ABSTRACTS

Medical Biodefense Conference

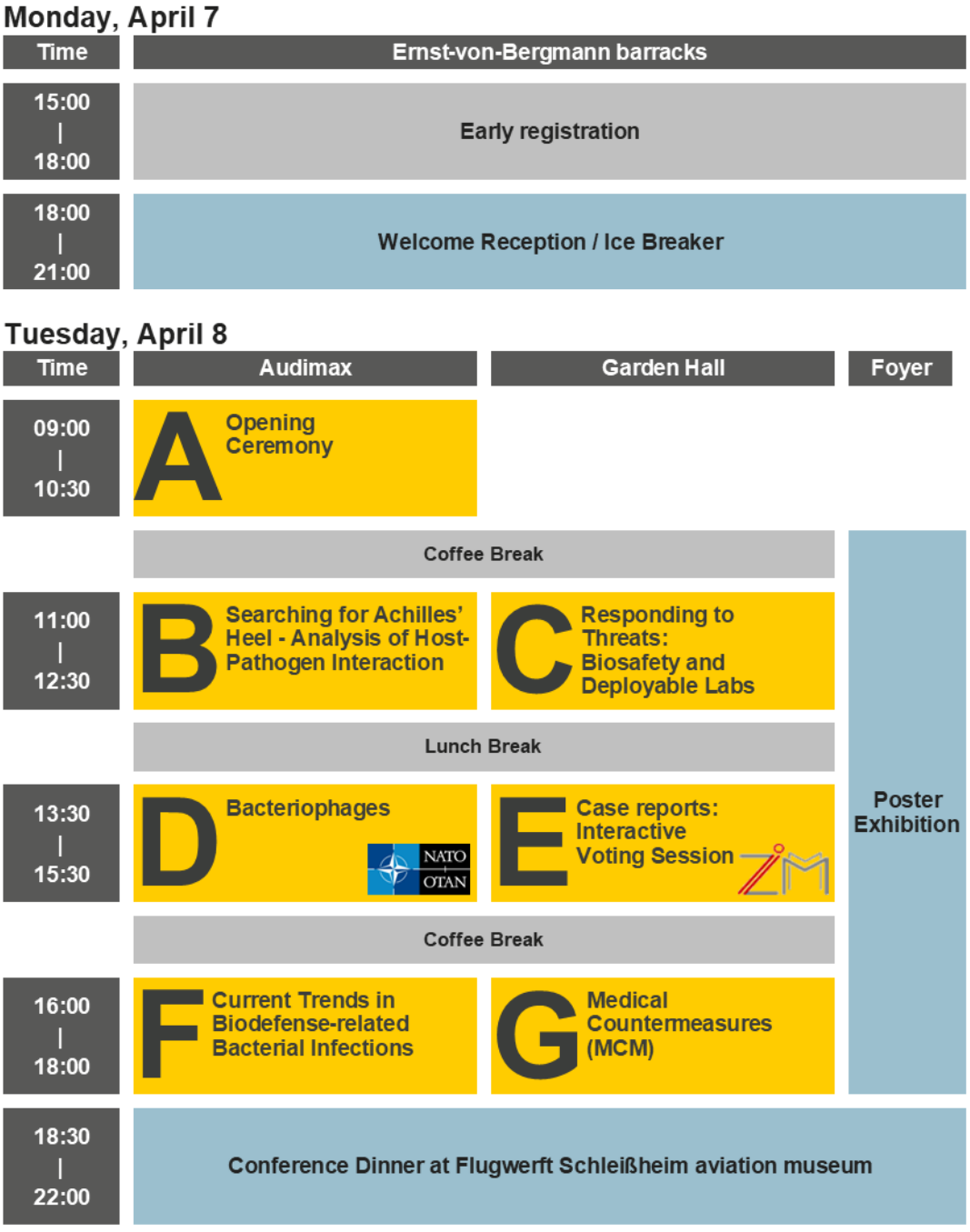
April 8-10, 2025

Munich, Germany

Organizer:
Bundeswehr Institute of Microbiology

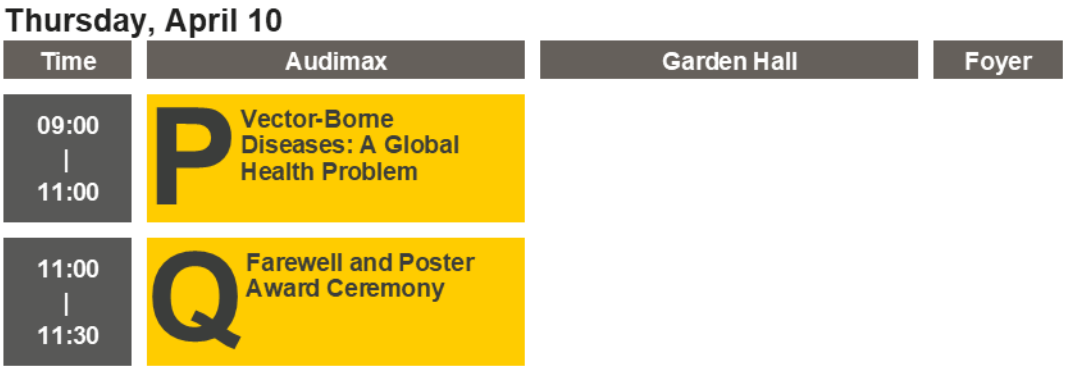
Program at a glance (Part I)

Click on session of interest to jump to the corresponding abstracts!



