European Biosafety Association

EBSA

WEAVING THE FUTURE OF BIOSAFETY

NETWORKS, HERITAGE AND INNOVATION

27th Annual Conference of the European BioSafety Association

2-5 June 2026 · Bruges · Belgium

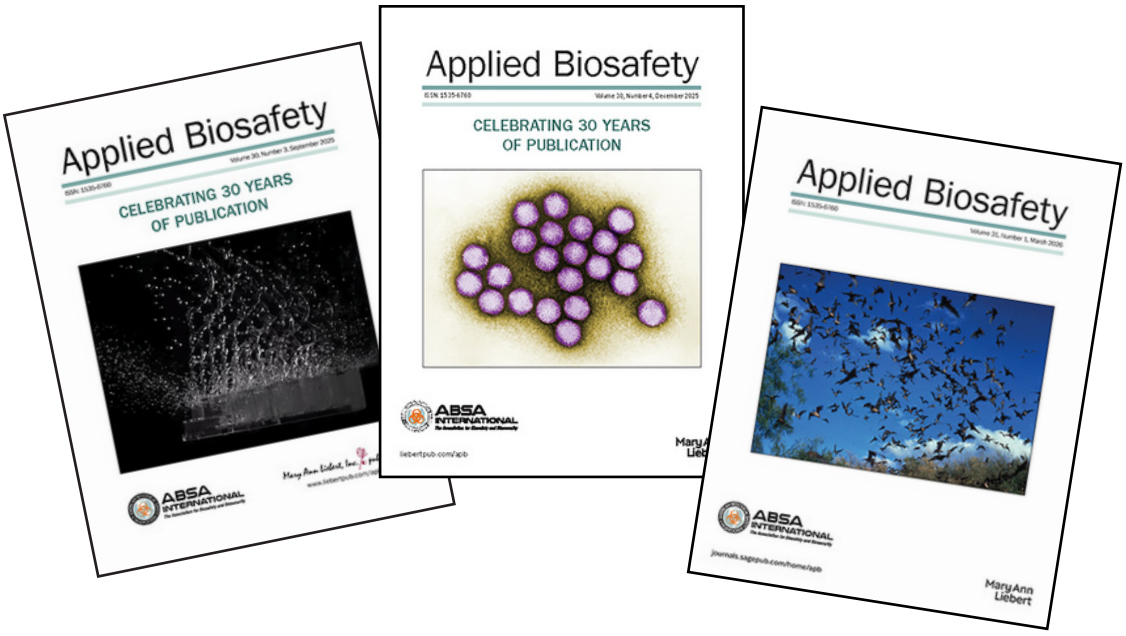
Pre-conference Courses 2-3 June 2026

Conference 4-5 June 2026

BOOK OF ABSTRACTS

Applied Biosafety, the peer-reviewed journal of ABSA International, has partnered with EBSA to produce a Special Issue on Biorisk Management: **Global Approaches and Practices**, guest-edited by EBSA President Pat Casey and EBSA Conference Programming Working Group Chair Marcel van Bergen, alongside colleagues from the United States. **The submission deadline is 1 March 2027** but accepted manuscripts will be published ahead of print online, shortly after acceptance.

The scope is broad — from genetic technologies and laboratory design to fieldwork biorisk and occupational health — and contributions from across the European biosafety community are warmly encouraged. If you are presenting a talk or poster in Bruges, please consider developing your work into a full manuscript for the special issue. It is an ideal way to extend the reach and impact of your conference contribution.



Welcome to the annual EBSA Conference! Welcome to Bruges!

Dear EBSA Members, Conference Attendees and Colleagues,

On behalf of the European Biosafety Association (EBSA), it is my pleasure to welcome you to our annual conference and preconference courses in Bruges, on 2 – 5 June 2026. There is something fitting about gathering here.. Bruges is a city built on centuries of craft, exchange and quiet expertise: lace made stitch by stitch, knowledge passed hand to hand, a place where heritage and innovation have always sat comfortably side by side. It is the right setting for the year we have had, and the conversations we wish to have.

This year's theme — "**Weaving the Future of Biosafety: Networks, Heritage, and Innovation**" — runs through the entire programme. Across four focus areas — Interwoven Expertise, Heritage and Horizons, Innovating Responsibility, and Biorisk Management in Practice — you will hear from leading European voices on how our field is changing, what we should hold on to, and where we need to go next. With more strong abstracts than we had slots for, the programme this year is genuinely rich, and we are proud to be in that position.

This year EBSA Council have made **listening** a priority — listening to our members, to our partner organisations across Europe and beyond, and to the wider community of regulators, researchers and practitioners we serve. You will see that listening reflected in Bruges: in a programme shaped by what members offered, in a partner session designed for genuine exchange rather than reporting, and in an expert panel drawn from instructors and senior figures who have built this field over decades. If you have something to say to EBSA this week — about courses, about partnerships, about where the association should be heading — please find me or a Council member. We are here to listen.

I want to flag one development with particular pride. EBSA is partnering with A**pplied Biosafety** on a **special issue** of the journal associated with this conference, to be published in 2027. This is the first time we have done this, and it matters: it means the work presented in Bruges — your abstracts, your posters, your sessions — has a route to a peer-reviewed, lasting record. The call for papers will be announced from the stage and is open to all conference contributors. Please consider it. We are deeply grateful to ABSA and the journal editors for making this possible, and to our two guest editors for taking it on.

This year's Chris Collins Lecture will take us into the world of venomous animal research — a field where biosafety questions are vivid, practical, and far from theoretical. It promises to be one of the highlights of the week. The poster session, the breakout sessions and the sponsor interactions will, as always, be where much of the real exchange happens; do make time for them.

A word of thanks. To the Conference Programming Working Group for building such a strong programme; to the Education and Training Working Group for our pre-conference courses; to the Information and Communication Working Group for getting EBSA's voice out into the world this year, including a refreshed website; to our Local Organising Committee in Bruges for their care and energy; and to the EBSA administrative office and my fellow Council members, whose work is mostly invisible and entirely indispensable. This is the 27th EBSA conference, and we have not arrived here by accident — the association has been carried by people willing to do this kind of work, year after year.

Most of all, thank you for being here. Whether this is your first EBSA Conference or your twentieth, I hope you leave Bruges with new ideas, new contacts, and a renewed sense of why this work matters. Have a wonderful conference.

With warmest regards,

Pat Casey

President, European Biosafety Association 2025–2027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POSTER PROGRAMME

Thursday, 4 JUNE 2026

Session 1 Heritage and Horizons — Learning from the Past to Shape Future Biorisk Management

Session Chair
Melanie Tramontano

Marcel van Bergen

Dr. Marcel van Bergen is a BioRisk Professional / Management Advisor at the Radboud Campus (Radboud University and Medical Centre, Nijmegen, The Netherlands) and affiliated companies. In 2010 he started there as a BioSafety Officer, Occupational Health Hygienist (with focus on biological agents) and Environmental Safety Officer.

Currently, he is leading the BioRisk Prevention team in Nijmegen.
Since 2019 he is chairman of the Dutch Biosafety Association (BVF-Platform). Additionally, he is a member of the EBSA Scientific Working Group since 2018, and chairing this group since 2022.

From 1997 till 2010 he was active as Technician, Researcher, Project Leader, Quality Assurance Officer and Bio Safety Officer at the Central Veterinary Institute in Lelystad (Wageningen University, NL). In 2005 he completed his PhD thesis on Molecular Typing of Campylobacter fetus (Utrecht University, NL). Additionally, from 2002 till 2010 he served as a trainer for the World Health Organization.

Beyond the Bite - Process Focused Analysis of a Serious Incident in Mosquito Research Laboratories

Biological incident investigations in medical entomology laboratories require a structured, multi layered approach to understand potential exposure pathways and strengthen institutional risk governance. Following the detection of a malaria infection in an employee working across two mosquito research facilities (Institution A and Institution B), an independent and comprehensive process was initiated. This process included phased verification of the biological agent involved, systematic mapping of activities during the potential exposure period, facility assessments, document and SOP reviews, and structured interviews with personnel.

The investigative framework applied principles from occupational incident analysis, biosafety governance, and integrated biorisk management. Particular attention was given to harmonising information from different organisational domains, identifying latent procedural vulnerabilities, and evaluating how operational, technical, and cultural factors interact within complex laboratory systems.

The process not only informed immediate risk mitigation steps but also provided a blueprint for strengthening long term organisational resilience. This incident illustrates how a rare event can reveal important latent structural risks and underscores the need for integrated, layered, and robust biorisk management.

Balázs Antal Somogyi

Research Fellow, BSL-4 laboratory manager, University of Pécs,
National Laboratory of Virology, Hungary

Balázs Somogyi earned his MSc degree in Biology in 2015 from the Faculty of Science at the University of Pécs. Before his graduate studies, he was already involved in university research projects during his high school years, where he achieved results primarily in network analysis and small mammal ecology. Throughout his university years, he continued these research projects, gaining outstanding experience in biostatistics supporting ecological research and field study implementation. Building on his expertise in field biology and biostatistics, he joined the Virological Research Group at the Szentágothai Research Centre in 2018. Here, he quickly learned various molecular biology techniques and obtained certification for work in a BSL-4 virology laboratory. In addition to laboratory work, he actively participated in the certification and maintenance operations of the lab. As a result, he became the „biosafety-integrated OH&S" leader of the group in 2020.

From Compliance to Competence: What Recent High-Containment (BSL-3/4) Training Studies Report and What They Miss

High-containment laboratories (BSL-3 and BSL-4) protect personnel and the environment through layered controls, but day-to-day safety ultimately depends on whether people can consistently perform critical steps under pressure, fatigue, and routine. Although the peer-reviewed literature increasingly discusses training for these settings, it remains unclear which training components are shared across institutions, and which “human factors” are described that help translate rules into reliable performance.

To clarify what the field currently reports, we conducted a structured review of recent peer-reviewed studies addressing high-containment laboratory training practices. PubMed, Embase, Web of Science, Scopus, and Ovid MEDLINE were last searched on September 1, 2024. We included english-language papers published between 2019 and 2024 that described, evaluated, or critically discussed training protocols, safety practices, or personnel challenges specific to BSL-3 or BSL-4 environments. Findings were synthesized using deductive thematic analysis, and each paper was coded for the presence of predefined training-related elements.

Across 24 eligible studies, the dominant pattern was a strong emphasis on procedural compliance with comparatively limited attention to the human and organizational mechanisms that enable safe performance in high-consequence work. Training, evaluation, and certification were most often presented as local, rule-based activities, while shared competency standards and behavioral principles were seldom articulated. Similarly, systems that support learning and adaptation,such as routine incident and near-miss reporting, explicit behavioral guidance for decision-making in degraded conditions, or structured assessment of work ability appeared infrequently. Taken together, the literature tends to frame training as a means to prevent rule violations rather than as a framework for managing predictable human limitations in demanding environments. This imbalance suggests a systemic gap: high-containment training is described as ensuring adherence, but is rarely documented as strengthening decision-making, resilience, and performance stability when conditions are less than ideal.

Recent publications therefore provide useful descriptions of local compliance-focused approaches, but they rarely document shared competency definitions, explicit behavioral foundations, structured work-ability monitoring, or incident-driven learning loops. Future training programs—and the way they are reported—may be strengthened by clearer competency frameworks and more transparent description of the systems that help people work safely and consistently in high-containment settings.

Aurel Tamburri

Experienced laboratory operations executive with a track record of strategic leadership and operational excellence. Seeking the role of Senior Scientist, Laboratory Operations to drive organizational excellence, implement effective risk management strategies, and ensure compliance with industry standards and leverage my expertise in ensuring compliance, fostering a culture of quality, and driving continuous improvement. Seeking a challenging role at Merrick & Company to lead and enhance laboratory operational initiatives, business development while maintaining excellence and fostering strong client connections.

Professional Summary:
Results-oriented laboratory operations executive with over 20 years of leadership experience in developing and executing comprehensive operatinal programs. Proven expertise in aligning project initiatives with business goals, optimizing resources, and fostering cross-functional collaboration.

Education:
Masters Degree in Health Management | Mc Master University | Hamilton, ON | [2014]
Post Graduate Diploma Environmental Health and Safety | Mc Master University | Hamilton, ON [2009]
Advanced Diploma – Applied Health Science |Michener Institute for Applied Health Science | Toronto, ON [1987]
Maters Certificate – Financial Management| Schulich School of Business |York University| Toronto, ON| [2003]

Certification and Registrations:
Canadian Registered Safety Professionals - Canadian Registered Safety Professional (CRSP) [2004]
Canadian Society of Medical Laboratory Science (CSMLS) – Professional Registration [1987]

From the 1960s to Tomorrow: How Historical Lab Design Lessons Drive Continuous Improvement Today

Laboratory design has been shaped by decades of accumulated experience, lessons learned, and evolving best practices. From the standardized bench layouts and linear workflows of the 1960s to today's highly automated, flexible, and risk-informed laboratories, each generation of facilities has contributed knowledge that continues to inform how laboratories are planned, built, and operated. This presentation explores how historical design principles and operational insights form the foundation of a continuous improvement cycle that drives effective laboratory design today and prepares facilities for the future.

Using examples rooted in laboratory practices emerging in the 1960s, the session traces how early approaches to containment, segregation of functions, material and personnel flow, and safety controls established enduring design fundamentals. Participants will examine how these principles have been refined through decades of operational feedback, analysis, regulatory evolution, and technological advancement. The presentation demonstrates how understanding what worked, what failed, and why remains essential when modernizing laboratory services, renovating existing spaces, or planning new laboratory facilities.

The session emphasizes the integration of design and workflow as inseparable elements of successful laboratory projects. Attendees will learn how historical knowledge is translated into contemporary best practices for biorisk management, quality systems, and workflow optimization, and how these practices support automation, flexibility, and regulatory compliance. Particular focus is placed on applying continuous improvement methodologies to ensure that laboratory environments evolve in step with scientific progress, emerging risks, and changing operational demands.

By the end of this presentation, participants will have a structured perspective on how past experience informs present decision-making and future readiness. The session provides practical guidance for assembling and leading multidisciplinary project teams, engaging stakeholders, and delivering laboratory designs that are efficient, resilient, and adaptable ensuring laboratories get it right, every time, by building on the lessons of the past.

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Thursday, 4 JUNE 2026

Session 2 Biosafety Accelerator Poster Pitch

Session Chair
Mieke Jansen

A Risk Based Approach to Assessing Work with Proteins Involved in Neurodegenerative Diseases (PIND)

***Allison Liljedahl**, Roche/Genentech United States*

Proteins involved in neurodegenerative diseases (PIND) like alpha-Synuclein, Beta-amyloid (Aβ), Tau, and TDP-43 (TAR DNA-binding protein 43) are studied to understand the pathogenesis of diseases such as Alzheimer's and Parkinson's. Misfolded or aggregated forms of these endogenous proteins are assumed to play a role in disease pathogenesis. While PIND are non-communicable and no human infection has been described, their mechanisms of action have similarities to the prion protein, and exposure prevention is warranted due to gaps in understanding.

An internal, global team developed a flow chart to support our scientists in the risk assessment of in vitro work with PIND with the goal of minimizing the risk of occupational exposure. The chart is applicable to sequences from mammalian genes and for R&D projects at lab scale and in vitro studies. The process starts with determining the specific hazard involved by determining the origin of the protein or peptide sequence, which type of PIND will be used (e.g., unaltered proteins/monomers, mutant or posttranslational modified forms, pre-formed fibrils (PFF), isolates from human CNS), and whether seeds will be generated or can form spontaneously.

Based on the hazard determination, work is categorized as Lower Hazard or Higher Hazard. Work identified as Lower Hazard requires standard microbiological practice and controls similar to BSL-1. Procedures with aerosolization or other exposure potential (e.g., seed amplification assay, lyophilisation, or use of sharps) require an additional assessment and, if identified as Higher Hazard, the application of enhanced controls similar to BSL-2 (CH, GER) or BSL-2+ (USA).

