ABSTRACTS

Medical Biodefense Conference

April 8-10, 2025

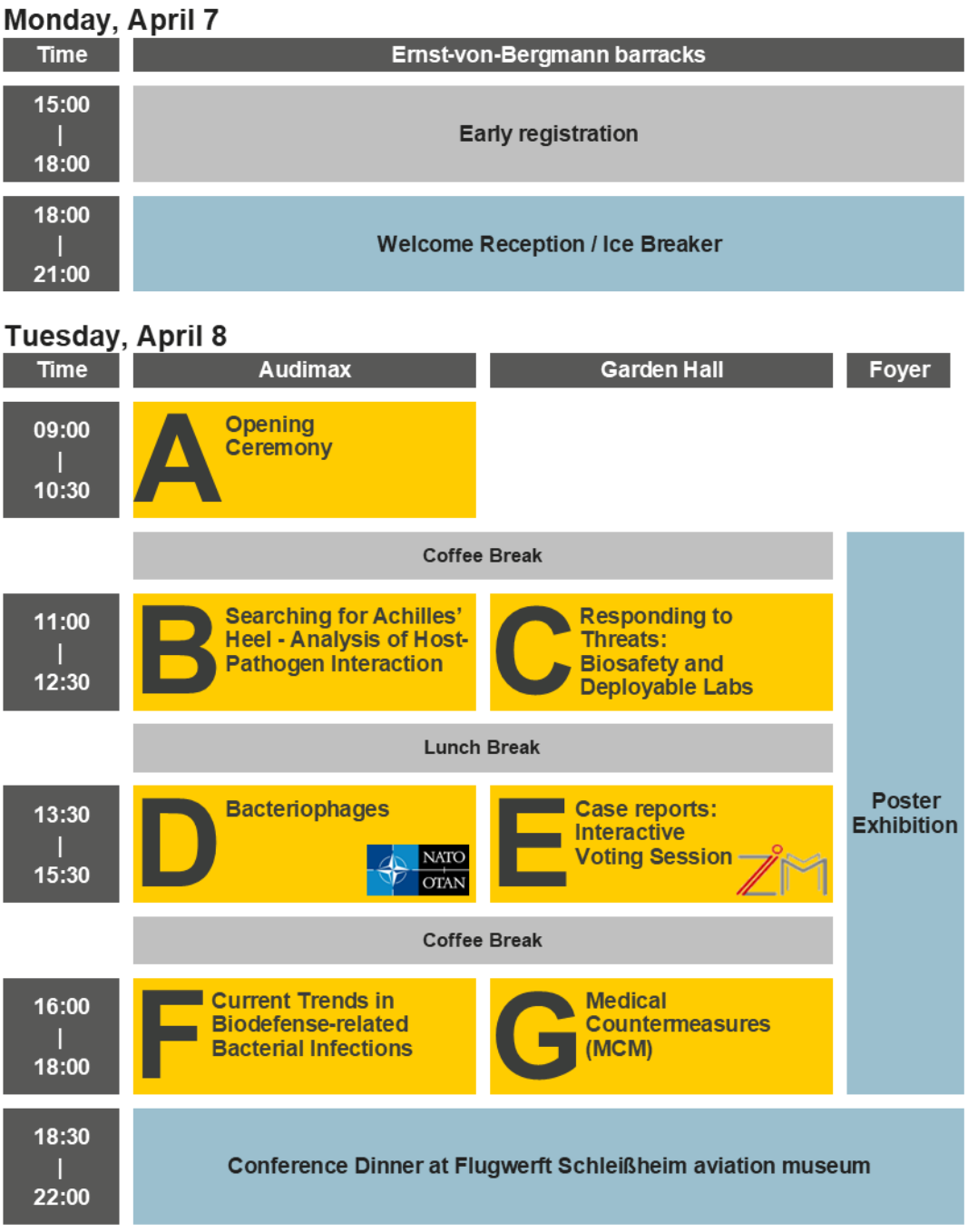
Munich, Germany

Organizer:

Bundeswehr Institute of Microbiology

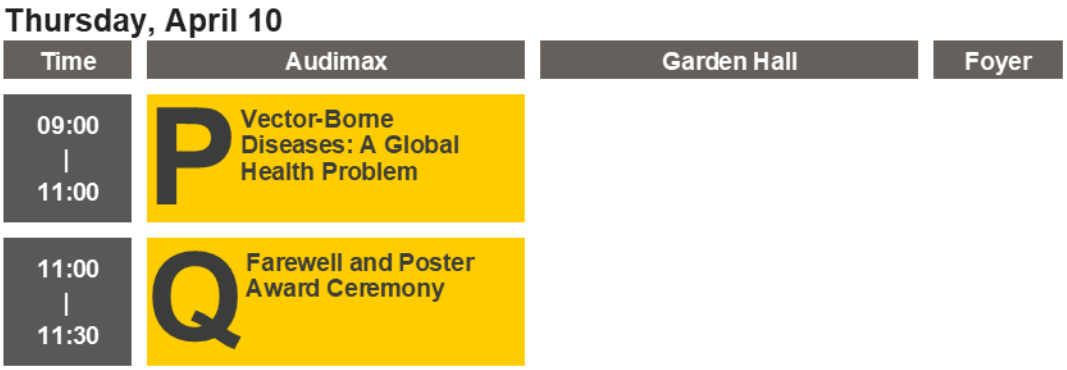
Program at a glance (Part I)

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

JP 12

Disruptions in Acute Respiratory Tract Infection Trends in War-Affected Kharkiv region (Ukraine)

Tetyana O. Chumachenko[1], D. I. Chumachenko[2]
[1]*Kharkiv National Medical University, Department of Epidemiology, Kharkiv, UKR;* [2]*National Aerospace University Kharkiv Aviation Institute, Department of Mathematical Modeling and Artificial Intelligence, Kharkiv, UKR*

The Russian invasion of Ukraine in February 2022 disrupted healthcare, living conditions, and population health in regions like Kharkiv. This study assesses its impact on Acute Respiratory Tract Infection (ARTI) trends, comparing pre- and post-invasion periods to highlight disruptions.

Monthly ARTI incidence data (2013-2023) were analyzed using statistical time-series methods. Baseline trends (2013-2019) were compared to the invasion period (2022-2023), accounting for seasonal variations. Pre-invasion data showed consistent winter peaks driven by healthcare access and epidemics. In March 2022, ARTI cases dropped sharply (3,426 cases) due to healthcare disruptions and displacement. Throughout 2022, cases stayed below pre-war levels, with slight recovery by late 2023. The 2022 average monthly incidence (4,649 cases) was 64% lower than the 2013-2019 average (12,543 cases). While rates improved in 2023, they remained below pre-invasion levels, reflecting ongoing healthcare tension.

The decrease in reported cases suggests underreporting, potentially missing diseases caused by emerging pathogens with high epidemic potential. Unrecognized cases threaten public health, emphasizing the urgency of rebuilding healthcare, enhancing surveillance, and ensuring access to care. The findings underline the vulnerability of conflict-zone health systems and the need for global support. Funded by NRF Ukraine (#2023.03/0197).

JP 13

Stockpiling and provision of unauthorised therapeutics in Germany on the example of ricin antibodies

Agata Mikolajewska, Michaela Niebank, Christian Herzog
Robert Koch Institute, Strategy and Incident Response (ZBS 7), Berlin, DEU

A deliberate release of ricin with spraying devices - or even improvised explosive device - represents a realistic bioterrorism scenario. Intoxication with small amounts of ricin via inhalation or parenteral route would very likely lead to 100 % lethality, therefore the availability of medical countermeasures is crucial for the survival of intoxicated persons.

As there are no approved drugs for the treatment of ricin intoxication, the possibilities of an experimental therapy with substances that are still under development has been evaluated. The early use of a not yet approved polyclonal antibody against the subunit B of ricin can significantly reduce mortality. However, due to the very narrow therapeutic window for the administration of ricin antibodies as antidote, its timely provision is very challenging. Furthermore, the stockpiling and provision of an unauthorised drug is a complex process.

Based on a decision by the Federal Ministry of Health, a concept was developed for the procurement, stockpiling, distribution and administration of ricin antibodies as experimental therapeutic by the Centre for Biological Threats and Special Pathogens (ZBS) at the Robert Koch Institute. Legal requirements and the narrow therapeutic window were taken into account as well as specific aspects of recognition and clinical management of single patients as well as mass causalities with ricin intoxication.

Clinicians must be able to recognise cases of ricin intoxication in a specific bioterrorism situation and take initial action, including ordering drugs that are not widely available and not approved. To support that, information materials and flowcharts have been developed to guide healthcare professionals through the steps of clinical patient management and the provision of the specific experimental therapy. A first table-top exercise to evaluate the concept was carried out and ricin antibodies can now be provided in a bioterrorism incident to patients in need in a timely manner. The approach developed could be transferred to other scenarios and other experimental therapeutics and thus contributes to improving the general preparedness and response capabilities in Germany for bioterrorism incidents.