Program at a glance (Part II)

Click on session of interest to jump to the corresponding abstracts!



Audimax, 09:00 - 10:30

A Opening Ceremony

Chair: R. Wölfel (DEU)

AO 01 35min
Opening and Welcome Notes

Roman Wölfel
Bundeswehr Institute of Microbiology, Munich, DEU

AO 02 10min
Welcome Notes by Federal Foreign Office

Silke Bellmann
Federal Foreign Office, Division for Biological and Chemical Weapons Disarmament, G7 Global Partnership, German Biosecurity Programme, Berlin, DEU

AO 03 45min
Keynote Lecture: 50 years of the Biological Weapons Convention

Daniel Feakes
BWC Implementation Support Unit, UNODA, Geneva, CHE

IP 09

The dog used as sentinel for the circulation of flaviviruses in the south-east of France in 2023

Samia Bedjaoui[1], Younes Laidoudi[1], Stéphane Priet[2], Karine Barthelemy[2], Loic Comtet[3], Stéphanie Watier-Grillot[4], Jean L. Marié[4], Xavier De Lamballerie[2], Bernard Davoust[1]

[1]RITMES (Aix Marseille Univ, AP-HM, SSA), Marseille, France - IHU Méditerranée Infection, Marseille, FRA; [2]National Reference Centre for Arboviruses, Unité des virus émergents, Aix Marseille Univ, IRD 190, INSERM 1207, Marseille University Hospitals (AP-HM), Marseille, FRA; [3]Innovative Diagnostics, Grabels, FRA; [4]French military health service, Animal epidemiology expert group, Tours, France - French military center for epidemiology and public health, Marseille, FRA

Flaviviruses like West Nile, Usutu, and Dengue viruses, common in France, are mosquito-borne, their circulation can be influenced by environmental factors like mosquito abundance and migratory birds. Dogs can serve as sentinels for flavivirus activity, with their seroprevalence indicating virus circulation and potential risks. In 2023, this study assessed flavivirus exposure in 708 healthy dogs from southeastern France, comparing high-risk areas (e.g., near the Camargue) with low-risk zones (e.g., Marseille). Using the ID Screen® Flavivirus ELISA kit (Innovative Diagnostics, Grabels, France) with positive results confirmed through virus-specific neutralization tests for flaviviruses like West Nile, Usutu, and Dengue viruses. Anti-flavivirus antibodies were detected in 14.7% [95% CI: 12.1-17.3] (104/708) of the healthy dogs, with higher seroprevalence in high-risk areas (16.8%) [95% CI: 13.8-19.8] compared to Marseille (1.9%) [95% CI: 0-4.7]. Prevalence varied across areas: Montpellier (10.1%), Var (11.9%), Gard (18.2%), Istres (27.4%), and Vaucluse (28.4%). Neutralization tests confirmed exposure to West Nile virus (2.7%), Usutu virus (4.8%) but the Dengue virus was less prominent (serotype 1 and 2 were showed in 0.1%, 1.3 % respectively), with 4.9% showing antibodies to unidentified flaviviruses. These findings align with human and equine West Nile virus cases, emphasizing the value of dogs in flavivirus surveillance and the importance of ongoing monitoring to mitigate human infection risks.

IP 10

Waterborne Disease Risks in Conflict Zones: Analysis of Hepatitis A Dynamics

Tetyana O. Chumachenko[1], Alexander Kirpich[2], Pavel Skums[3], Gerardo Chowell[2], Alex Zelikovsky[4], Sergiy V. Yakovlev[5], Dmytro I. Chumachenko[6,7]

[1]Kharkiv National Medical University, Department of Epidemiology, Kharkiv, UKR; [2]Georgia State University, School of Public Health, Atlanta, GA, USA; [3]University of Connecticut, Department of Computer Science and Engineering, Storrs, CT, USA; [4]Georgia State University, Computer Science Departament, Atlanta, GA, USA; [5]Lodz University of Technology, Institute of Information Technology, Łódź, POL; [6]National Aerospace University Kharkiv Aviation Institute, Department of Mathematical Modeling and Artificial Intelligence, Kharkiv, UKR; [7]Balsillie School of International Affairs, Waterloo, ON, CAN

The full-scale Russian invasion of Ukraine, which began in February 2022, has severely disrupted water supplies due to damaged infrastructure and power outages, significantly increasing the risk of waterborne disease transmission. This study examines the invasion's impact on hepatitis A virus (HAV) morbidity trends across Ukrainian regions using national data from 2012 to 2023. Between 2012 and 2020, the average annual HAV morbidity was 2,738 cases.

A sharp decline in reported HAV cases occurred in 2022, with only 281 cases, attributed to limited healthcare access and disruptions in surveillance systems. However, cases surged to 1,050 in 2023 due to deteriorating sanitation, population displacement, and compromised water supplies. Vinnytska oblast reported over 245 cases in a concentrated outbreak, while Vinnytska, Zakarpatska, and Kyivska oblasts experienced notable increases linked to displaced populations straining local infrastructure. Conversely, fewer cases were reported in Southern and Eastern regions, likely due to challenges in data collection and reduced healthcare access in active combat zones.

The lack of routine HAV vaccination has further heightened vulnerability. Urgent measures, including restoring water and power infrastructure, improving surveillance, and implementing targeted vaccination campaigns, are critical to controlling HAV outbreaks and preventing further growth of cases.