Biosafety-driven design and digital real-time management of mosquito colonies – Development of the VNL ‘Vector Lab’ in Hungary

Kornélia Kurucz(1,2), Vera Mxinwa1, Balázs Berta(1), Brigitta Zana1, Andrea Kovács-Valasek(1,2), Viktória Nyári(1), Roland Hetényi(1,3), Balázs A. Somogyi(1)

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2 Institute of Biology, Faculty of Sciences, University of Pécs, Ifjúság útja 6, 7624 Pécs, Hungary
3 RoLink Biotechnology Kft., 7211 Pécs, Hungary

The rapid emergence and spread of invasive mosquito species across Europe pose increasing challenges for public health, biodiversity, and biosafety. Laboratory-based mosquito research and colony maintenance are indispensable for understanding vector–pathogen–environment interactions; however, such activities require highly controlled conditions, strict biosecurity measures, and robust operational oversight to ensure the safety of personnel and the environment.

Here, we present the development of the VNL “Vector Lab” in Hungary, a newly established CL-3 mosquito research facility in the region, designed with biosafety and operational transparency as core principles. Beyond conventional containment and biosecurity solutions, the laboratory integrates a custom-built, dashboard-based digital management system that enables real-time monitoring and control of mosquito colony maintenance and laboratory operations.

The digital dashboard consolidates key parameters related to colony status, environmental conditions, workflow progression, and safety-critical processes into a single, continuously updated interface. This approach supports traceability, rapid decision-making, and early risk detection, thereby strengthening both biosafety compliance and safe working practices. By reducing reliance on fragmented documentation and manual checks, the system enhances operational consistency while minimising human error.

Using the establishment of a local colony of the invasive Aedes albopictus as a model, we demonstrate how digital real-time management can be seamlessly integrated with physical containment, biosecurity protocols, and daily laboratory workflows. The VNL Vector Lab serves as a scalable model for future mosquito and vector laboratories, illustrating how digitalisation can actively contribute to biosafety, staff protection, and responsible vector research in Europe.

National incident reporting systems for high containment laboratories in the UK, North America and Europe: A mapping study

Julia Bator, *Sylvia Han, Lale Rogers*

Laboratory-acquired infections and other biosafety incidents continue to occur in high-containment laboratories. Yet, their true frequency and causes remain difficult to assess due to inconsistent and fragmented reporting practices. Robust incident reporting systems are essential not only for local risk management but also for collective learning and global biosafety resilience. This study maps the existence and functionality of national incident reporting systems for high-containment laboratories across Europe and selected comparator countries.

We examined 31 countries, including all European Union Member States, the United Kingdom, the United States, Canada, and Switzerland. Using a newly developed Framework for Assessing Incident Reporting Systems (FAIRS), informed by World Health Organisation regulatory benchmarking tools and biosafety guidance, we assessed the legal requirements, institutional arrangements, and evidence of data utilisation. Data were collected through structured document searches and expert interviews with biosafety professionals in six countries.

All countries demonstrated comprehensive regulatory frameworks mandating incident reporting, reflecting widespread transposition of EU directives or equivalent domestic legislation. However, only two countries (6.5%) exhibited fully functional national incident reporting systems with evidence of systematic data collection and use. Canada demonstrated the most mature system, supported by a centralised electronic reporting platform and routine public reporting. Belgium showed partial implementation, with biosafety-specific data use but no national reporting system. The remaining countries displayed a pronounced gap between formal legal requirements and operational implementation.

These findings reveal a critical disconnect between regulation and practice in biosafety incident reporting. The absence of functional systems limits opportunities for learning from incidents, weakens prevention of recurrent failures, and undermines collective biosafety across an increasingly interconnected global laboratory landscape. Strengthening national reporting infrastructures and enabling meaningful data sharing represent urgent priorities for biosafety governance in Europe and beyond.

GMP vs Biocontainment considerations in a BSL 2 facility

Alastair Logan

The Centre for Veterinary Vaccine Innovation and Manufacturing (CVIM) facility at The Pirbright Institute will be used for pilot vaccine development in GMP/GLP cleanroom suites with areas operating at a BSL 2 containment level. Misalignment between GMP and biosafety standards can lead to facilities that fail to fully comply with biosafety, compromising containment design, improper airflow management, and increasing risk of carry-over of contamination and release. This poster outlines the mitigations to address the conflict between GMP and biocontainment.

Different biological protection approaches for different BSL3 lab settings

Annemieke Dinkla and Sandra van de Water

Wageningen Bioveterinary Research in Lelystad is a research institute dedicated to improving the health of livestock. The institute performs diagnostic testing for notifiable animal diseases on behalf of the government and conducts research on a wide range of pathogenic bacteria and viruses. Part of this work is carried out in human biosafety level 3 (hBSL-3) laboratories.
Within the institute, several hBSL-3 laboratories are in operation, each with distinct workflows and research practices. Some laboratories focus on a single pathogen, while others handle multiple pathogens. As a result, laboratory procedures and working methods differ between laboratories, reflecting the specific biosafety requirements and research activities associated with the pathogens studied.

Small Drops, Big Risks? Investigating Aerosol Generation from Accidently Dropped Culture Plates

Hineshaben Patel[1], *Simon Parks*[1], *Thomas Pottage*[1]
[1]*Biosafety, Air and Water Microbiology Group, UK Health Security Agency, United Kingdom*

Laboratory-acquired infections continue to highlight the importance of understanding aerosol risks associated with routine microbiological work. Agar culture plates underpin most microbiological activities, including cultivation, isolation, enumeration, and characterisation of bacteria and fungi, and are therefore handled repeatedly in laboratories worldwide. Although many aerosol-generating procedures are well described, the potential for aerosol release following poor handling or accidental drops of culture plates remains poorly defined.

This study addressed this evidence gap by experimentally assessing viable aerosol generation following accidental drops of agar plates under conditions representative of routine laboratory practice. Experiments were conducted within a Class III microbiological safety cabinet using a clamp stand incorporating a drop mechanism set at approximately 1 m to simulate a realistic bench-to-floor drop height. Five surrogate microorganisms with diverse biological properties were used. Plate-drop scenarios reflected key stages of agar plate use, including freshly inoculated wet plates (prior to the inoculum being absorbed into the agar), plates with absorbed/dry inoculum prior to incubation, post-incubation plates, plates sealed in incubation bags (simulating best practice for contained use). Additional tests were also undertaken using damaged bags with a small perforation to simulate conditions that would compromise containment.

These tests were limited to Bacillus atrophaeus and Penicillium chrysogenum.

Viable airborne contamination was assessed using two air biological samplers: a slit-to-agar sampler and a six-stage Andersen cascade impactor (both 28.3L/min), with air sampling performed for 5 minutes for all organisms except post-incubation unbagged fungi plates, which were sampled for 10 seconds. Results were calculated in colony for units per cubic meters (cfu/m3) to normalize the data between runs.

Results from all activities will be reported, with the highest airborne recoveries occurred after post-incubation drops of unbagged P. chrysogenum (~2.4×10^4 CFU/m^3). Compromised bags produce low but measurable airborne recovery, whereas intact plate bags prevented detectable release. Andersen sampling showed peak recovery for unbagged post-incubation P. chrysogenum produced its highest airborne recovery in the 4th stage (2.1–3.3 µm; median ~1×10^4 CFU/m^3)

The results show that aerosols can be produced by accidents involving dropped and mishandling culture media plates, with the potential to both contaminate the laboratory and pose an aerosol exposure risk to laboratory staff. The bagging of plates prior to transport and incubation reduces aerosol release following plate- drop accidents.

Validation of chemical inactivation of high-risk viruses

Ágota Ábrahám(1,2) , Krisztina Leiner(1,2), Gábor Kemenesi(1,2), Anett Kuczmog(1,2), Balázs A. Somogyi(1)

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Emerging infectious diseases continue to challenge human and animal health security at both regional and global levels. Rapid, safe, and reliable diagnostics are essential for outbreak response and routine surveillance, but the biosafety constraints of field and mobile laboratories make early risk reduction steps especially important. Sample inactivation at the point of collection is a key control measure when containment options are limited, because it can enable downstream processing under reduced protective measures and thereby speed up workflows without compromising safety.

Commercial lysis buffers and related chemical reagents are widely used as rapid inactivation solutions in molecular workflows, yet their effectiveness can differ across viruses and sample matrices. For high-risk viruses in particular, robust evidence is needed to ensure that inactivation claims translate to real-world performance. This is especially relevant for Risk Group 3–4 agents, where end-to-end processing typically requires substantial infrastructure and strict containment that can be difficult to maintain throughout a workflow in mobile settings.

Current guidance (e.g., CDC-based approaches) often allows inactivation validation using a representative virus for a given viral family, which can support the substitution of higher-risk agents with lower-risk (Risk Group 2) surrogates for method development and routine verification. This approach can accelerate testing and reduce logistical burdens, but it also highlights an important limitation: inactivation performance may not generalize perfectly across all viruses, strains, or matrices, and ideally inactivation should be demonstrated for each target virus in the relevant sample types.

In parallel to sample inactivation, chemical decontamination of work surfaces and infectious materials remains essential for both laboratory and field operations. Here, “what works” is similarly context-dependent, as effective contact time and performance can vary widely between detergents,

disinfectants, and pathogens. Together, these considerations underline the need for evidence-based, matrix-aware inactivation and decontamination strategies that can be translated into practical standard operating procedures.

This poster outlines a validation-focused framework for chemical inactivation of high-risk viruses and situates it within the operational realities of mobile and field laboratories. By aligning inactivation choices with pathogen risk, matrix effects, and realistic contact times, laboratories can design safer and faster workflows and develop SOPs that are both defensible and feasible in constrained environments.

Field-Ready Laboratories: A New Modular Tent Lab Design for Diagnostics and Research on Field

Ágota Ábrahám(1,2), Ábel Bálint(3), Balázs A. Somogyi(1,2)

1 University of Pécs, National Laboratory of Virology, Ifjúság útja 20, 7624 Pécs, Hungary
2 Institute of Biology, Faculty of Sciences, University of Pécs, Ifjúság útja 6, 7624 Pécs, Hungary
3 Lattice Homes, Keleti Károly utca 31, 1024 Budapest, Hungary

Rapid access to laboratory capability is critical during outbreaks, disasters, and field investigations or sampling, yet traditional container-based solutions can be slow to deploy and difficult to adapt to changing operational needs. Type 1 and Type 2 mobile laboratories offer a key operational advantage through their rapid and flexible deployability compared to heavy container-based systems. At the same time, the integration of negative-pressure zones enables a significantly higher level of biosafety, ensuring controlled environments even in field conditions. Building on this operational logic, the University of Pécs, National Laboratory of Virology (VNL) and Lattice Shelter initiated a joint, modular tent-laboratory development that aims to combine fast deployability with enhanced biosafety features suitable for real field conditions.

The concept is built around functional separation and containment logic rather than a single “all-in-one” shelter. The modular architecture enables mission-specific configurations and can be deployed either linearly or as a clustered footprint depending on the site and workflow. Core units include a triage/intake space, a negative-pressure sample preparation area, a molecular diagnostic unit, a technical and power-supply unit, and an airlock/personnel changing unit (with optional office/support modules). This structure is designed to reduce cross-contamination risks by separating patient-facing processes from sample handling and analytical activities, while negative-pressure and HEPA-filtered workspaces support safer handling of higher-risk materials in the field.

Operationally, the platform targets autonomous field use, including independent power and air handling, as well as data connectivity for secure communication. Integrated digital solutions are intended to support real-time data collection and remote monitoring, improving situational awareness and decision-making for field teams and coordination centers. The design is therefore relevant not only for civilian public health deployments (on-site molecular and immunodiagnostics), but also for disaster response, humanitarian operations, and CBRN-related scenarios where controlled workflows and containment are essential.

This poster presents the joint development approach with VNL, the biosafety-driven design rationale, and the operational opportunities of a modular tent-based laboratory as a flexible platform for diagnostics and research in remote or temporary settings.

Measuring containment of simulated liquid spills, splashes, and sprays when using a biosafety cabinet

Christy Ottendorfer(1), Suganthi Suppiah(1), Patrick Vander Kelen(1), Lia Haynes Smith(1), Nora Lirette(2)

1 Centers for Disease Control and Prevention, U.S. National Authority for Containment of Poliovirus, Atlanta, GA, USA
2 Centers for Disease Control and Prevention, Office of Laboratory Systems and Response, Atlanta, GA, USA

Class II biosafety cabinets (BSC) are widely used in laboratories as containment devices to provide product, environmental, and personnel protection when working with infectious agents. BSCs are designed, certified, and extensively tested for aerosol containment, but liquid containment has not been well characterized. Laboratorians access the BSC work surface through an open front where incidents or poor technique may result in a loss of primary containment. To measure BSC liquid containment characteristics, simulated incidents were conducted in a Class II A2 BSC (Baker Company SG-403, 4ft, 8-inch sash height). Three incident types (1) spill: drop 96 well plate, (2) splash: vortex 15 mL tube, (3) spray: blockage in 5mL syringe/0.2µM filter were optimized then five replicates tested in center of BSC work surface by two laboratorians wearing designated personal protective equipment (PPE). Two liquid simulants (1:10 blue food color in deionized water; 10% glycerol/cornstarch/blue food color solution) and white absorbent paper were used to quantify droplets on BSC surfaces (excluding window, ceiling, grilles). Limit of detection (LOD) tests calibrated visible droplet size (0.5-10.0 µL) with image particle analysis (ImageJ v1.54k). Droplet dispersal was measured, photographed, and observed by researchers. Endpoints were enumeration of droplets on BSC surfaces, droplet distance from incident origin, container volume by weight lost, and contamination observed on PPE and floor. LOD varied between liquid simulants with all size droplets detected in 1:10 blue dye simulant, with decreased detection for smallest sizes of 10% glycerol simulant used for sprays (0.5 µL/54%; 1.0 µL/85%). Median droplet counts varied by incident type (1) spill: 228 (range 68-612), (2) splash: 665 (range18-3446), and (3) spray: 1724 (range 277-3734). Simulated sprays with least total fill volume (5 mL) had largest volume loss by weight from container ($\bar{x}$ = 2.58 g) and droplet distance from incident origin ($\bar{x}$ = 68.2 cm) in three incident types tested. PPE contamination was observed across all incident types for gloves (11/15, 73.3%) while it was observed with gown (7/15, 46.7%) in splash and spray incidents only. No contamination of safety glasses was found. Some incidents also resulted in loss of primary containment with floor contamination observed (5/15, 33.3%). Most BSC surfaces tested contained droplets from liquid incidents, including sash (9/15, 60%) and window (7/15, 46.7%) contamination observed. These quantitative data can be used to inform laboratory biosafety risk assessments and PPE practices for work in biosafety cabinets.

Thursday, 4 JUNE 2026

Poster Session
Product / Service Presentations

Session Chair track 1
Jorge Pérez Bruzón

Session Chair track 2
Suzanne Loret

Validation of Effluent Decontamination Systems Methods for “Proof of Process”

Jim Laarman, President / CEO, PRI-BIO

A discussion of typical challenges encountered when attempting to perform biological validation of effluent decontaminations systems, both batch flow and continuous flow systems, and an offering of helpful methods to obtain “proof of process” of your system. A sharing of lessons learned from PRI Bio’s vast experience and Validation by DesignTM philosophy incorporated into its high-containment decontamination systems over the past 20+ years.

Growth media sterilization

Philippe Mira, Regional Sales Manager - Europe, Actini Group

Comparison between the two methods of sterilizing a culture medium for use in a fermenter

The in-situ sterilization method, i.e., within the fermenter, and the external sterilization method with a continuous culture medium sterilization system.

Our presentation will explain the technical method of sterilizing culture media for the two technologies mentioned, in order to compare the methods in terms of effectiveness and implementation.

Mythbutser

Do large Laboratory Machines require an enclosure (Safety Cabinet) to maintain protection ?

Diko Strietman, Managing director, The Baker Company Benelux

At every EBSA meeting the Baker Company will inform you about one of our " Mythbusters".
A program where we try to "Bust" the myth around a specific topic that influences Safe working.

