



# Humanic Project

**HumanIC Research Forum 2026**

**By**

**Hassan Kotb Ali**

**Hermann Rietschel Institute  
Faculty III - Process Sciences  
Technical University of Berlin**

HumanIC project has received funding from the European Union's Horizon Europe research and innovation program under the Marie Skłodowska-Curie (HORIZON-MSCA-2022-DN-01, project no 101119726)



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# • Contribution of TUB/HRI in HUMANIC Project



## DC 1 Research Points

1. Investigating the Impact of Door Openings and Foot Traffic on Contamination Levels in ORs

2. Investigating Key Factors Affecting Airborne Particle Emission from Surgical Garments

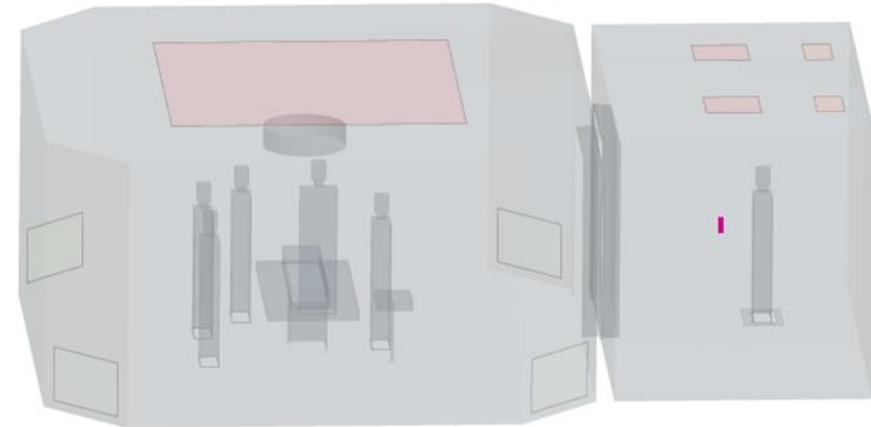
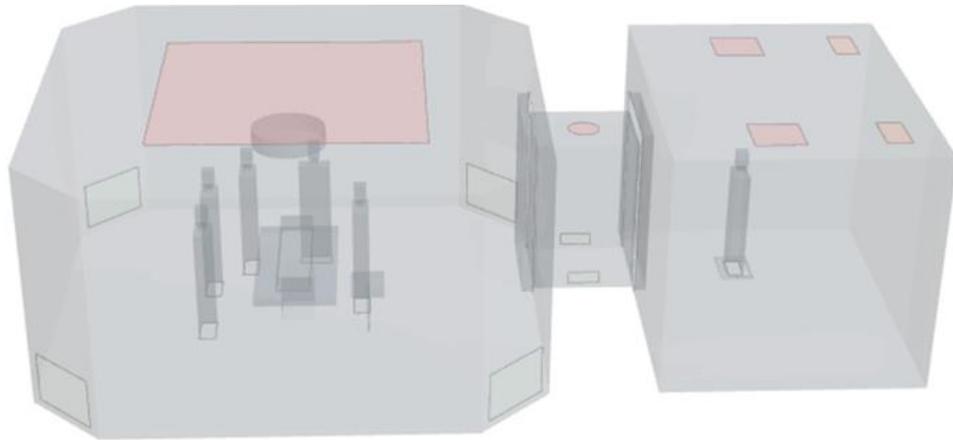
3. Deep Investigation of Deposition and Resuspension Processes within ORs





# Results

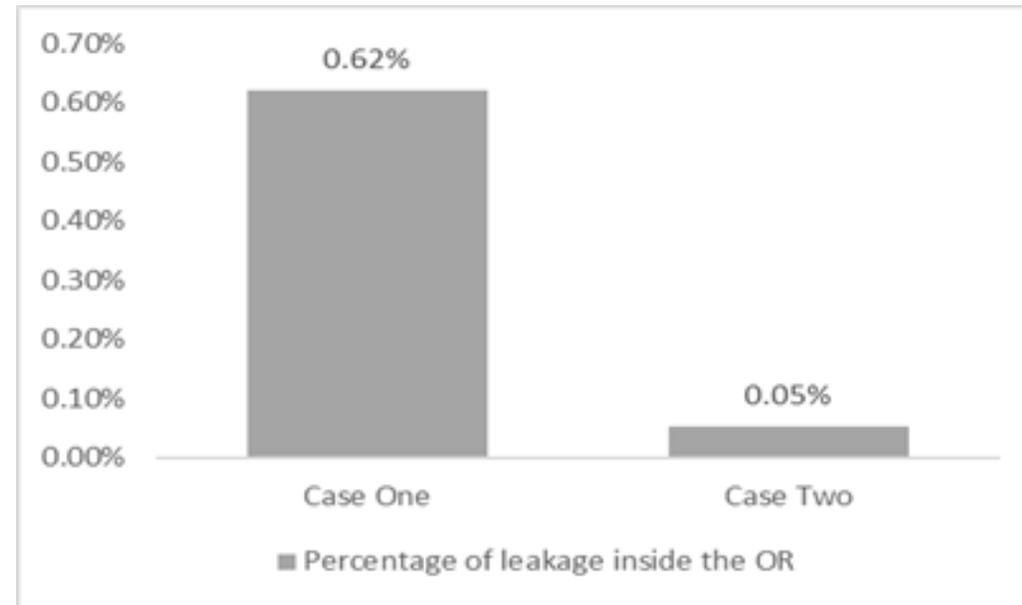
- Air Curtain Intervention to Reduce Air Exchange Between Operating Rooms and Anterooms





