efficient (low biases).

Key words : Assessment, daily whole body vibration exposure, exposure action value, exposure limit value.

Abréviations

ACMS : Association interprofessionnelle des Centres Médicaux Sociaux de santé au travail de la région Île-de-France

A_{eq} : Accélération équivalente

A(8) : valeur d'exposition vibratoire journalière (8 heures)

INRS : Institut National de Recherche et de Sécurité

OSEV : Outil simplifié d'évaluation du risque vibratoire

SIST : Services interentreprises de santé au travail

TEP : Transpalette électrique à conducteur porté

WBV-HSE : Whole Body Vibration calculator