As the need for automation and large machinery is growing in our scientific environment, Protection and safety are also playing a major role when working with Large Laboratory Machines.

The Myth we are trying to Bust during the conference is : 'Do large Laboratory Machines require an enclosure (Safety Cabinet) to maintain protection ?"

Formaldehyde Vs Hydrogen Peroxide Vapour – what does the future hold?

John Chewins, Tecnilab-BMI

The classification of Formaldehyde as a carcinogenic and mutagenic agent, along with the increasing drive towards sustainable product use, raises both regulatory and safety questions on its continued use as an airborne disinfection chemistry. Hydrogen peroxide vapour is promoted as an alternative, but what data supports this position? This presentation will explore the European regulatory environment for biocidal products as it applies to Formaldehyde and hydrogen peroxide vapour automated airborne disinfection systems and will aim to provide an understanding of current authorised uses and restrictions and the possible future position of Formaldehyde. The presentation will compare the efficacy of hydrogen peroxide vapour with Formaldehyde and discuss its role as a replacement.

Bridging the Gap: Implementing a Holistic, Risk Based Commissioning Process for High Containment Laboratories in Colombia

Lia Vizzotti, World BioHazTech

High containment laboratories assure safety and sustainability through a risk-based commissioning (Cx) approach integrated in its entire lifecycle, from design through daily functioning. According to the Colombian experience, use of Cx has been either delayed or non-standardized and has resulted on average in design gaps, ambiguities regarding performance criteria and an inadequate integration of critical systems, and therefore, repetitive rework and inefficiencies have been common. In conclusion, an integrated risk-based Cx approach is crucial for successfully converting biosafety requirements into realistic engineering decisions, establishing criteria for acceptance that are both clear and measurable, and aligning all parties involved. In new projects and in upgrading facilities, this is important. Colombian experience suggests infrastructure investments will not be enough. During the emergency of COVID-19, several projects targeted developing laboratory capacity were launched, but few had been fully verified on the BSL-3 functionality. This highlight also points out that, in the absence of formal commissioning processes — risk assessment, validation, and clear accountability — it will be an ongoing challenge to achieve consistent high level of containment performance. This kind of integrated, risk-driven culture of Cx ultimately drives more robust, functional, and sustainable lab operations.

Biowaste Treatment for BSL3/BSL4 Laboratories: Why It Is So Critical and What Technical Solutions Are Available

Suncombe

An introduction to biowaste that is generated in labs dealing in research into human, animal, and plant viruses. The waste water treatment system needs to be designed correctly for a variety of reasons which would be explained. Added complexity of prion decontamination. The variety of technical solutions that are available, from small under sink units (50L per day), through to bulk volumes (30m3 per day), using chemical and/or thermal decontamination processes. Looking at trends in sustainable engineering and heat recovery. Specific case studies for Suncombe systems that have been supplied globally.

SUNCOMBE
CIP, BIOWASTE & PROCESS SOLUTIONS

European Biosafety Association

EBSA

Thursday, 4 JUNE 2026

Chris Collins Lecture

Session Chair
Pat Casey

CHRIS COLLINS

Christopher Collins, MBE, microbiologist, was born on 18th October 1919. He died on 19th October 2009, aged 90. We are indebted to Dr John Grange for writing this biography of Chris Collins. John was Visiting Professor at University College, London. He has had an active scientific collaboration with Chris for many years. They have prepared in collaboration with others the 8th Edition of Collins and Lyne's Microbiological Methods (2004).

Chris Collins is a gentleman. It is very important to emphasise this, as in these days so many of those values that once regularly distinguished the honourable gentleman from the rascal, the opportunist and the master of spin are fast becoming woefully rare. Chris was born in 1919 and, from the age of eleven, he attended an English grammar school where he was taught a few facts but he received his education from his parents and, particularly, from an aunt who encouraged his appreciation of music, art and literature. The latter had a lasting impact on him as is evident from the very high literary standard of his scientific writings.

Chris did well in his various school examinations and he must be particularly favoured by the Almighty as he was awarded a Credit in Religious Knowledge. This came as a considerable surprise to him as he had neither studied the subject nor sat the examination! Despite his academic ability, he did not go on to university – apparently his family had insufficient funds. Instead, he became a trainee sanitary inspector and also acted as a part-time laboratory assistant to the Medical Officer of Health of the Borough of Luton. Initially, this laboratory was no more than corner of an office and his main duty was to culture throat swabs for the diphtheria bacillus.

Later, new offices and laboratories were built and Chris became a full-time laboratory assistant and enthusiastically set about mastering a range of laboratory techniques. He would often visit the London County Council laboratories in order to gain experience and expertise in a wide range of microbiological methods.

Alas, the Second World War intervened and in 1939 Chris joined the Royal Air Force Volunteer Reserve and, not unsurprisingly in view of his experience, was sent to the RAF Institute of Pathology. As a result of the standard of administration fairly typical of a British governmental organisation, Chris was dispatched to a laboratory in Iceland only to find that there was no equipment, that apparently having been shipped to Aden! By a process that remains uncertain, Chris was able to ply his trade in the local US Navy Hospital Laboratory until rumbled by the RAF who then appeared to have shunted him from one meaningless administrative posting to another until the end of the war.

After the war he was welcomed back at the Municipal Laboratory at Luton and appointed Senior Technician. At that time, there were plans for Municipal Laboratories to be taken over by the Public Health Laboratory Service (PHLS) and, as promotion in that organisation required one to be a Fellow of the Institute of Medical Laboratory Technology, Chris set about gaining this qualification. To this end, he was faced with the choice of studying haematology, histopathology and clinical chemistry as well as microbiology, no easy matter in his then employment, or submitting a thesis. He chose the latter, and his dissertation was on methods for the culture of mycobacteria. This proved to be a turning point in his career, as in time he was to become an internationally acclaimed expert on tuberculosis bacteriology.

Chris obtained his Fellowship in 1951 and, in the following year, he started work in the PHLS laboratory in the rather surprising venue of London County Hall. This laboratory soon grew into a large and busy one, undertaking a wide range of investigations. In addition to general duties, Chris was able to pursue his special interest in the mycobacteria. In those days, the classification of mycobacteria other than the tubercle and leprosy bacilli was, to say the least, chaotic. Indeed, it was so difficult to allocate isolates from environmental or clinical specimens to a named species that they were often termed 'anonymous mycobacteria'. Chris brought order into this chaos and, as a result of his published contributions on this subject, was promoted to Senior Technical Officer and, in 1965, he qualified as a Member of the Institute

of Biology, a qualification equal to a university degree, and subsequently he was elected a Fellow of that Institute.

The tuberculosis laboratory at County Hall was among the first to be equipped with microbiological safety cabinets and, with characteristic energy and enthusiasm, Chris embarked on a study of such cabinets and laboratory safety in general. He became known in this field through several publications and this led to collaboration with the Safety Officer of the Microbiological Research Establishment at Porton Down and appointment to the Special Programme on Safety in Microbiology of the World Health Organization.

Chris retired in 1985 but this event did nothing to diminish his many scientific activities and interests. Indeed in that same year he was awarded Membership, soon followed by Fellowship, of the Royal College of Pathologists – an honour rarely given to those who are not medically qualified. Then, in the following year, 1986, he was awarded the degree of Doctor of Science, one of the most prestigious awards that any scientist can be given within the university system. In 1972 he was made a Member of the Order of the British Empire (MBE).

If anything, “retirement” led to even more activities and a diversification of his interests.

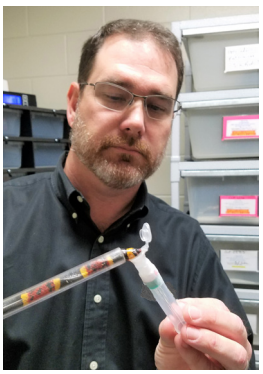
He was soon appointed a Research Fellow at Kings’ College Hospital and a Senior Visiting Research Fellow at the National Heart and Lung Institute, now part of Imperial College School of Medicine. As well as laboratory safety, Chris took a particular interest in clinical waste disposal, blood-borne infections and microbiological diseases of occupations. Such was the esteem in which he is held in these fields that he was appointed to many national and international committees, notably the Working Party on Safety in Biotechnology of the European Federation of Biotechnology.

At the venerable age of 80, and as ever seeking academic pastures new, Chris enrolled at the University of Kent at Canterbury to read for a Master of Arts degree, which was awarded in 2003 for a thesis entitled Cholera and the Sanitary Revolution of Nineteenth Century England. His many friends await with interest his next academic triumph!

In addition to his practical contribution to medical microbiology, notably in the fields of mycobacteria and laboratory safety, producing some 50 scientific papers, Chris has distinguished himself as an author and editor of many books and monographs and, for many years, was co-editor of the Journal for Applied Bacteriology. Perhaps his greatest literary achievements are three books which have all gone into more than one edition. The first of these, Microbiological Methods, was published in 1964 and from the third edition, published in 1970, he was joined by his wife, Patricia Lyne, as co-author. In view of the greatly increasing complexity of microbiology, the sixth edition became the eponymous Collins and Lyne’s Microbiological Methods with several invited contributors. The eighth edition will be published in 2004. His interest in laboratory safety led to the publication of the first edition of Laboratory-acquired Infections in 1983, with the fourth edition appearing in 1999. The third book was Organization and Practice in Tuberculosis Bacteriology, published in 1985 and with a second edition, renamed Tuberculosis Bacteriology – Organization and Practice, in 1997.

Chris was a happy and contented family man. In 1942 he married a cousin, Elizabeth Anne, and they had two sons. In his own words, he and Elizabeth Anne “ … formed a lasting alliance against administration, politics, religion and other dark forces, with all of which we were (and I still am) frequently in conflict”. Elizabeth Anne died in 1966 and, three years later, Chris married Patricia Lyne, a lady highly distinguished in both microbiology and flower arranging, and they had one son.

Christopher L. Parkinson



Education

- Ph.D. in Biology, University of Louisville, Louisville, KY. 1996
- B.S. in Zoology (Wildlife Biology), B.S. in Botany (Field Biology), Ohio University, Athens, OH. March 1990 cum laude

Current positions

- 8/15/2017 – Present
  Professor
  Department of Biological Sciences
  Clemson University,
- 5/15/2021 – Present (20% FTE)
  Director
  Clemson University Genomics and Bioinformatics Facility
  Clemson University, College of Science
- 8/15/2023 – Present
  Chair, Graduate Advisory Committee & Biological Sciences Graduate Program Coordinator
  Department of Biological Sciences
  Clemson Universit

Handle With Care: Risk, Resilience, and the Science of Working with Venomous Species

Animal venoms serve as an important model system across multiple research fields, including biomolecular, medicinal, and evolutionary biology. To support this work, researchers must collect from the field and maintain venomous organisms in controlled laboratory settings, enabling year-round venom extraction and downstream analyses. However, managing these animals in a research environment involves significant risks. These include:

collecting venomous animals in the field,
transporting and maintaining them safely in the laboratory,
extracting venoms securely, and
handling raw venoms with appropriate precautions.
Each step carries inherent danger and therefore requires careful study, documentation, and risk assessment.

Working closely with compliance teams is essential to ensure that safety protocols are thoughtfully designed, implemented, and followed to protect both the animals and the researchers. Our research program investigates the evolution of venomous snakes and their venoms, focusing on the ecological and evolutionary forces that have shaped the diversity of venoms and the animals that possess them. My aim is to integrate our understanding of venom evolution with best practices in field and laboratory safety to determine how venomous species can be responsibly maintained and studied in a research setting. In our field, we must understand that accidents may happen; thus, preplanning is a critical aspect in both field and laboratory research dealing with venomous creatures. In the field, having a team member wilderness first aid certified, carrying a satellite phone or other emergency response device, and identification of local hospitals near your field site with emergency protocols in place that all team members understand is a must. Having international insurance and potentially a global rescue policy should be discussed. In a laboratory setting, accidents may happen as well. Thus, integrating local emergency personnel into the response plan can help immensely. An example would be bringing their team into the facility and designing pickup locations if an incident were to happen. Having a relationship with a medical professional that understands venomous exposures and setting up incidence response procedures is critical preplanning.
I suggest running exposure scenarios prior to housing venomous creatures to help mitigate the inherent risk when conducting this type of research. Ultimately, there is risk working in the field or with venomous creatures, my goal is to reduce the inherent risks via proper planning to improve overall safety and mitigate potential hazards.

Highlight: Animal venoms provide powerful research models, but working with venomous species requires careful risk assessment and rigorous safety protocols from field collection to laboratory handling. Our program integrates studies of venom evolution with best practices in field and lab safety to ensure venomous organisms can be responsibly maintained and investigated.

European Biosafety Association

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Thursday, 4 JUNE 2026

Session 3 Interwoven Expertise — Strengthening Biorisk Management Through Collaborative Networks

Session Chair
Marcel van Bergen

Andreas Prenner

Experience

- Policy Officer Biotechnology - DG SANTE
  Jul 2025 - Present Policy Strategy unit - Biotech Act
- Policy Officer (JPP) - DG DEFIS
  Jan 2025 - Jul 2025 Defence Industry and Space Space Act
- Policy Officer (JPP) - DG CNECT, AI Office
  Jun 2024 - Jan 2025
- Policy Officer - DG HERA
  Sep 2022 - Jun 2024
- Innovation policy for pandemic preparedness
  Collaboration with US
- Blue Book Trainee - Cabinet of Vice President Šefčovič
  Apr 2022 - Sep 2022

Education

- University of Oxford
  MPhil, Economics 2019-2021
- Vienna University of Economics and Business
  BSc, Economics

European Biotech Act: Biosecurity measures to safeguard responsible innovation

In December 2025, the European Commission adopted its proposal for a European Biotech Act. Rapid advances in biotechnology are opening major opportunities for healthcare and innovation, and the core aim of the Act is to keep the EU competitive in the sector and ensure these advances reach patients across the Union. At the same time, these advances also create potential for misuse. The proposal includes a dedicated chapter establishing a harmonised EU framework to control access to sensitive biotechnologies, focused on ensuring that only legitimate customers can purchase synthetic nucleic acids. This talk will give an introduction to the provisions of the Biotech Act proposal and the political context around it, followed by a closer look at the proposed biosecurity rules.

Heidi Auerswald

Current position:

Expert for Biosafety, Laboratory Management, Diagnostic and Pathogenesis Studies of Infectious Diseases, Instituto Zooprofilattico Sperimentale Dell'Abruzzo e de Molise, Italy (since October 2024)

Educational qualifications:

- PhD (Dr. rer.net.), University of Hamburg, Germany (2016)
- Diploma in Biochemistry, Martin Luther University Halle -Wittenberg, Germany (2012)
- High School Degree (Abitu), Werner von Siemens Gymnasium Grossenhain, Germany (2006)

Experience:

Over 10 years of experience in biosafety, virology, high-containment lab operations, diagnostic development, and laboratory management.

- implementation ISO35001 and ISO 17025 systems; designing and delivering BSL3 training
- Supporting installation and operationalization of BSL3 facilities
- Former BSL3 Scientific Mangaer, Senior Scientist & Integrated Expert, and Postdoctoral Researcher at Institut Pasteur du Cambodge

Other information:

- Languages: German (native), english (C2), Italian (A1)
- Certifications: IFBA Biorisk Management (2025), ISO 35001 Awareness (2024), WOAH PVS Sustainable Laboratories Expert Training (2023)
- Publications: http://orcid.org/0000-0002-4717-7618

From Resistance to Readiness: ISO 35001 as a Harmonizing Framework for Biorisk Management Across Institutions and Borders

The Institut Pasteur du Cambodge (IPC) recently achieved ISO 35001:2019 certification through an external audit conducted by MUTU International (Indonesia). This milestone reflects a deliberate effort to strengthen and harmonize biorisk management within a high-containment laboratory environment that supports both national public health functions and international research, surveillance, and collaborative projects. This contribution presents the IPC experience as a practical case study of how a shared international framework can enhance coherence, accountability, and interoperability across institutional and geographic boundaries. IPC operates BSL-3 laboratories that are central to national diagnostic and surveillance capacity for tuberculosis, avian influenza, SARS-CoV-2, and other zoonotic diseases, while simultaneously engaging in multi-country research consortia and cross-border scientific collaborations. Prior to ISO 35001 implementation, biosafety practices were fragmented across pathogens, procedures, and project-specific workflows, resulting in parallel approaches to risk assessment, inconsistent documentation of near-misses, and unclear escalation and reporting pathways. Biosafety governance was largely embedded within quality management structures such as ISO 17025. The adoption of ISO 35001 provided a unifying Biorisk Management System (BMS), integrating biosafety governance across units, clarifying responsibilities, formalizing incident reporting and management review, and supporting a transition from reactive safety practices toward preventive, risk-based management.

