What are the minimal working protective measures to apply to guarantee the sterility of an injectable drug reconstituted in a laminar airflow hood in wards?

Laure-Zoé Kaestli1, Isabelle Castella1, Lucie Bouchoud2, Pascal Bonnabry1,2
1School of pharmaceutical sciences, University of Geneva & Lausanne, Switzerland
2Pharmacy, Geneva University Hospitals (HUG) Switzerland

INTRODUCTION
The sterility of injectable drugs is essential for immuno-suppressed patients. Nurses usually prepare these drugs (except cytotoxic drugs) in a classical uncontrolled air room in the ward. Laminar airflow hood (LAFH) could improve the asepsis of preparations. The aim of this study was to evaluate the asepsis level of injectable preparations prepared in LAFH in wards applying three different levels of working protection.

MATERIALS & METHODS
Media-fill testing (Tryptic Soy Broth (TSB)) was used to estimate potential microbial contaminations during preparation. Protocol was performed by a single operator in a vertical-LAFH in a paediatric onco-haematologic ward.

RESULTS
No contamination was observed for the “clean” and the “intermediate” working conditions. In “dirty” conditions, 4% syringes with handling error and 1% without handling error were contaminated (Tab.1). Additional contamination controls also showed more contaminations for “dirty” conditions (Tab.2).

CONCLUSION
When no protective measures are applied to prepare injectable drugs in LAFH placed in an uncontrolled air room, sterility of the end-product cannot be guaranteed. Working in a LAFH can improve the aseptic safety if protective measures are applied. Wearing sterile gloves and applying decontamination of materials and surfaces seem to be the minimal protective measures to be recommended. They appear to be compatible with the daily practice of nurses.