# Results

- Air Curtain Intervention to Reduce Air Exchange Between Operating Rooms and Anterooms





# • Methods & protocol

## ➤ Experiments



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# • Methods & protocol

## ➤ Experiments

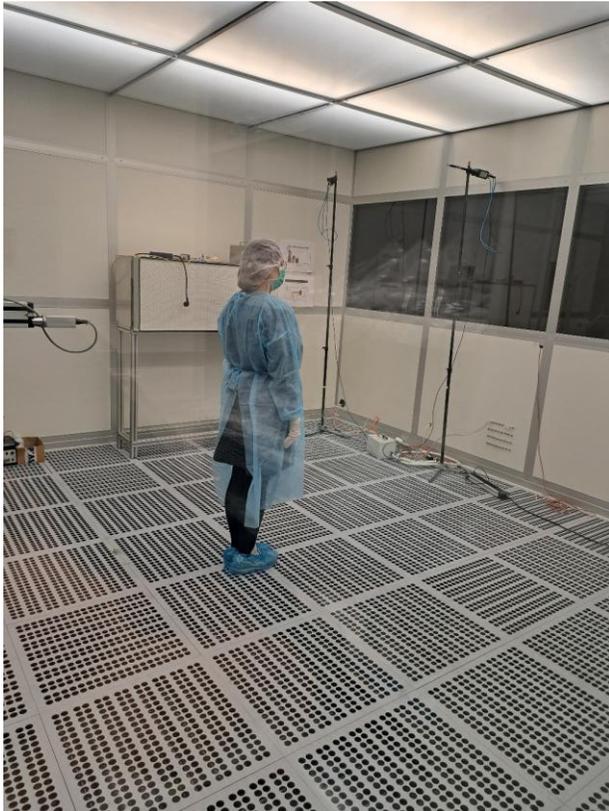
- Compare airborne particle dispersion from two complete surgical garment sets worn by human subjects in a laminar-ventilated cleanroom, using a fixed movement protocol (static baseline and three movements).





# • Methods & protocol

## ➤ Experiments



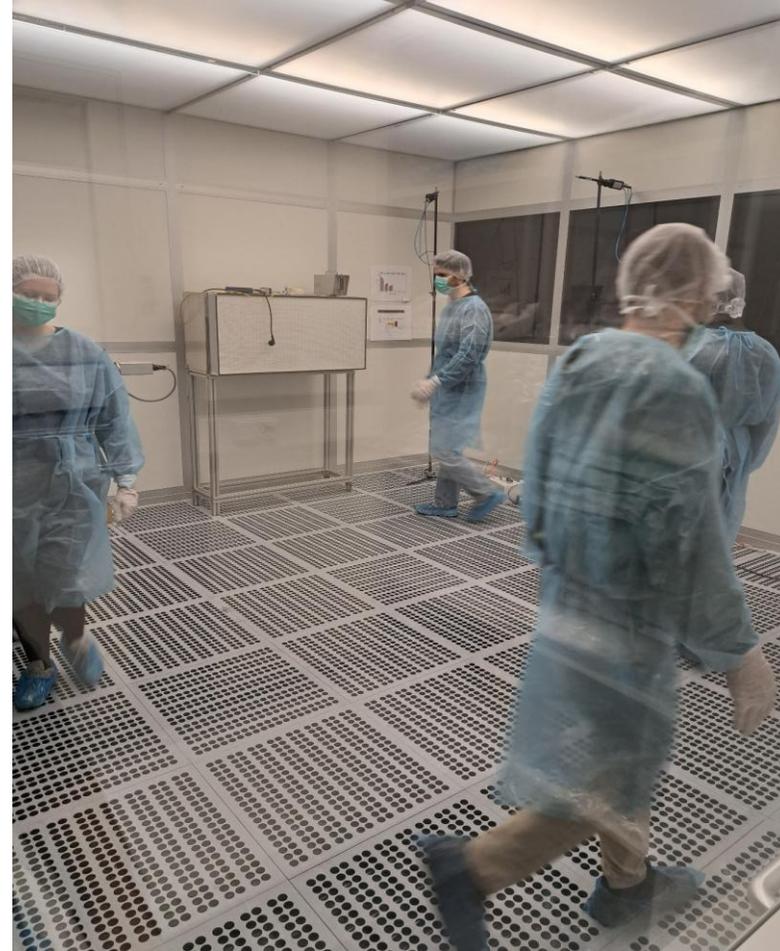
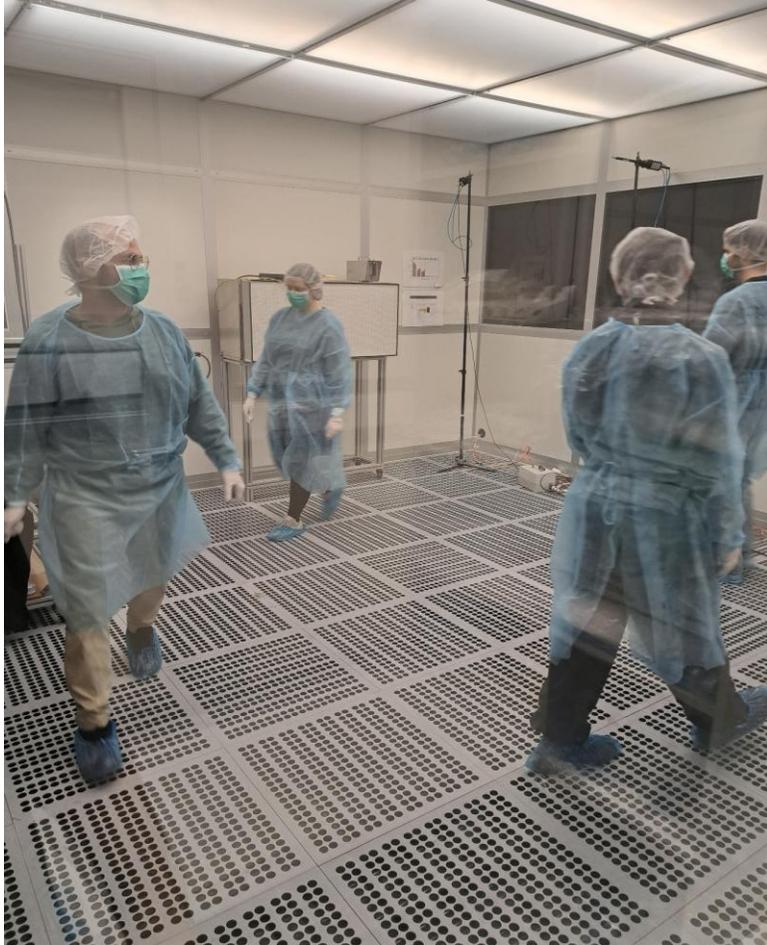
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- **Methods & protocol**