Implementation followed a phased and pragmatic approach, deliberately building on an already well-functioning high-containment environment. Prior to ISO 35001 adoption, IPC operated a mature BSL-3 facility supported by an established BSL-3 manual, regular staff training, and comprehensive pathogen- and procedure-specific SOPs. The implementation therefore focused less on creating technical controls from scratch and more on aligning existing practices within a coherent governance framework. The process began with a structured gap analysis, followed by document harmonization, clarification of roles and reporting pathways, and targeted awareness-raising across scientific, technical, and support units. Pilot implementation in BSL-3 laboratories was complemented by internal audits, corrective actions, and formal management review, ultimately culminating in successful certification. Critical to this process was early and sustained leadership engagement. Institutional leadership committed to the allocation of necessary resources, including additional personnel to support expanded documentation, coordination, and monitoring requirements. Equally important was the early involvement of all relevant internal stakeholders (laboratory staff, biosafety professionals, quality management, facility management, and occupational health) ensuring shared ownership of the system and facilitating integration of ISO 35001 into routine operations. Early “quick wins,” such as simplified incident reporting and formal recognition of safe practices, reinforced trust in the system and helped sustain momentum throughout implementation.

Beyond its relevance in low- and middle-income settings, this experience demonstrates the value of ISO 35001 for European laboratories operating within dense and heterogeneous regulatory landscapes. Rather than duplicating national requirements, ISO 35001 offers a common language and governance structure that facilitates interoperability between institutions, supports workforce mobility, and enables consistent biorisk management across multi-partner projects and international consortia. The IPC case illustrates how ISO 35001 can function as a connective framework, strengthening alignment across regions, disciplines, and organizations, and reinforcing trust, transparency, and resilience within global biorisk management net-works..

Julia Kircher

Technical Head of the BSL 3 Laboratory and dissection room
for high-risk pathogens, Institute of Pathology, Medical University of Graz

Work experience

Since 2025	Lead Auditor ISO35001:2019
Since 2024	Professional Course in Biorisk Management
Since 2023	Deputy biosafety officer, Institute of Pathology, Medical University Graz
Since 2021	Technical Head and Quality Management Officer of the BSL 3 environment, Institute of Pathology, Medical University Graz
Since 2020	Fire protection officer for the BSL 3 Laboratory, Institute of Pathology
Since 2019	Part of the research group Prof. Dr. Kurt Zatloukal, Institute of Pathology, Medical University Graz
2016-2019	Employment Institute of Analytical Chemistry, Karl-Franzens University Graz
Since 2015	Studies in „Environmental and Systems Sciences with focus on Natural Sciences Technologies“ NAWI Graz
2012-2014	Plastics engineer, Greiner Packaging, Kremsmünster

Enabling Safe Science: Strengthening Global Research Infrastructure for Pandemic Preparednes

Pandemic preparedness is not primarily limited by scientific knowledge, but by fragmentation of infrastructures, workflows, standards, and decision-making processes. The project results presented here close this gap by changing the way high- and maximum-containment research infrastructures operate and, above all, collaborate and respond to emerging infectious threats.

By integrating access to high-containment laboratories, viral resources, and other infrastructures such as large-scale data infrastructures, and by harmonizing cross-border workflows and processes, we are moving from isolated capacities to coordinated capabilities and opportunities. Researchers gain simplified, secure, and traceable access to a continuum of services—from early-stage research to advanced experimental testing, while infrastructures are operated under aligned quality, governance, and biosafety frameworks.

One important result is the measurable strengthening of biosafety and biorisk management. Biorisk management is the backbone of safe, rapid, and globally coordinated research with highly pathogenic agents. Thanks to harmonized procedures and trained personnel we can quickly move across the full research continuum—from basic studies to applied countermeasures while ensuring the safety of all people and the environment. In this talk, I will show how integrating these capabilities with international partnerships translates preparedness from a plan into operational reality. Harmonised SOPs, shared quality standards, and joint training create comparable safety levels across facilities and enable the rapid and safe mobilization of expertise in health crises. At the same time, transparency and shared visibility of critical resources—such as virus isolates, reagents, and data—reduce duplication, mitigate supply chain vulnerabilities, and accelerate response timelines.

A central element of our approach is the active engagement of international partners. By building further cross-border partnerships, sharing best practices, and aligning operational, safety and quality standards, we create a globally interconnected research ecosystem. This not only enhances the EU's capacity for pandemic preparedness, but also fosters a continuous cycle of learning, improvement, and innovation across borders. Through the ongoing integration of expertise and resources worldwide, the infrastructure network evolves dynamically, remains resilient under emerging threats and contributes to a globally harmonised, responsible, and forward-looking approach to biosafety and epidemic response.

The result is a shift from reactive crisis management to structural preparedness: shorter timelines from foundational science to actionable pandemic interventions, improved biosafety under surge conditions and a resilient European and global infrastructure landscape ready to respond to the next emergence of a high-risk pathogen. In this oral presentation, I will show you how we turned these ambitions into operational reality and how the same model can be extended to further strengthen preparedness, global cooperation and biosafety as well as biorisk management.

These results were achieved as part of the projects INTERCEPTOR, EU 101132215 and EVORA, EU 101131959.

European Biosafety Association

EBSA

Thursday, 4 JUNE 2026

Ask the Experts

Biorisk Management Open Forum

Session Chairs
Jane Shallcross

Suzanne Loret

To conclude the first day of the EBSA Conference, we will organise an interactive Q&A session with leading experts in Biosafety and Biosecurity (biorisk management). Questions from conference attendees and preconference course participants will be discussed in an open panel discussion, creating an opportunity for dialogue and knowledge exchange.

Post your questions online

European Biosafety Association

EBSA

Friday, 5 JUNE 2026

Session 4 Biorisk Management in Practice — Techniques, Tools and Translational Approaches

Session Chair

Dionysis Vourtsis

Jane Shallcross

Dr Jane Shallcross is the Senior Biosafety and Biosecurity Oversight Lead at the Coalition for Epidemic Preparedness Innovations (CEPI), based in London. At CEPI, Jane is leading on writing the CEPI Biosecurity Policy to support vaccine development against emerging infectious diseases. Jane leads the development and implementation of risk management frameworks for high-consequence pathogen research, advising international partners and CEPI-funded laboratories on best practices for safe and secure operations.

Prior to joining CEPI, Jane held senior leadership roles at the UK Health Security Agency (UKHSA, formerly Public Health England), where they directed the Novel and Dangerous Pathogens Training Team. In this capacity, Jane designed and delivered biosafety training programmes for UK and international audiences, including hands-on courses, elearning and hybrid courses. Jane was instrumental in the UK's Ebola response, establishing training for outbreak laboratories, contributing to PPE protocols, and leading the training over 400 scientists for deployment to West Africa. During the COVID-19 pandemic, Jane contributed to the rapid establishment of national RT-PCR testing services and led the first schools' trial of lateral flow testing in the UK.

Jane has collaborated extensively with the World Health Organization, serving as lead author for the "Laboratory Biosafety Manual, 4th Edition: Outbreak Preparedness and Resilience Monograph," and delivering biosafety workshops across Africa, Asia, and the Middle East. Jane is also an active member of the European Biosafety Association and has contributed to numerous international initiatives to strengthen laboratory capacity and emergency response.

Through these efforts, Jane has become a recognised leader in global biosafety and biosecurity, advancing responsible science and reinforcing preparedness for biological threats worldwide.

Lessons Learned from Developing and Launching an International Biosecurity Policy

The rapid evolution of bioscience and biotechnology has heightened the urgency for coherent, practical, and globally relevant biosecurity governance. Following publication of CEPI's inaugural Biosecurity Strategy in 2024, during 2025–2026 our team undertook the development and rollout of a new biosecurity policy aimed at strengthening responsible research practices and biorisk management across CEPI's funded vaccine research, development and manufacturing portfolios. This process required navigating scientific uncertainty, differing national priorities, variable biosafety capacities, and the sensitivities inherent to discussing dual use research and viruses with enhanced epidemic or pandemic potential.

This presentation will reflect on the key initial lessons learned during the policy's drafting, consultation, and launch phases. These include strategies for engaging stakeholders with varying risk perceptions; approaches for framing complex technical concepts in accessible, internationally acceptable language; and mechanisms for integrating feedback from multidisciplinary experts, including those working in low resource environments. The talk will also highlight challenges encountered, such as ensuring policy relevance across heterogeneous laboratory systems, balancing transparency with security considerations, and building trust in politically sensitive settings, and describe how these were addressed.

By sharing practical insights, tested approaches, and pitfalls to avoid, this session aims to support biosafety and biosecurity practitioners, policymakers, and scientific leaders who are developing or revising policies at institutional, national, or regional levels. Ultimately, the experience demonstrates that effective international biosecurity policy is not solely a technical product but a process of diplomacy, communication, and sustained partnership.

James Paulley

Biorisk Manager AustralianCenter for Disease Preparedness
December 2021- present

Skills

- Biorisk management expert
- Experience in leading multidisciplinary teams in high-risk operations
- 15+ years in biorisk managmentleadership
- Recognized international expert in biorisk management and high containment laboratory operations
- Subject matter expert in regulatory compliance for high consequence pathogen use, storage and decontamination
- Microbial pathogenesis specialist
- International SME for bioconta

Education

- PhD / Microbiology and Immunology East Carolina University 2000 – 2007
- BS / Biology and Marine Science Coastal Carolina University 1996 – 2000

Zonal Decontamination Strategies for Large Scale Mixed Hazard Environments Using Enzymatic Indicators and Aerosolised Hydrogen Peroxide

Spatial decontamination is a cornerstone of laboratory biosafety, typically employing gaseous or vaporous agents in sealed areas for maintenance or emergencies. However, in high-containment facilities like the Australian Centre for Disease Preparedness (ACDP), standard methods are impractical for expansive, unsealed(able) spaces such as effluent treatment plants.

ACDP conducts diagnostics and research on diverse pathogens affecting animals, humans, aquatics, and the environment. The effluent treatment plant, covering approximately 10,000 cubic meters, collects and decontaminates liquid waste from all BSL-3 and BSL-4 laboratories and animal facilities, centralising hazards and amplifying the consequences of mechanical failures.

In early 2025, ACDP employed particle dynamic modelling to predict particle dispersal from three critical failure points in the effluent treatment plant, incorporating airflow patterns to designate contamination zones. The Biorisk Management Group then implemented a risk-based zonal strategy using aerosolised hydrogen peroxide and enzymatic indicators (EIs) to quantify efficacy in open areas under normal airflow.

Unlike biological indicators, EIs provide quantifiable log-reduction measurements (e.g., 10^2.5 to 10^9) as a measure of decontamination efficacy which were essential to making risk-based determinations for decontamination zones with appropriate safety margins. A quantifiable dilution of hydrogen peroxide efficacy was measured in open space with normal HVAC operation while achieving >10^5 efficacy in a target zone. The target zone aligned with a predicted contamination area from the particle dynamic models and gradients for safety margins beyond this target zone.

These findings enable targeted decontamination in non-laboratory settings, maximising efficacy in high-risk zones, enhancing staff safety, and minimising chemical use by avoiding broad, uniform applications unrelated to risk.

CURRICULUM VITAE

Silvia Antoniu

Academic title: PhD DVM

Professional postion

Superior counselor in the Institute of Diagnostic and Animal Health (IDAH),
Bucharest, Romania

Professional activities:

- Diagnostic in domains: bacteriology si micology in animals of company and economical interest
- Responsable with assurance of quality in the lab
- Research
- Deputy Officer of Bio-safety in IDAH
- Member in TC 52,53, 95, 106, 285 of Romanian Body for Standardization (ASRO) since 2023
- Member in ISO/TC 147 Water quality, ISO/TC 34 Food products, ISO/TC 190 Soil quality, ISO/TC 146 Air quality, ISO/TC 209 Cleanrooms and associated controlled environments
- Member of Romania Body for Accreditation (RENAR) since 2016
- Professional Certification issued by International Federation of Biosafety Associations (14 August 2025

Author and co-author of 58 scientific works.

A Model of Bio-Risk analysis in the facilities of the Institute of Diagnosis and Animal Health from Bucharest, Romania

The scope of this paper is to present a model of a bio-risk analysis in the facilities of Institute of Diagnosis and Animal Health (IDAH) from Bucharest, Romania, that is the national reference laboratory for diagnosis of animal diseases IDAH, when a new method of analysis with potentially infectious micro-organism was to be introduced in the lab activity, in order to assure all safety conditions for working in the lab.

The bio-risk analysis, the first step of bio-risk management, was performed in January 2024 for one of the facilities of the department of Bacteriology, Parasitology, Micology and Micotoxicology, when the new Standard Operational Procedure (SOP) was elaborated: SOP 19 Bacteriology "Isolation of methicillin resistant Staphylococcus aureus (MRSA)", in conformity with the European Union (EU) decision 2023/1017 for modifying of EU decision 2020/1729 concerning the monitoring of methicillin resistant Staphylococcus aureus in the fattening pigs.

The identified bio-risk was laboratory achieving infection (LAI).
For the analysis of this bio-risk, it was necessary to:

1. answer at the following question: WHAT?, WHO?, WHERE?, WHEN?, HOW?, related the agent properties, laboratory infrastructure, laboratory procedures, human factors, operation factors, environment and community factors,
2. establish a graphic representation of risk probability and consequences and calculate the impact of the risk as a product of multiplication between the probability and consequences in 2 situations: without and with measures of mitigation.
3. evaluation of risk as acceptable.

In the second step, we analyzed the existing mitigation measures in our organization and thought about another control measures according with hierarchy of 5 categories of risk mitigation measures from effectiveness point of view:
1. Risk elimination or substitution
2. Engineering controls
3. Administrative controls
4. Practices and procedures
5. Protective Personal Equipment.

The third step, we evaluated the performance, that means improving bio-risk management by recording, measuring and evaluating organizational actions and outcomes to reduce biorisk.

In conclusion, the combining of mitigation measures depends on the institution tools: costs, feasibility, management past concerns and, but not at least, any person that works in the lab.

Friday, 6 JUNE 2026

Break-outs

Break out 1: The Iceberg of Incident Reporting: From Concept to Practice

Clement Bijl (NIVIP, The Netherlands), Wendy Shell (AGES, Austria) and Adrian Worrall (United Kingdom)

Incident reports may greatly under-represent the true number of incidents, for example in healthcare settings by a factor of 10 or 20 (Hibbert et al., 2023; Shojania, 2008). Researchers recognise that the number of incidents recorded probably represents the "tip of the iceberg". Our model, The Iceberg of Incident Reporting, offers a practical framework for understanding and addressing this problem.

The model characterises six layers of incident recognition and visibility: from openly published information at the top, through reporting to national authorities, internal recording, and recognised-but-not-recorded incidents, down to "known unknowns" and "unknown unknowns" at the deepest levels. The model focuses specifically on the dimensions of visibility and recognition that existing frameworks do not address. Importantly, it works without requiring strict definitions of "incident", "hazard", or "accident", making it flexible and practical for routine use.

We invite attendees to try the tool and explore ways laboratory teams might use it in safety meetings. We will discuss how to create environments where incidents can be discussed openly and how to engage external parties in incident recognition.

