

IFEH WORLD ACADEMIC CONFERENCE ON ENVIRONMENTAL HEALTH

[BOOK OF ABSTRACTS](#)[LOGIN](#)[HOME](#) / [ARCHIVES](#) /[2021: IFEH 4TH WORLD ACADEMIC CONFERENCE ON ENVIRONMENTAL HEALTH - BOOK OF ABSTRACTS](#)

/

[Posters](#)

VARIABILITY OF NOISE LEVELS IN A PORTUGUESE NEONATAL INTENSIVE CARE UNIT

Carlos Carvalhais

Environmental Health Scientific Area, Health and Environment Research Center (CISA), School of Health of Polytechnic Institute of Porto (ESS|P.Porto); Epidemiology Research Unit (EPIUnit), Institute of Public Health, University of Porto

Célia Rodrigues

PROA/LABIOMEPE, Faculdade de Engenharia, Universidade do Porto

Ana Xavier

Environmental Health Scientific Area, Health and Environment Research Center (CISA), School of Health of Polytechnic Institute of Porto (ESS|P.Porto)

Manuela V. Silva

Environmental Health Scientific Area, Health and Environment Research Center (CISA), School of Health of Polytechnic Institute of Porto (ESS|P.Porto)

Joana Santos

Environmental Health Scientific Area, Health and Environment Research Center (CISA), School of Health of Polytechnic Institute of Porto (ESS|P.Porto); Center for Rehabilitation Research (CIR), School of Health of Polytechnic Institute of Porto (ESS|P.Porto); LAETA/INEGI, Faculdade de Engenharia, Universidade do Porto

Keywords: NICU, noise, premature infants, healthcare staff

ABSTRACT

Background: The neonatal intensive care units accommodates patients who are confined to their environment, being exposed to several environmental factors, such as noise. There exist a few official recommendations regarding noise levels within the hospital environment. The World Health Organization (WHO) proposes that the average background noise in hospitals should not exceed 35 dB L_{Aeq} for areas where patients are treated or observed and other organizations such the United States Environmental Protection Agency (45 dB(A) daytime / 35 dB(A) night) and the American Academy of Paediatrics, through the Committee on Environmental Health (45 dB(A)).

Aim: The aim of this study was to investigate the intensity and pattern of noise levels such as variability and their sources within a Portuguese NICU.

Methods: The study was carried out in a NICU located in the North of Portugal. The measurements were carried out continuously over 24 hours, next the workstation located at the centre of the NICU. Measurements were performed using a sound level meter class 1 (Brüel&Kjær, model 2250) which was verified with an acoustic calibrator class 1 (Brüel&Kjær, model 4231).

Results: The results showed that noise levels were excessive in the NICU, exceeding the international recommendations. The average levels were 55.3 ± 5.4 dB(A) for L_{Aeq} with the levels ranging between 41.3 dB(A) (recorded at 5:09 a.m.) to 71.60 dB(A) (recorded at 12:58 p.m.). The highest L_{Cpeak} level was 104.4 dB (C) (recorded at 6:15 a.m.). For the other acoustic parameters, it was found 84.8 dB(A) for L_{max} and 39.6 dB(A) for L_{min} .

Conclusion(s): The occurrence of high average noise levels in combination with the variability in noise levels and the frequency of peak noises may contribute to detrimental effects both for premature infants and health care professionals. Average noise levels exceeded those recommended by the WHO. The primary sources of noise were identified as staff conversations and alarms. Further research into strategies to reduce noise, and evaluation of interventions, is required to enhance by one side the therapeutic environment and for other the healthy and safe workplace.

Presenter e-mail: caa@ess.ipp.pt

PUBLISHED

2021-04-21

ISSUE

[2021: IFEH 4th World Academic Conference on Environmental Health - Book of Abstracts](#)

SECTION

Posters

[Copyright \(c\) 2021 IFEH World Academic Conference on Environmental Health](#)

0



Organised by:



IFEH



In association with:



Back to Conference Website



[2021 IFEH World Academic Conference on Environmental Health](#)

Tartu Health Care College, Estonia

4–6 May 2021



Platform &
workflow by
OJS / PKP