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A customized, lightweight mobile laboratory vehicle for outbreak investigations with highly dangerous pathogens - experiences from a field trial in Germany

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In an EU Horizon program funded project, a prototype of a mobile laboratory was developed, combining proven mobile units with advanced high-security laboratory architecture in a optimized space. This innovative, game-changing laboratory can be easily transported to remote outbreak areas, and swiftly set up as a fully functional diagnostic laboratory for processing human, veterinary, and environmental samples.

The laboratory is equipped with a central safety area. This zone is sealed from the external environment by a HEPA-filtered, negative pressure system, ensuring the safe and secure handling of highly pathogenic agents, such as risk group 3 (e.g. West Nile virus) and risk group 4 pathogens (e.g. Crimean-Congo hemorrhagic fever virus). Beyond its first-class safety features, the laboratory is an example of forward-thinking sustainability. Equipped with cutting-edge photovoltaic systems, it operates with ultra-modern, energy self-sufficiency, underlining a strong commitment to environmental responsibility and green energy solutions. To assess its operational readiness of the mobile laboratory, a field trial was conducted in Germany, which included collecting and analyzing bird feces samples for the presence of avian influenza (proof of concept study). For this purpose, detection methods for AI were successfully established within the mobile unit, and samples were analyzed and the results communicated to the responsible authorities.

Keywords

Mobile Laboratory, Zoonoses, highly pathogenic pathogens

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Professional Status of the Speaker

Senior Scientist

Junior Scientist Status

No, I am not a Junior Scientist.

Author: Dr HAGHIGHI, Fereshteh (Friedrich-Loeffler-Institut)

Co-authors: Dr GEHRE, Florian (Bernhard-Nocht-Institut for tropical medicine); Dr MELO, Aryse Martins (Bernhard-Nocht-Institut for tropical medicine); Dr AFFARA, Muna (Bernhard-Nocht-Institut for tropical medicine); Prof. GROSCHUP, Martin H. (Friedrich-Loeffler-Institut); KELLER, Markus

Presenter: KELLER, Markus

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