Break out 2: Sharing Information about Incidents in Containment Facilities

Adrian Worrall (United Kingdom) and
Marian Blokpoel (London School of Hygiene and Tropical Medicine, United Kingdom)

Learning from safety incidents in high containment facilities is essential, but incident information is rarely shared outside organisational boundaries. Factors include security protocols, perceived reputational risk, and organisational culture. Fortunately, there are many associations, networks, and other groups for people working in high containment facilities, for example based on their country or region, research focus, or security level. They are valued by members because they foster good collegial relationships. This workshop explores how these existing networks can better support learning from incidents.

The aim is to identify practical, trust-based approaches for sharing lessons learned from incidents within and between high containment laboratory networks, and to highlight examples of effective models.

A short presentation will give an overview of groups and networks identified in a survey of EBSA members. The incident reporting systems of the Public Health Agency of Canada (LINC) and Belgium's SBB will be described. Structured roundtable discussions will then identify enablers, barriers, and promising practices.

Break out 3: Biosecurity Escape Room

Rik Bleijs and Mirjam Schaap (RIVM, The Netherlands)

Do you have what it takes to escape the biosecurity escape room? Do you want to explore biosecurity in a completely new way? Then join us in our fictive lab to learn about the biosecurity pillars while you solve the mystery!

Working with high-risk pathogens, high-risk material, and sensitive material entails various risks. Employees should be aware of these risks and the corresponding control measures that can be taken. This enables employees to help identify risks, remain vigilant and adhere to the rules. Employees with biosecurity awareness can assess potential dual-use risks, recognise abnormal situations and hold colleagues accountable for their behaviour.

There are many ways to raise biosecurity awareness. The approach can vary per target group in the organisation. For employees working in a laboratory, biosecurity should be included in the induction programme for new employees, and periodic attention should be paid to the security aspects of lab work. Awareness is important for all types of lab work and for all employees in a laboratory, not only for those working with high-risk material.

In the biosecurity escape room you will experience an interactive approach to increase your biosecurity awareness!.

Break out 4: EN 12469:2025 Biosafety Cabinets: New Requirements for Manufacturers, Users and Service Technicians

Thomas Hinrichs (Berner Safety, Germany) and Peter van 't Erve (Baker Company, The Netherlands)

For almost 25 years, the standard EN 12469 has defined the basic requirements for biological safety cabinets (BSCs). As an important achievement of European standardisation — and as a counterpart to the US standard NSF/ANSI 49 — it sets out performance criteria and suitable tests to ensure the required protective functions of a BSC. Devices classified as safe according to these specifications can — or rather must — be used in laboratories for handling (genetically modified) biological material based on an appropriate risk assessment. Compliance with EN 12469 guarantees robust containment to protect personnel and product.

Despite its general acceptance, the unclear structure, partly imprecise or complicated specifications, and above all the increased need for safety and ergonomics have made a revision of EN 12469 necessary. In July 2024, expert committees from various European countries presented a first public draft. This draft provides a reliable initial insight into the amended and additional requirements that BSCs will have to meet in the future.

This lecture will introduce the key improvements of the new standard, some of which are fundamental. While future BSCs will have to meet significantly higher performance requirements, they will be subject to less stringent design specifications. This is an exciting balancing act that not only poses challenges for manufacturers but also brings significant benefits for users.

Break out 5: Securing Knowledge, Advancing Science

Kevin R. Gamache (Texas A&M University, United States)
Balázs Antal Somogyi (University of Pécs, National Laboratory of Virolog, Hungary)

As life-science research becomes increasingly digital, collaborative, and globally distributed, biosafety and biosecurity must extend beyond biological materials to include sensitive knowledge, data, methods, and tacit know-how. Building on the audience's existing familiarity with biosafety, biosecurity, dual-use research, and intangible technology transfer, the presentation will examine how these domains intersect with knowledge and research security across the life-science research lifecycle. Practical examples from synthetic biology, pathogen research, cloud-based data sharing, visiting researcher arrangements, and international collaborations will illustrate where sensitive knowledge moves and how misuse, unauthorized transfer, or loss of trust can occur. The presentation will propose a proportionate, science-preserving approach built around project screening, knowledge-asset mapping, partner and access review, data governance, publication planning, and escalation pathways. It will highlight biosafety and biosecurity professionals as translators between policy, compliance, and laboratory practice, helping keep research open, responsible, trusted, and resilient for public health, innovation, and international cooperation across Europe.

Break out 6: ISO 35001 in Practice: Bridging Intent and Implementation

Toon De Kesel (Febris Biorisk Consult, Belgium) and
Heidi Auerswald (Instituto Zooprofilattico Sperimentale Dell'Abruzzo e de Molise, Italy)

ISO 35001:2019 provides a structured framework for biorisk management, built on the Plan–Do–Check–Act (PDCA) cycle and designed to integrate biosafety and biosecurity into a coherent management system. However, despite its increasing adoption, many institutions struggle to translate the standard into effective, operational practice. Implementation often results in fragmented approaches, driven by the complexity of establishing a consistent and practical risk assessment process. In addition, system elements are frequently managed in isolation, and training is equated with competence without verification of performance. Likewise, the lack of genuine commitment from top management is an implementation risk.

This breakout session brings together two complementary perspectives: the intent behind ISO 35001 as a standard, and the realities of its implementation across diverse laboratory settings. Using the PDCA cycle as a structural backbone, the session explores key gaps between design and practice.

Focusing on risk assessment, system integration through the different relevant biorisk elements, top management support, and competence and learning systems, the session highlights typical misinterpretations and their consequences. Each section concludes with practical, actionable strategies to support more effective implementation. Participants will leave with a clearer understanding of how to move from compliance to performance, and from documentation to decision-making in ISO 35001-based biorisk management systems.

Friday, 5 JUNE 2026

Session 5 Innovating Responsibly — Ethics, Behaviour, and Sustainability in Biorisk Management

Session Chair
Balázs Somogyi

Tatyana Novossiolova

Dr Tatyana Novossiolova is Senior Analyst with the Center for the Study of Democracy, Bulgaria. She is experienced in academic and policy research, project management, and training design and delivery. Her research focus is on the cross-cut between international law and security in the governance of emerging technologies (e.g. biotechnology, AI), CBRN security, and research security. Related topics on which she works include the role of the human factor in biosafety and biosecurity, AI and life sciences convergence, and risk communication and public engagement in health security. Tatyana has an established track record in the development of tailored training programmes and resources covering the strengthening of institutional frameworks for biosafety and biosecurity for different target audiences. Her training portfolio integrates innovative approaches, such as the use of active and blended learning methods to promote critical reflection and facilitate the practical application of concepts. She has published widely in academic and policy circles. She is a member of the International Federation of Biosafety Associations (IFBA) Board of Directors. She is also a non-residential research fellow with Biological Security Research Centre at London Metropolitan University, UK and a member of the Biosafety and Biosecurity Task Force of the Balkan Association for Vector-Borne Diseases (BAVBD)

The Future of Biosafety and Biosecurity Culture as Life Sciences and AI Technologies Converge

High-reliability organisations are capable of managing catastrophic risks within their routine operations without compromising the public trust. A robust institutional culture of biosafety and biosecurity is essential for the resilience of high-reliability organisations working in life sciences such as biomedical laboratories and research and innovation facilities. Rapid technological change in life sciences manifested in the digital transformation of research practices and workplaces offers tremendous benefits in terms of enhanced efficiency, precision, and analytical power. As life scientists take advantage of these opportunities, it is important that existing biosafety and biosecurity risk management frameworks are properly adjusted and calibrated so that they remain relevant and effective.

Compliance with biosafety and biosecurity standards and regulations requires a shared understanding what risks can occur within a facility, as well as a vibrant institutional system of written and unspoken rules how these risks can be prevented, and what mitigation measures should be adopted in case of an accident or incident.

Most conceptual models view a biosafety and biosecurity culture as a static phenomenon made up of tangible artefacts, e.g. institutional mission statements, standard operating procedures (SOP), codes of conduct, and training programmes. This presentation revisits existing conceptual models to provide a framework for approaching biosafety and biosecurity culture as a dynamic phenomenon which is nurtured and maintained through interactions. It identifies key enablers of the sustainability of risk management practices within institutions. It then reviews the role of new technologies, particularly AI-powered tools in supporting biosafety and biosecurity risk management and examines how the application of these tools impacts on established interactions that underpinned institutional cultures.

The proposed framework has implications for monitoring and assessing the performance of biosafety and biosecurity culture. More importantly, it offers a tool for understanding the impact of technological change on life science work cultures and can serve as a roadmap for adapting biosafety and biosecurity risk management approaches to the new realities brought about by increasing digitalisation, automation, and use of AI technologies.

Lisanne Terrie

Dr. Lisanne Terrie holds an MSc in Biomedical Sciences (Summa Cum Laude) from KU Leuven and obtained her PhD in 2024 with a doctoral thesis entitled “Tissue Engineering of Skeletal Muscle.” During her FWO-funded doctoral research, she addressed key challenges in skeletal muscle tissue engineering and gained international experience at ETH Zürich, the University of Münster, and Université de Lille. Alongside her PhD, she earned a second MSc in Health Care Management and Policy (Magna Cum Laude), strengthening her expertise at the intersection of science, healthcare, and regulatory frameworks.

She received several distinctions for academic excellence and science communication, including Best Master’s Thesis, Best Poster Award, and Best Presentation Award, and was nominated for the EOS Prize. She also supervised master’s students and led practical teaching sessions.

Dr. Terrie currently serves as Team Lead Biotech Regulatory at 3BIO, where she leads regulatory strategy and compliance within the biotechnology domain, guiding clients through complex legal frameworks.

Regulating Naked DNA in a Rapidly Evolving Biotechnological Landscape

Nucleic-acid-based technologies such as naked DNA, plasmids, mRNA and gene-editing systems are rapidly expanding in medical and veterinary applications. While these technologies allow for precise and often transient genetic alterations, they raise questions about how they fit within current regulatory frameworks for genetically modified organisms (GMOs). Regulatory differences have emerged between in vivo and in vitro applications, as well as between human and veterinary uses, further complicated by varying interpretations among European member states.

In the Netherlands, a precautionary interpretation places applications involving the introduction of naked DNA into human or animal cells within the scope of GMO legislation - even when genetic expression is temporary - creating a clear divergence from the approach adopted by most EU Member States. This presentation shares our findings of a study commissioned by the Dutch Ministry of Infrastructure and Water Management, assessing whether the current regulatory treatment of naked DNA remains adequate, proportionate and future-proof. The analysis draws on an in-depth review of European and national legislation, regulatory practice, scientific risk assessments and international comparisons.

The study confirms that the regulatory scope is driven more by legal definitions and techniques than by risk profiles, creating inconsistencies between similar technologies and applications. This also raises questions of mandate regarding which authority is responsible for specific safety aspects and the integration of health and environmental considerations. Four policy options are proposed to improve coherence, proportionality, and alignment with EU practice, supported by clearer interpretation and stronger inter-agency cooperation.

Miranda Smith

Dr Miranda Smith is a Chemical and Biological Weapons Researcher at the Stockholm International Peace Research Institute (SIPRI), in SIPRI's Weapons of Mass Destruction Programme. Her work focuses on nonproliferation and governance of biological and chemical weapons. Her experience spans biorisk management, dual-use research, and global frameworks to reduce risks from emerging biotechnologies. Prior to joining SIPRI, she held senior advisory roles with the U.S. government, including at USAID, the U.S. Department of Health and Human Services, and the Department of State. She has contributed to international coordination under the Biological Weapons Convention, World Health Organization, G7, G20, Asia-Pacific Economic Cooperation, and NATO.

Trained as a military pharmacist, Dr Smith has more than a decade of experience across the U.S. Government, including military service in the U.S. Air Force. She brings interdisciplinary expertise in public health, arms control, and crisis response to her research on chemical and biological risk mitigation. She is a certified Project Management Professional and IFBA-certified in Biorisk Management.

Use Cases for Emerging Technologies to Strengthen High-containment Laboratory Governance

High-containment laboratories (HCLs) are expanding worldwide as countries invest in infectious disease research and health security. These facilities are essential for developing vaccines, therapeutics and diagnostics, but their rapid growth has outpaced transparency

and consistent oversight. Confidence in compliance with the 1972 Biological Weapons Convention (BWC) is weakened by these variations in regulatory capacity and reporting.

Emerging technologies can help address these challenges. Artificial intelligence (AI) and distributed ledger technology (DLT) can strengthen national biosafety systems through enhanced data integrity, traceability and transparency in HCLs. Three use cases illustrate prospective applications: AI-enabled DNA screening to manage synthesis risks; safeguarding laboratory data and records with AI and DLT to improve accountability; and DLT-backed provenance tracking to monitor pathogen materials.

Embedded within national oversight frameworks, these tools could enhance transparency and collaboration through more standardized reporting. In this way they could reinforce biological weapons prohibition norms and build confidence in peaceful intent.

Friday, 5 JUNE 2026

Session 6 More Biorisk Management!

Session Chair
Adrian Ardelean

Leyma De Haro

Ph.D. Biomedical Sciences, RBP (ABSA)

Education:

- Ph.D. (Spring 2010), Biomedical Sciences (Molecular Genetics & Microbiology), University of New Mexico, Albuquerque, NM.
  Dissertation title: The Role of Metnase in DNA Replication Stress Response and DNA Repair. University Science Teaching Certificate in Biomedical Sciences (Spring 2010), University of New Mexico. Overall GPA 3.95
- B.S. 2004, Biochemistry (with Departmental Honors), California State University, Los Angeles, California. Honors thesis title: Extraction, Amplification, and Sequencing of Mitochondrial DNA from Ancient Urocyon littoralis Bones from the California Channel Islands. Overall GPA 3.5

Employment History

- Senior Scientist II (September 2024-present). Merrick & Co. Greenwood Village, CO (remote).
- Independent Biorisk Management Consultant (March 2019-present). Los Angeles, CA.
- Assistant Biosafety Officer (September 2022-September 2024). California Institute of Technology, Pasadena, CA.
- Senior Scientist - Global Chemical and Biological Security (January-September 2022). Sandia National Laboratory, Albuquerque, NM.
- Safety and Security Analyst - ES&H Internal Auditor (December 2019-January 2022). Sandia National Laboratory, Albuquerque, NM.

Relevant Skills:

- AI: expert in risk assessment for the use of AI in biotechnology.
- Biorisk management (biosafety & biosecurity): expert in biosafety & biosecurity principles, training, and conducting risk assessments nationally and internationally.
- Lab Inspections: 10 years' experience with laboratory inspections from OSHA, FDA, USDA, CLIA, Albuquerque City Environmental Health Department (I was the inspector), the New Mexico Department of Health (I was the inspector), & Pasadena Fire Department.
- BSL3: 2.5 years as a biosafety officer in a high containment SA public health laboratory. Conducted inspections, risk assessments, hands-on trainings, participated in decontamination procedures. Was part of the Ebola and Zika preparedness team and conducted outreach and preparedness assessment in the local healthcare facilities, including the VA hospital and clinical diagnostics laboratories throughout the state.
- IBC: 8 years' experience as IBC member, including as unaffiliated community member, as BSO member, and as chair (2 yrs).

Governing Autonomous Laboratory Systems: Biosafety and Biosecurity Risks of AI-Enabled Automation

The integration of artificial intelligence, robotics, and advanced automation into research laboratories is accelerating scientific discovery while fundamentally altering how experimental decisions are made. As laboratory systems gain greater autonomy, traditional biosafety and biosecurity frameworks, designed around human-directed workflows, face new, under-examined challenges. This presentation examines the emerging biosafety, biosecurity, and dual-use risks associated with AI-enabled autonomous laboratory systems, with a particular focus on environments handling biological, chemical, or otherwise hazardous materials. Drawing on a recent peer-reviewed risk assessment, the talk identifies key vulnerability domains, including system autonomy, data governance, cyberbiosecurity, insider risk, and the erosion of human-in-the-loop oversight. Rather than focusing on technological capability, the presentation emphasizes practical risk-mitigation strategies relevant to biosafety professionals, facility managers, and institutional oversight bodies. These include tiered experiment approval models, traceability and auditability of automated decisions, integration of dual-use risk assessment into experimental design, and the role of biosafety programs in governing autonomous research infrastructure.

