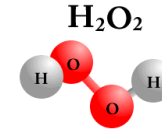


Assessment of exposure to hydrogen peroxide in a parenteral nutrition unit: occupational risks involved?

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Introduction

Context: In order to meet the specific nutritional needs of pediatrics, our parenteral nutrition unit (UNP) prepares à la carte binary mixtures and syringes of lipids in a controlled atmosphere zone (ZAC) under laminar flow hoods (class A in B). Surface disinfection by air (DSVA) with hydrogen peroxide (H₂O₂) of the ZAC is carried out and the equipment necessary for preparation is disinfected by bathing with H₂O₂, in the laundry, before being returned to the clean area. Taking into account the toxicity of H₂O₂, occupational exposure limit values (OEL) in the air of workplaces are set by ANSES at 1 ppm for an 8-hour day and at 5 ppm for brief exposure. of 15 minutes.



Objective :

Evaluate staff exposure to H₂O₂ in order to ensure the safety of UNP professionals

Matériel & method

The H₂O₂ levels were measured using the Dräger® X-am 5100® detector (measuring range: 0.1 to 20 ppm; sensitivity: 0.1 ppm) over a period of 3 hours and several days:



- in the laundry: at the officer's neck, at a fixed point on a shelf, above the disinfection bin
- in clean production area: in the middle of the room, at the neck of the manipulator aid, at a fixed point of a shelf, at the level of the flat pocket pass
- at the control lab, in the entrance, the middle of the room and the pharmacist's office.

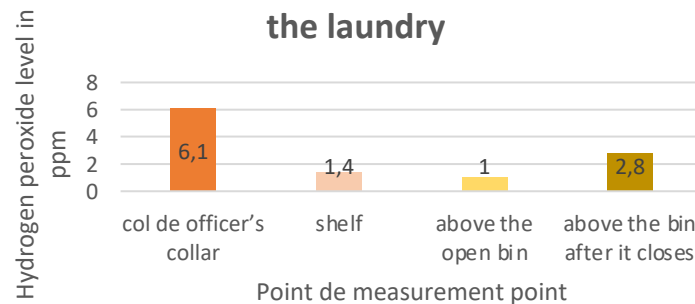
Results

The results were consistent in the clean room, in the pharmacist's office and the laboratory

- Rate between **0,2 and 0,4 ppm**

The results were non-compliant in the laundry, during the disinfection of the equipment by bathing

Hydrogen peroxide levels found in the laundry



Conclusion

H₂O₂ is essential for its sporicidal activity. Although not identified as a carcinogen, OELs must be respected to ensure the safety of personnel.

The rates found in laundries were non-compliant (exposure duration > 15 minutes) and the PPE was until now insufficient for the disinfection of equipment by bathing in H₂O₂.

The cartridge masks now used when disinfecting the equipment are uncomfortable, a source capture system (fume hood) and a continuous H₂O₂ rate recorder installation were requested from the equipment plan.

This study showed the importance of assessing staff exposure to H₂O₂ routinely.