- **Experiments**



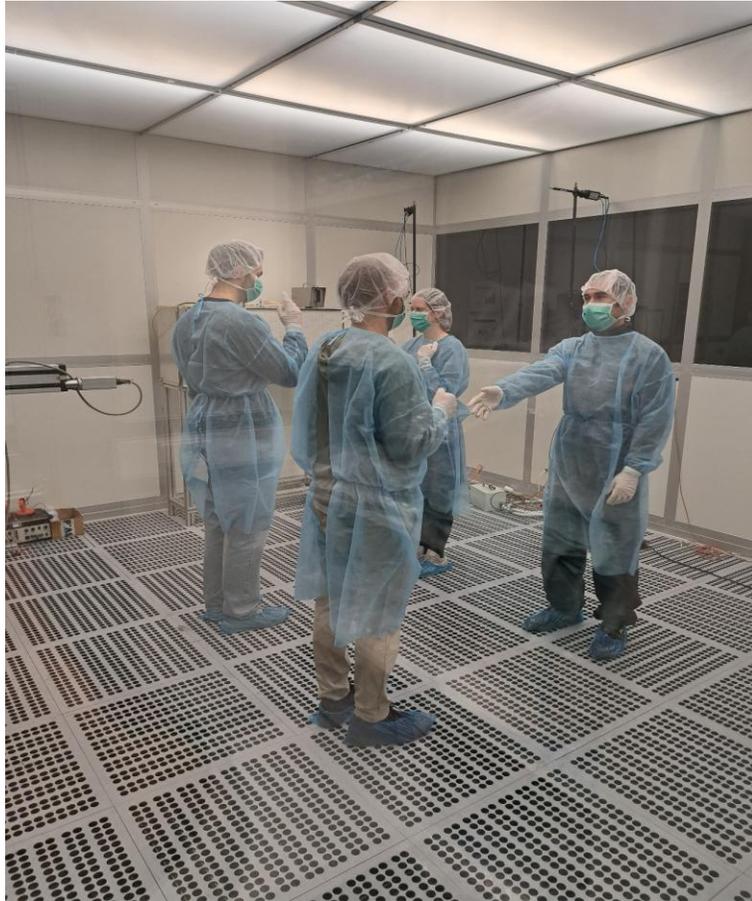
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- **Methods & protocol**

- **Experiments**



# • Methods & protocol

## ➤ Experiments



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# • Next steps for 2026

- Journal manuscripts: (i) frequent door opening, (ii) surgical garments as particle source
- Experiments: start systematic investigation of surgical garments in the experimental box (controlled source characterization)
- CFD validation: expand validation of experimental results with CFD (STAR-CCM+) and quantify uncertainty



Thank You

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