Rachel Gamble

Rachel Gamble is the Director of Science & Technology at Pond and Company. She holds a Doctor of Public Health in Occupational and Environmental Health Sciences (concentration in epidemiology and disease control). She has over 20 years of experience and has previously held leadership roles as an Associate Director of Biosafety and Biosecurity at Merrick, and as the Director of Environmental Safety and the high containment/select agent research facility at Baylor College of Medicine (BCM). Additionally, she held concurrent academic appointments as Assistant Professor in BCM's Department of Molecular Virology and Microbiology and Adjunct Assistant Professor for the Department of Epidemiology, Human Genetics, and Environmental Sciences at the University of Texas Health Science Center School of Public Health.

Rachel holds multiple leadership roles within ABSA International, including ABSA Council Member, Editorial Board Member for Applied Biosafety Journal, Credentialing Evaluation Board Member, Scientific Planning Committee Member, and has been an instructor for ABSA's Risk Assessment course along with other pre-conference courses.

The Art of Measuring Prevention: Effective Biosafety Program Metrics for Communicating Value, Garnering Support, and Ensuring Compliance

Biosafety professionals play a critical role in protecting people, the environment, and research integrity, yet their work often goes unseen until something goes wrong. Communicating the value of biosafety programs to upper management and stakeholders can be challenging, particularly when success is defined by the absence of incidents. This presentation will explore strategies for developing and leveraging meaningful metrics to demonstrate the impact and effectiveness of biosafety programs.

We will discuss:

1. Identifying and tracking key performance indicators (KPIs) that reflect biosafety program goals and objectives
2. Using data visualization and storytelling to communicate complex information to non-technical stakeholders
3. Fostering a culture of continuous improvement through regular program assessment and feedback
4. Aligning biosafety program metrics with organizational priorities and strategic objectives

By focusing on proactive and predictive indicators, biosafety professionals can translate their work into compelling narratives that resonate with upper management, fostering program support and resources.

This talk aims to empower biosafety professionals to articulate their contributions, drive continuous improvement, and ultimately enhance the safety and success of their organizations.

Sherry S. Bohn

A leader with a strong background in environmental health and safety, with expertise in biosafety. Accustomed to challenges, with experience implementing strategic objectives for campus safety programs and ensuring compliance with regulations. Characterized by a learning mindset, individualization approach, analytical skills, harmonious nature, and input-driven work ethic.

Education

- MSL – University of Maryland Carey School of Law, Masters of Law. Baltimore, MD (May 2018)
- PhD – The Catholic University of America, Cell and Microbial Biology. Washington, DC (May 2008)
- BS – Marywood University, Biology & Communication Arts (Double Major). Scranton, PA (May 1998)
- MBA (In Progress) – University of Maryland Global Campus- 24 of 36 credits complete

Experience

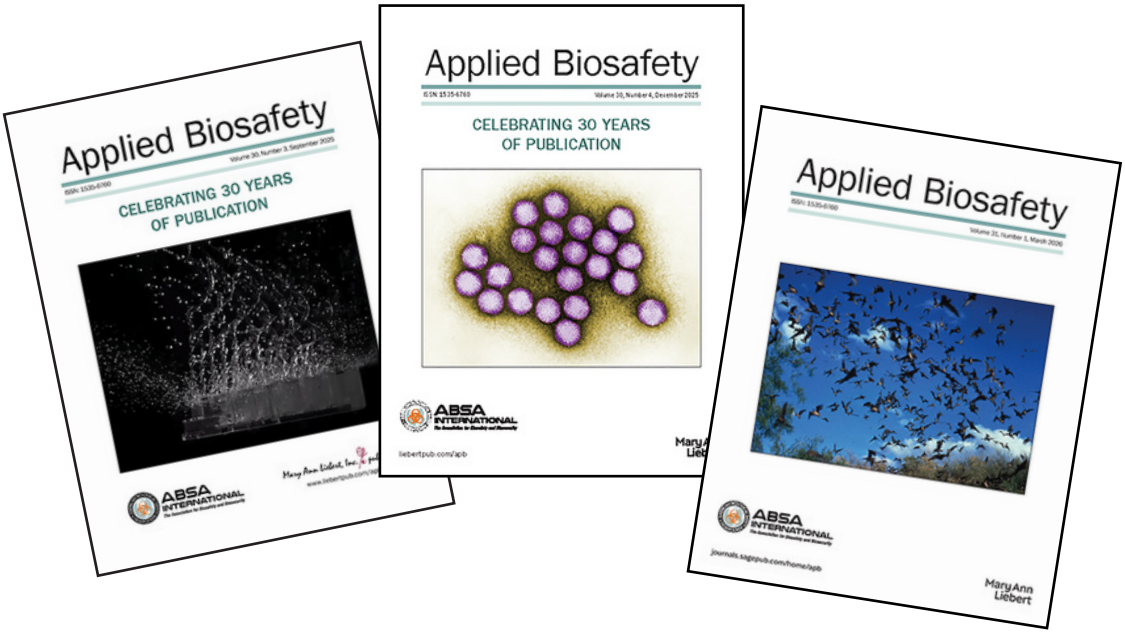
- Executive Director, Environmental Health & Safety - The University of Maryland, Baltimore – Baltimore, MD March 2024 - current
- Acting Director, Environmental Health & Safety - The University of Maryland, Baltimore – Baltimore, MD February 2023 – March 2024
- Associate Director, Environmental Health & Safety - The University of Maryland, Baltimore – Baltimore, MD August 2022 - February 2023
- Biosafety Manger (Biosafety Officer & Responsible Official) - The University of Maryland, College Park, MD September 2014 – August 2022
- Biosafety Officer - National Biodefense Analysis and Countermeasures Center, Frederick, MD 2013-2014
- Biosafety & Biosecurity Specialist - National Biodefense Analysis and Countermeasures Center, Frederick, MD 2009-2013

From Compliance to Connection: The SCARF Model in Action

Ever wondered why some safety conversations spark collaboration while others ignite resistance? The answer may lie in the brain. Join me for a lively exploration of David Rock's SCARF model—a neuroscience-based framework that explains how Status, Certainty, Autonomy, Relatedness, and Fairness shape human behavior. For over a decade, I've used these principles to turn compliance into connection and transform tense moments into trust-building opportunities. In this session, we'll unpack the science behind SCARF, discover why it matters for biosafety professionals around the globe, and explore practical strategies to apply it in real-world research settings. Expect personal stories, surprising insights, and actionable tips that will make your safety culture not just stronger—but smarter. Come ready to rethink how you lead, influence, and inspire in the lab and beyond!

Applied Biosafety, the peer-reviewed journal of ABSA International, has partnered with EBSA to produce a Special Issue on Biorisk Management: **Global Approaches and Practices**, guest-edited by EBSA President Pat Casey and EBSA Conference Programming Working Group Chair Marcel van Bergen, alongside colleagues from the United States. **The submission deadline is 1 March 2027** but accepted manuscripts will be published ahead of print online, shortly after acceptance.

The scope is broad — from genetic technologies and laboratory design to fieldwork biorisk and occupational health — and contributions from across the European biosafety community are warmly encouraged. If you are presenting a talk or poster in Bruges, please consider developing your work into a full manuscript for the special issue. It is an ideal way to extend the reach and impact of your conference contribution.



Poster Abstracts

A Risk Based Approach to Assessing Work with Proteins Involved in Neurodegenerative Diseases (PIND)

***Allison Liljedahl**, Genentech*
Andrea Pezda, Roche United States

Proteins involved in neurodegenerative diseases (PIND) like alpha-Synuclein, Beta-amyloid (Aβ), Tau, and TDP-43 (TAR DNA-binding protein 43) are studied to understand the pathogenesis of diseases such as Alzheimer's and Parkinson's. Misfolded or aggregated forms of these endogenous proteins are assumed to play a role in disease pathogenesis. While PIND are non-communicable and no human infection has been described, their mechanisms of action have similarities to the prion protein, and exposure prevention is warranted due to gaps in understanding.

An internal, global team developed a flow chart to support our scientists in the risk assessment of in vitro work with PIND with the goal of minimizing the risk of occupational exposure. The chart is applicable to sequences from mammalian genes and for R&D projects at lab scale and in vitro studies. The process starts with determining the specific hazard involved by determining the origin of the protein or peptide sequence, which type of PIND will be used (e.g., unaltered proteins/monomers, mutant or posttranslational modified forms, pre-formed fibrils (PFF), isolates from human CNS), and whether seeds will be generated or can form spontaneously.

Based on the hazard determination, work is categorized as Lower Hazard or Higher Hazard. Work identified as Lower Hazard requires standard microbiological practice and controls similar to BSL-1. Procedures with aerosolization or other exposure potential (e.g., seed amplification assay, lyophilisation, or use of sharps) require an additional assessment and, if identified as Higher Hazard, the application of enhanced controls similar to BSL-2 (CH, GER) or BSL-2+ (USA).

Biosafety-driven design and digital real-time management of mosquito colonies – Development of the VNL ‘Vector Lab’ in Hungary

Kornélia Kurucz(1,2), Vera Mxinwa1, Balázs Berta(1), Brigitta Zana1, Andrea Kovács-Valasek(1,2), Viktória Nyári(1), Roland Hetényi(1,3), Balázs A. Somogyi(1)

1 National Laboratory of Virology, Szentágothai Research Centre, University of Pécs, Ifjúság útja 20, 7624 Pécs, Hungary
2 Institute of Biology, Faculty of Sciences, University of Pécs, Ifjúság útja 6, 7624 Pécs, Hungary
3 RoLink Biotechnology Kft., 7211 Pécs, Hungary

The rapid emergence and spread of invasive mosquito species across Europe pose increasing challenges for public health, biodiversity, and biosafety. Laboratory-based mosquito research and colony maintenance are indispensable for understanding vector–pathogen–environment interactions; however, such activities require highly controlled conditions, strict biosecurity measures, and robust operational oversight to ensure the safety of personnel and the environment.

Here, we present the development of the VNL “Vector Lab” in Hungary, a newly established CL-3 mosquito research facility in the region, designed with biosafety and operational transparency as core principles.

Beyond conventional containment and biosecurity solutions, the laboratory integrates a custom-built, dashboard-based digital management system that enables real-time monitoring and control of mosquito colony maintenance and laboratory operations.

The digital dashboard consolidates key parameters related to colony status, environmental conditions, workflow progression, and safety-critical processes into a single, continuously updated interface. This approach supports traceability, rapid decision-making, and early risk detection, thereby strengthening both biosafety compliance and safe working practices. By reducing reliance on fragmented documentation and manual checks, the system enhances operational consistency while minimising human error.

Using the establishment of a local colony of the invasive Aedes albopictus as a model, we demonstrate how digital real-time management can be seamlessly integrated with physical containment, biosecurity protocols, and daily laboratory workflows. The VNL Vector Lab serves as a scalable model for future mosquito and vector laboratories, illustrating how digitalisation can actively contribute to biosafety, staff protection, and responsible vector research in Europe.

POSTER PROGRAMME - P03

National incident reporting systems for high containment laboratories in the UK, North America and Europe: A mapping study

Julia Bator, *Sylvia Han, Lale Rogers*

Laboratory-acquired infections and other biosafety incidents continue to occur in high-containment laboratories. Yet, their true frequency and causes remain difficult to assess due to inconsistent and fragmented reporting practices. Robust incident reporting systems are essential not only for local risk management but also for collective learning and global biosafety resilience. This study maps the existence and functionality of national incident reporting systems for high-containment laboratories across Europe and selected comparator countries.

We examined 31 countries, including all European Union Member States, the United Kingdom, the United States, Canada, and Switzerland. Using a newly developed Framework for Assessing Incident Reporting Systems (FAIRS), informed by World Health Organisation regulatory benchmarking tools and biosafety guidance, we assessed the legal requirements, institutional arrangements, and evidence of data utilisation. Data were collected through structured document searches and expert interviews with biosafety professionals in six countries.

All countries demonstrated comprehensive regulatory frameworks mandating incident reporting, reflecting widespread transposition of EU directives or equivalent domestic legislation. However, only two countries (6.5%) exhibited fully functional national incident reporting systems with evidence of systematic data collection and use. Canada demonstrated the most mature system, supported by a centralised electronic reporting platform and routine public reporting. Belgium showed partial implementation, with biosafety-specific data use but no national reporting system. The remaining countries displayed a pronounced gap between formal legal requirements and operational implementation.

These findings reveal a critical disconnect between regulation and practice in biosafety incident reporting. The absence of functional systems limits opportunities for learning from incidents, weakens prevention of recurrent failures, and undermines collective biosafety across an increasingly interconnected global laboratory landscape. Strengthening national reporting infrastructures and enabling meaningful data sharing represent urgent priorities for biosafety governance in Europe and beyond.

POSTER PROGRAMME - P04

GMP vs Biocontainment considerations in a BSL 2 facility

Alastair Logan

The Centre for Veterinary Vaccine Innovation and Manufacturing (CVIM) facility at The Pirbright Institute will be used for pilot vaccine development in GMP/GLP cleanroom suites with areas operating at a BSL 2 containment level. Misalignment between GMP and biosafety standards can lead to facilities that fail to fully comply with biosafety, compromising containment design, improper airflow management, and increasing risk of carry-over of contamination and release. This poster outlines the mitigations to address the conflict between GMP and biocontainment.

POSTER PROGRAMME - P05

Different biological protection approaches for different BSL3 lab settings

Annemieke Dinkla and Sandra van de Water

Wageningen Bioveterinary Research in Lelystad is a research institute dedicated to improving the health of livestock. The institute performs diagnostic testing for notifiable animal diseases on behalf of the government and conducts research on a wide range of pathogenic bacteria and viruses. Part of this work is carried out in human biosafety level 3 (hBSL-3) laboratories.
Within the institute, several hBSL-3 laboratories are in operation, each with distinct workflows and research practices. Some laboratories focus on a single pathogen, while others handle multiple pathogens. As a result, laboratory procedures and working methods differ between laboratories, reflecting the specific biosafety requirements and research activities associated with the pathogens studied.

POSTER PROGRAMME - P06

Small Drops, Big Risks? Investigating Aerosol Generation from Accidently Dropped Culture Plates

Hineshaben Patel[1], *Simon Parks*[1], *Thomas Pottage*[1]
[1]*Biosafety, Air and Water Microbiology Group, UK Health Security Agency, United Kingdom*

Laboratory-acquired infections continue to highlight the importance of understanding aerosol risks associated with routine microbiological work. Agar culture plates underpin most microbiological activities, including cultivation, isolation, enumeration, and characterisation of bacteria and fungi, and are therefore handled repeatedly in laboratories worldwide. Although many aerosol-generating procedures are well described, the potential for aerosol release following poor handling or accidental drops of culture plates remains poorly defined.

This study addressed this evidence gap by experimentally assessing viable aerosol generation following accidental drops of agar plates under conditions representative of routine laboratory practice. Experiments were conducted within a Class III microbiological safety cabinet using a clamp stand incorporating a drop mechanism set at approximately 1 m to simulate a realistic bench-to-floor drop height. Five surrogate microorganisms with diverse biological properties were used. Plate-drop scenarios reflected key stages of agar plate use, including freshly inoculated wet plates (prior to the inoculum being absorbed into the agar), plates with absorbed/dry inoculum prior to incubation, post-incubation plates, plates sealed in incubation bags (simulating best practice for contained use). Additional tests were also undertaken using damaged

bags with a small perforation to simulate conditions that would compromise containment. These tests were limited to Bacillus atrophaeus and Penicillium chrysogenum.

Viable airborne contamination was assessed using two air biological samplers: a slit-to-agar sampler and a six-stage Andersen cascade impactor (both 28.3L/min), with air sampling performed for 5 minutes for all organisms except post-incubation unbagged fungi plates, which were sampled for 10 seconds. Results were calculated in colony for units per cubic meters (cfu/m3) to normalize the data between runs.

Results from all activities will be reported, with the highest airborne recoveries occurred after post-incubation drops of unbagged P. chrysogenum (~2.4×10^4 CFU/m^3). Compromised bags produce low but measurable airborne recovery, whereas intact plate bags prevented detectable release. Andersen sampling showed peak recovery for unbagged post-incubation P. chrysogenum produced its highest airborne recovery in the 4th stage (2.1–3.3 µm; median ~1×10^4 CFU/m^3)

The results show that aerosols can be produced by accidents involving dropped and mishandling culture media plates, with the potential to both contaminate the laboratory and pose an aerosol exposure risk to laboratory staff. The bagging of plates prior to transport and incubation reduces aerosol release following plate- drop accidents..

POSTER PROGRAMME - P07

Validation of chemical inactivation of high-risk viruses

Ágota Ábrahám(1,2) , Krisztina Leiner(1,2), Gábor Kemenesi(1,2), Anett Kuczmog(1,2), Balázs A. Somogyi(1)

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Emerging infectious diseases continue to challenge human and animal health security at both regional and global levels. Rapid, safe, and reliable diagnostics are essential for outbreak response and routine surveillance, but the biosafety constraints of field and mobile laboratories make early risk reduction steps especially important. Sample inactivation at the point of collection is a key control measure when containment options are limited, because it can enable downstream processing under reduced protective measures and thereby speed up workflows without compromising safety.

Commercial lysis buffers and related chemical reagents are widely used as rapid inactivation solutions in molecular workflows, yet their effectiveness can differ across viruses and sample matrices. For high-risk viruses in particular, robust evidence is needed to ensure that inactivation claims translate to real-world performance. This is especially relevant for Risk Group 3–4 agents, where end-to-end processing typically requires substantial infrastructure and strict containment that can be difficult to maintain throughout a workflow in mobile settings.

Current guidance (e.g., CDC-based approaches) often allows inactivation validation using a representative virus for a given viral family, which can support the substitution of higher-risk agents with lower-risk (Risk Group 2) surrogates for method development and routine verification. This approach can accelerate testing and reduce logistical burdens, but it also highlights an important limitation: inactivation performance may not generalize perfectly across all viruses, strains, or matrices, and ideally inactivation should be demonstrated for each target virus in the relevant sample types.

In parallel to sample inactivation, chemical decontamination of work surfaces and infectious materials remains essential for both laboratory and field operations. Here, “what works” is similarly context-dependent, as effective contact time and performance can vary widely between detergents, disinfectants, and

pathogens. Together, these considerations underline the need for evidence-based, matrix-aware inactivation and decontamination strategies that can be translated into practical standard operating procedures.

This poster outlines a validation-focused framework for chemical inactivation of high-risk viruses and situates it within the operational realities of mobile and field laboratories. By aligning inactivation choices with pathogen risk, matrix effects, and realistic contact times, laboratories can design safer and faster workflows and develop SOPs that are both defensible and feasible in constrained environments.

Field-Ready Laboratories: A New Modular Tent Lab Design for Diagnostics and Research on Field

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Rapid access to laboratory capability is critical during outbreaks, disasters, and field investigations or sampling, yet traditional container-based solutions can be slow to deploy and difficult to adapt to changing operational needs. Type 1 and Type 2 mobile laboratories offer a key operational advantage through their rapid and flexible deployability compared to heavy container-based systems. At the same time, the integration of negative-pressure zones enables a significantly higher level of biosafety, ensuring controlled environments even in field conditions. Building on this operational logic, the University of Pécs, National Laboratory of Virology (VNL) and Lattice Shelter initiated a joint, modular tent-laboratory development that aims to combine fast deployability with enhanced biosafety features suitable for real field conditions.

The concept is built around functional separation and containment logic rather than a single “all-in-one” shelter. The modular architecture enables mission-specific configurations and can be deployed either linearly or as a clustered footprint depending on the site and workflow. Core units include a triage/intake space, a negative-pressure sample preparation area, a molecular diagnostic unit, a technical and power-supply unit, and an airlock/personnel changing unit (with optional office/support modules). This structure is designed to reduce cross-contamination risks by separating patient-facing processes from sample handling and analytical activities, while negative-pressure and HEPA-filtered workspaces support safer handling of higher-risk materials in the field.

Operationally, the platform targets autonomous field use, including independent power and air handling, as well as data connectivity for secure communication. Integrated digital solutions are intended to support real-time data collection and remote monitoring, improving situational awareness and decision-making for field teams and coordination centers. The design is therefore relevant not only for civilian public health deployments (on-site molecular and immunodiagnostics), but also for disaster response, humanitarian operations, and CBRN-related scenarios where controlled workflows and containment are essential.

This poster presents the joint development approach with VNL, the biosafety-driven design rationale, and the operational opportunities of a modular tent-based laboratory as a flexible platform for diagnostics and research in remote or temporary settings.

Measuring containment of simulated liquid spills, splashes, and sprays when using a biosafety cabinet

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Class II biosafety cabinets (BSC) are widely used in laboratories as containment devices to provide product, environmental, and personnel protection when working with infectious agents. BSCs are designed, certified, and extensively tested for aerosol containment, but liquid containment has not been well characterized. Laboratorians access the BSC work surface through an open front where incidents or poor technique may result in a loss of primary containment. To measure BSC liquid containment characteristics, simulated incidents were conducted in a Class II A2 BSC (Baker Company SG-403, 4ft, 8-inch sash height). Three incident types (1) spill: drop 96 well plate, (2) splash: vortex 15 mL tube, (3) spray: blockage in 5mL syringe/0.2µM filter were optimized then five replicates tested in center of BSC work surface by two laboratorians wearing designated personal protective equipment (PPE). Two liquid simulants (1:10 blue food color in deionized water; 10% glycerol/cornstarch/blue food color solution) and white absorbent paper were used to quantify droplets on BSC surfaces (excluding window, ceiling, grilles). Limit of detection (LOD) tests calibrated visible droplet size (0.5-10.0 µL) with image particle analysis (ImageJ v1.54k). Droplet dispersal was measured, photographed, and observed by researchers. Endpoints were enumeration of droplets on BSC surfaces, droplet distance from incident origin, container volume by weight lost, and contamination observed on PPE and floor. LOD varied between liquid simulants with all size droplets detected in 1:10 blue dye simulant, with decreased detection for smallest sizes of 10% glycerol simulant used for sprays (0.5 µL/54%; 1.0 µL/85%). Median droplet counts varied by incident type (1) spill: 228 (range 68-612), (2) splash: 665 (range18-3446), and (3) spray: 1724 (range 277-3734). Simulated sprays with least total fill volume (5 mL) had largest volume loss by weight from container ($\bar{x}$ = 2.58 g) and droplet distance from incident origin ($\bar{x}$ = 68.2 cm) in three incident types tested. PPE contamination was observed across all incident types for gloves (11/15, 73.3%) while it was observed with gown (7/15, 46.7%) in splash and spray incidents only. No contamination of safety glasses was found. Some incidents also resulted in loss of primary containment with floor contamination observed (5/15, 33.3%). Most BSC surfaces tested contained droplets from liquid incidents, including sash (9/15, 60%) and window (7/15, 46.7%) contamination observed. These quantitative data can be used to inform laboratory biosafety risk assessments and PPE practices for work in biosafety cabinets.

POSTER PROGRAMME - P10

The Role of External Parties in the Recognition and Reporting of Incidents

Adrian Worrall, Clement Bijl

This poster explains the potential for external parties to provide information to support the recognition and reporting of incidents in high containment facilities.
The authors' previous research identified the unique and important role of external parties' perspective in relation to laboratory incidents (Bijl and Worrall, 2025). External parties such as equipment maintenance contractors, waste disposal services and visiting researchers can play a surprisingly important role in incident recognition. Their observations are valuable because they increase the total number of observations being made and bring a different, often expert, perspective, potentially identifying problems or solutions that internal staff might miss. External parties may also raise questions about responsibility for incident reporting and they may draw on experience from other sites.

The poster shows various types of external parties working on or with biohazard materials or equipment, e.g. air filtration systems with Hepa filters, a wastewater treatment plant, biohazard containers and external researchers.

The authors will use the poster to invite conference delegates to share information about incidents that involved external parties or where external parties provided or could provide helpful information.

POSTER PROGRAMME - P11

Benchmarking Facilities to Establish Sustainable Laboratory Programming, Design, Construction and Operations in Low and Middle Income Countries

Suzette de Leon

Mouth pipetting was historically used as a laboratory technique to transfer liquids, particularly in procedures requiring fine suction control for handling minute sample volumes. This method typically involved a glass pipette, with or without rubber tubing, relying on the operator to generate suction manually.
However, the significant risks associated with mouth pipetting, including accidental ingestion, inhalation of hazardous agents, and laboratory-acquired infections led to its global prohibition by the 1970s. International standards and guidelines, including the Bloodborne Pathogens Standard (29 CFR 1910.1030), CDC laboratory biosafety guidance, and the Biosafety in Microbiological and Biomedical Laboratories (BMBL), explicitly prohibit this practice.
At the National University of Singapore (NUS), this prohibition is reinforced in the NUS Laboratory Biorisk Management Manual, which mandates the use of mechanical pipetting aids and explicitly disallows mouth pipetting.
However, over the years, the NUS Institutional Biosafety Committee (IBC) began receiving several waiver requests from research groups seeking exemption for use in the transferring and washing of mouse follicles/oocytes/embryos/zygotes. These requests were reviewed on a case-by-case basis, and approvals were granted under strictly controlled conditions with defined risk mitigation measures.
This presentation outlines the NUS IBC's approach to evaluate such exemption requests, including site inspections, the risk assessment review, justification criteria, and control measures implemented to ensure safety while accommodating specific research needs. It will provide an insight on the NUS IBC's governance framework and how it evolved over time.

POSTER PROGRAMME - P12

Benchmarking Facilities to Establish Sustainable Laboratory Programming, Design, Construction and Operations in Low and Middle Income Countries

Sandy Ellis (Pond and Company), Gilles Tremblay (Pond and Company)

Pond and Company and AFMS International were appointed by Global Affairs Canada to carry out "a deep dive" into benchmarking and fact finding of laboratories within LMIC. The project evaluated current diagnostic laboratories in SE Asia, East Africa and North Africa to understand the operational and maintenance challenges. The evaluation focused on identifying and analysing the systems, components, and conceptual frameworks that define the foundational principles of biocontainment laboratory operations

POSTER PROGRAMME - P13

Behind–the-Scenes of the African Swine Fever Free Meat Export Agreement on Trading (ASFree M.E.A.T.) Project: Biosafety Challenges in Achieving ASF-Free Trade (Part One)

Silvia Pavone, Maria Serena Beato, Clara Montagnin, Giulia Costantino, A. Fulmini, Michela Pela, Cristina Casciari, Silvia Cibotti, Andrea Brutti, Luca Nelli, Monica Giammarioli, Silva Costarelli and F. Feliziani

African Swine Fever Virus (ASFV) is a highly contagious and lethal virus affecting both domestic and wild pigs, leading to significant economic losses worldwide. In the current epidemiological scenario, with ongoing outbreaks in several countries, including Italy, it is crucial to promote research and develop new strategies to enable safe trade. The project African Swine Fever Free Meet Export Agreement on Trading (ASFree M.e.a.t.) project aims to assess the persistence of ASFV in Italian pork products and investigate whether High Pressure Processing (HPP), a common method used to inactivate Salmonella spp. and Listeria spp. in pork products, can ensure their safety as commodities.

The results of this project could lay the groundwork for international negotiations to reopen markets currently closed due to the presence of ASF in Italy. To determine the persistence of viable ASFV in fermented products (salami) and in whole pork cuts undergoing short-, medium-, or long-term curing (i.e. coppa, guanciale, bacon, raw ham), the project was structured into two main work packages (WPs):

- WP1: Production of six selected types of salami, artificially contaminated with ASFV, to obtain preliminary data on virus persistence during and after curing, as well as the efficacy of HPP.
- WP2: Production of salami and other cured pork products using meat from pigs experimentally infected with ASFV genotype II, currently circulating in Europe and Asia since 2007, to better mimic field conditions

At the time of writing, four types of salami were artificially contaminated and treated with HPP at Stazione Sperimentale Industria Conserve Alimentari – Research Foundation (SSICA) in Parma. Virus detection by PCR and virus isolation pre- and post-HPP were completed for all product types. In vitro assessment of viable ASFV persistence in fermented products was completed, whereas in vivo assessment is currently ongoing (WP1). Activities under WP2 have not yet been initiated.

This abstract focuses on the main biosafety challenges encountered during WP1.

The primary biosafety issues in WP1 included:

1. Structural and workflow modifications of the BSL-3 facility to establish an experimental salami producti-

on unit within the Italian National Reference Laboratory for Swine Fevers (CEREP);
2. Involvement of external personnel specialized in salami production, required for the preparation of ASFV-contaminated salami within the BSL-3;
3. Transport of ASFV-contaminated salami to the HPP treatment site.

To address these challenges, specific risk assessments and tailored biosafety measures were implemented:
Regarding Point 1: A dedicated BSL-3 room in animal facility area was equipped with cold storage units for salami curing. The necropsy room was adapted for salami preparation (mixing and stuffing), and a small refrigeration unit was used for the initial drying phase. To operate the industrial mixer, electrical modifications were made to provide 380V voltage in the necropsy area.
Regarding Point 2: External personnel received tailored biosafety training prior to entering the BSL-3 facility. Training topics included ASFV hazard characteristics, exposure prevention, biosafety procedures (donning and doffing PPE, mandatory shower on exit, 48-hour ban on contact with suids, etc.), and emergency response (e.g., spill management). Personnel signed specific access agreements and logged each BSL-3 entry, detailing their identity, date, time, and purpose.
Regarding Point 3: A certified Category A transport (UN2900, infectious substance affecting animals only) was arranged. Triple packaging was used used following the packing instruction P620 described in "Agreement concerning the International Carriage of Dangerous Goods by Road" (ADR): salami were cut in half; one portion of each was vacuum-sealed (considered the first packaging), placed in hermetically sealed transparent bags, packed into certified secondary containers, and finally enclosed in certified external boxes. An IZSUM internal transport service with an ADR license and a vehicle equipped according to ADR safety standards was implemented. Additionally, HPP Research Foundation staff were trained in sample reception, handling, environmental decontamination, equipment sanitation, and repackaging of HPP-treated salami for return to the BSL-3 facility at CEREP.

This project represents a complex challenge in terms of organizational, structural, and biosafety requirements. The most critical issue was the lack of reliable commercial options for Category A transport, mainly due to limited awareness of ADR regulations among commercial providers and consequently inadequacy of the packaging solutions offered by suppliers. The implementation of an internal authorised transport for infectious materials (A category) was therefore pivotal for the project activities. Thanks to the strong collaboration among project partners and the dedicated efforts of all involved personnel, the biosafety challenges of WP1 were effectively addressed, enabling the generation of promising preliminary data on the inactivation of ASFV through curing and HPP treatments in Italian pork products.

POSTER PROGRAMME - P14

BSL-3 facility for feed and food analysis at Wageningen Food Safety Research: A Call for Community Exchange

René Dirks, Margriet Hokken, Wendy Jansen Holleboom, Kimberley van Kessel, Nathalie te Loeke, Geert Stoopen, Nils Sosef & Tineke Papavoine

Wageningen Food Safety Research (WFSR) serves as the official control and emergency laboratory for the government for food and feed analysis in the Netherlands. A substantial part of responsibilities involves microbiological diagnostics with roughly 60000 analyses in 20000 samples each year.

High-risk pathogens (amongst which antimicrobial resistant ones) relevant to food and feed systems represent an increasing concern for public health and food security. To strengthen research and analysis capacity in this area, WFSR is in the process of designing and constructing a new Biosafety Level 3 (BSL-3) facility dedicated to high-risk pathogens relevant to the food and feed chain. The facility will house two BSL-3 laboratories designed to support research on bacteria, viruses, and fungi with elevated biosafety requirements.

Planned research activities will include pathogen detection and characterization, infectivity studies, and investigations into antimicrobial resistance.

This poster presents the concept, design considerations and envisioned capabilities of the new BSL-3 facility. We aim to foster dialogue with the biosafety community to integrate best practices and lessons learned from existing high-containment laboratories. We invite colleagues to share their experiences and perspectives on procedural, technical and organizational aspects of BSL-3 facilities to inform safe, efficient, and practical solutions for high-containment laboratories.

POSTER PROGRAMME - P15

Fumigation alternatives in high containment research laboratories; validation in an academic setting.

Magdalena K. Bielecka and Marian Blokpoel

We evaluated whether vapourised hydrogen peroxide (VHP) decontamination could be used as an alternative to formalin (formaldehyde) fumigation for the disinfection or sterilisation of whole rooms and microbiological safety cabinets (MSCs) in an academic setting, with particular focus on high-containment laboratories.

We also describe an alternative validation approach to the standard stainless steel disc method. This method is more practical for individual laboratories operating within academic institutions, where compliance with UK regulatory requirements is necessary.
Room and MSC cabinet decontamination validations were performed using several different devices. For experiments conducted in Containment Level 3 (CL3) laboratories, the hazard group 2 (HG2) organism Mycobacteroides abscessus (formerly Mycobacterium abscessus) was used as the model organism. Additional testing was carried out using the Mycobacterium bovis Bacillus Calmette–Guérin (BCG) strain.

Not all devices tested performed as expected. However, for those that functioned effectively, we observed greater than a 6-log reduction in M. abscessus during both room and MSC cabinet VHP decontamination. BCG levels were also substantially reduced in both cases. In all experimental setups, both positive and negative controls of chemical and biological indicators functioned as expected.

As a proof of concept, we also assessed the effect of VHP room decontamination on the Mycobacterium tuberculosis H37Rv ΔleuDΔpanCD auxotroph mutant, which serves as a safe alternative to the wild-type hazard group 3 (HG3) M. tuberculosis strain. Following treatment, a substantial reduction in colony-forming units (CFUs) was observed.

In summary, device performance varied, with some systems appearing to be at an early prototype development stage. Overall, our findings indicate that VHP decontamination can serve as an effective alternative to formaldehyde fumigation for the elimination of pathogens, including HG3 mycobacteria, in academic laboratory settings.

Virtual Reality as a Training Tool for Biosafety and Biosecurity in High-Containment Laboratory Environments

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Strengthening biosafety and biosecurity competencies among laboratory professionals is essential for the safe management of high-consequence pathogens and for enhancing the preparedness of the whole diagnostic system toward emerging and transboundary diseases. Training in high-containment laboratory environments (e.g., BSL-3) is often limited by logistical constraints, safety considerations, and restricted access to facilities. Innovative educational approaches are therefore needed to complement conventional theoretical and hands-on training.

In the framework of capacity-building activities carried on Rift Valley Fever (RVF), Istituto Zooprofilattico Sperimentale dell'Abruzzo e del Molise "G. Caporale" (IZS-Teramo), in its remit as EU reference laboratory for RVF, in collaboration with the EUFMD (a commission of FAO), organised two laboratory training courses aiming at strengthening the diagnostic and biosafety competencies of laboratory professionals from the European and neighbouring countries. The training programme combined lectures, supervised laboratory practice, and simulation-based learning, with a specific focus on biosafety, biosecurity, and molecular diagnostics in high-containment laboratory settings.

As part of the programme, a Virtual Reality (VR) module was introduced as a complementary educational tool to support experiential learning. Through immersive simulation, participants were able to explore the layout and the workflow of a BSL-3 laboratory environment, visualise biosafety procedures, and practice the correct sequencing of operational steps, including movement between the different controlled areas and the adherence to the containment protocols.

Preliminary evaluation collected through post-training evaluation forms indicated a high level of acceptance of the VR approach. Participants reported that the immersive experience of the VR allowed them to experience efficiently the laboratory workflows and correct behaviours in compliance with the biosafety principles, particularly for those lab workers with limited prior experiences on high-containment facilities. The VR module was perceived as a useful preparatory and reinforcement tool for practical laboratory sessions. These preliminary findings suggest that VR can represent an effective complement to traditional training, enhancing situational awareness and procedural understanding while maintaining high safety standards. Further evaluation, and middle terms follow up, with larger participant groups will be necessary to assess its impact on learning outcomes and its potential scalability for international biosafety training programmes.

Pilot Fumigation Decontamination of a Pass-Through Room Using Chlorine Dioxide in a High-Containment Laboratory

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In high-containment biosafety laboratories, annual maintenance of containment systems and critical equipment is essential and requires validated pre-maintenance decontamination of target areas and items. Chlorine dioxide (ClO_2) is a residue-free fumigant with broad-spectrum microbicidal activity, including against bacterial spores, and is increasingly used as an alternative to formaldehyde for facility decontamination.

We conducted a pilot ClO_2 fumigation decontamination of a pass-through room used for material transfer into a biosafety laboratory and evaluated operational feasibility and decontamination performance. ClO_2 gas was generated using Oxider HFT(CLO2 Lab, Co., Ltd., Nishinomiya, Japan), a water-activated reagent.

The pass-through room (approximately 10 m^3) was equipped with two airtight doors and supply/exhaust vents connected to HEPA filtration. Acceptance criteria were defined as 60–70% relative humidity and a cumulative exposure of ≥720 ppm·h. Process verification included chemical indicators and biological indicators; post-fumigation aeration was performed using the facility air-conditioning and ventilation system.

Using two reagent packs, the peak ClO_2 concentration exceeded 300 ppm and remained stable, achieving the target cumulative exposure (≥720 ppm·h) within 3 hours. All biological indicator cultures were negative, confirming successful decontamination under the predefined acceptance criteria. The complete workflow—from setup through aeration—was finished within a single working day, demonstrating operational practicality. Given the expected frequency of decontamination for pass-through rooms in high-containment settings, this simplified ClO_2 fumigation approach provides a robust, implementable option for small-room decontamination within biosafety laboratory operations.

Understanding Strategic Assumptions in Biosecurity Philanthropy

Arthur Burston, Hana Kameyama, Megan Hooi Yan Yi, Hina Shinagawa, Sylvia Han

This poster examines the priorities, cruxes, and systemic limitations of Coefficient Giving and Sentinel Bio, the two dominant philanthropic funders addressing Global Catastrophic Biological Risks (GCBRs). Despite representing the largest civil society funding effort in the Global North for biosecurity, independent public discussion about these organisations' strategies has remained largely silent, leading these grantmakers to miss out on the benefits of public scrutiny and clarity for prospective donors.

Using novel insights from insiders and internal documentation, our contribution intends to break this silence; first by revealing their distinct strategic priorities: Sentinel Bio focuses on DNA synthesis screening and AI x Bio safeguards, while Coefficient Giving pursues four pillars of pandemic preparedness, including PPE, biohardening, early detection, and medical countermeasures, as well as fieldbuilding in general. Second, we identify key cruxes that we must accept for each argument to work. And finally, we highlight systemic limitations of the philanthropic model. These are both structural constraints, and unaddressed but essential parts of current plans, for example, the ability of grantmakers to work with government. By making these explicit and legible, we aim to foster the public conversation this field currently lacks, enable more evidence-driven donor decisions and the further refinement of biosecurity strategy.

Vaporized hydrogen peroxide sterilization of powered air-purifying respirators: Efficacy and safety assessmen

Yeerzati Tuluhongtay, Wenjun He, Kun Cai, Weifang Han, Sheng Zhang, Jun Liu, Wenwen Lei, Zongxing Zhang, Jiancheng Qi, Guizhen Wu.

The COVID-19 pandemic increased demand for personal protective equipment, necessitating exploration of reprocessing methods. This study evaluates the efficacy and safety of vaporized hydrogen peroxide (VHP) sterilization for potential reuse of three powered air purifying respirator (PAPR) brands (3 M, Kebiao, Honeywell). Geobacillus stearothermophilus spores (ATCC 7953) served as biological indicators, while performance parameters (filtration, airflow, battery) and material integrity were monitored throughout 60 cycles, with H2O2 residual concentrations measured after 30 cycles. VHP achieved 100 % sterilization efficacy under both unloaded (48/48 biological indicators) and fully-loaded (132/132 biological indicators) conditions, demonstrating complete microbial inactivation across all sampling sites. However, brand-specific sterilization varied across operational conditions. 3 M units achieved complete sterilization in respiratory conduits when powered off but showed reduced filter efficacy. Kebiao units demonstrated complete sterilization when powered off but reduced efficacy during operation at internal filtration sites. Honeywell units with activated carbon showed poor VHP compatibility, while non-activated carbon units performed better when powered off. After 60 cycles, all PAPRs maintained filtration efficiency > 99.97 % and airflow rates > 120 L/min, with functional battery performance. H2O2 residual concentrations significantly exceeded safety thresholds (<1 ppm): 3.2 (2.0,4.6) ppm for 3 M, 6.1 (4.3,7.4) ppm for Kebiao, and 6.5 (4.1,8.2) ppm for Honeywell units, with 3 M showing significantly lower residuals ($P < 0.05$). This study provides critical evidence supporting VHP as a promising approach for PAPR sterilization. However, brand-specific protocols and extended ventilation procedures are required to ensure effective sterilization and reduce H2O2 residues to safe level.

Biosafety on a Regional Path: the First Year of the BAVBD Biosafety Task Force

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The Balkan Association for Vector-Borne Diseases (BAVBD) is a regional scientific and professional association that connects experts working on vector-borne diseases and related laboratory and public health challenges across the Balkans and neighbouring countries. Its membership and activities bring together partners from multiple institutions in the region, including organisations from 9 countries.

To strengthen practical biosafety capacity in this diverse landscape, the BAVBD Biosafety Task Force was established to provide a shared regional platform for biosafety support, training and alignment. The Task Force's published objectives include building recurring biosafety and Good Microbiological Practice and Procedure (GMPP) training and workshops for member institutions.

In its first year, the Task Force has grown rapidly from an idea into an active regional actor. Beyond ad hoc, case-based training, BAVBD's model supports members through task-force consultation and problem solving when professional challenges arise. The network has already delivered multiple in-person capacity-building activities, including the "Protecting Biotechnology and Genetic Data: Best Practices Workshop" in Novi Sad on 30 May 2025, which brought together experts and institutional leaders from the region. A major event was 3rd Annual Meeting of Balkan Association for Vector-Borne Diseases with Biosafety workshop (2025 November, Palic, Serbia)

International links are also expanding. BAVBD and EBSA have signed a strategic partnership agreement to support joint activities and coordinated action in the region. In addition, BAVBD representatives presented their regional biosafety work at ABSA and initiated collaboration discussions to enable regional trainings and workshops with broader international support.

Next steps include developing an inter-institutional, harmonised GMPP package that can serve as a shared baseline for participating laboratories, launching an annual cycle of conferences and workshops, and finalising a basic biosafety webinar series focused on lessons learned, tabletop exercises and real-world operational questions raised by member institutions

POSTER PROGRAMME - P21

The High-Containment Laboratory (HCL) Program at University of Pécs, National Laboratory of Virology

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University of Pécs, National Laboratory of Virology (VNL) has established a High-Containment Laboratory (HCL) Program in response to growing national needs and increasing international demand for reliable BSL-3 and BSL-4 capability. The program is designed as a practical package that supports safe operations, competent staff, and continuous improvement for organizations working in high-containment environments.

A core element is an intensive, internationally recognized HCL training course covering key BSL-3/4 topics. So far, more than 40 participants from 8 countries have completed the training. The course is not tied to one specific laboratory. Instead, it provides a broad and structured overview of what high-containment work requires in practice. It combines theory with hands-on learning and uses multiple tabletop exercises (TTXs), simulations, and realistic scenarios to strengthen decision-making and safe behaviour, not only procedural compliance.

The second element is consultation for HCL organizations. VNL supports partners by sharing practical experience and common pitfalls that are often difficult to learn without costly trial-and-error. Consultation can include protocol and SOP development, operational workflows, and infrastructure-related topics, including support during laboratory planning and design.

A third pillar is ISO and management system support. VNL has strong experience in developing and operating management systems and can help other organizations choose, tailor, and improve systems that fit their specific scope, with a focus on workable solutions rather than "paper compliance."

Because the HCL community is small and often closed, VNL also focuses on open knowledge sharing. VNL regularly publishes short biosafety-focused materials on multiple platforms and is finalizing a basic biosafety webinar series co-developed with BAVBD. The series is built around lessons learned, tabletop exercise thinking, and real operational questions raised by laboratories.

Finally, the VNL HCL Program is connected internationally through active cooperation with relevant organizations and institutions. These partnerships support joint workshops, projects, and the development of a more harmonized regional training pathway for HCL laboratories.

This poster presents the structure of the VNL HCL Program, early implementation experience, and additional opportunities the program can offer to partner organizations and the wider regional biosafety community.

POSTER PROGRAMME - P22

From Biosafety to Research Security: A Collaborative Pairing Program for BAVBD Members in Southeast Europe

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Biosafety protects people and the environment from accidental exposure, and biosecurity reduces the risk of intentional misuse of biological materials. Research security adds a third, increasingly critical layer: protecting sensitive research, data, know-how, and partnerships from theft, misuse, and dual-use exploitation. In practice, strong biosafety and biosecurity can still be undermined if valuable research outputs, biological insights, or enabling technologies are transferred inappropriately, manipulated through covert influence, or misappropriated for harmful purposes. Sandia National Laboratories defines research security as safeguarding the research enterprise against misappropriation, research integrity violations, and foreign interference. This perspective also aligns with the U.S. Department of State's Biosecurity Engagement Program (BEP) goal of reducing biological threats by limiting malicious access to biological expertise, materials, and equipment that could be misused.

To address this need in a practical, capacity-building format, Sandia National Laboratories, in collaboration with the U.S. Department of State BEP, is launching a Research Security Collaborative Pairing Program for members of the Balkan Association for Vector-borne Diseases (BAVBD) from Serbia, Hungary, Bulgaria, and Romania. The program aims to build foundational knowledge, expand trusted professional networks, and support ethical and secure research practices across the region.

The initiative follows a phased approach. First, remote webinars establish a shared baseline on research security concepts and common risk patterns relevant to life science organizations. Next, participants are paired with research security specialists from the United States and Western Europe for structured expert-to-expert exchange, practical mentoring, and context-specific problem solving. Finally, participants develop small collaborative outputs focused on real challenges faced by research organizations, such as biotechnology-related dual-use risks, the impact of artificial intelligence on research security, and intellectual property theft. The program will culminate in participant presentations at the BAVBD annual meeting in November 2026.

Overall, the program is designed to make research security understandable and usable for laboratories and research teams by translating broad security concerns into concrete, institution-level practices that complement existing biosafety and biosecurity systems.

POSTER PROGRAMME - P23

Chemical Compatibility and ATEX: The Critical Link in Biosafety Laboratory Environments

Ubah Cabdalla, Jaspreet Chana

Biosafety laboratories routinely handle flammable solvents, gases and reactive chemicals alongside biological agents, yet chemical compatibility and explosive atmosphere risks are often addressed separately from biosafety management. This separation can leave critical gaps in laboratory design, storage arrangements and operational controls.

This poster explores the crossover between chemical compatibility, flammable substance management and ATEX requirements within laboratories operating under biosafety constraints. Using practical laboratory scenarios, it highlights how incompatible chemical storage, inadequate segregation, ventilation limitations or inappropriate equipment selection can lead to the formation of explosive atmospheres, with direct implications for personnel safety and containment integrity.

The poster introduces how ATEX principles such as hazardous area identification, ignition source control and equipment suitability, apply in bioscience and research laboratories, where space, containment and operational flexibility are often constrained by biosafety requirements. Emphasis is placed on integrating these considerations into laboratory protocols rather than treating them as standalone regulatory exercises.

By focusing on the link between chemical hazards and biosafety-driven laboratory operation, this poster aims to raise awareness of why chemical compatibility and ATEX should be at the forefront of laboratory safety thinking, supporting safer research environments without compromising biosafety objectives

POSTER PROGRAMME - P24

Who Tests the Testers? The Mental Health in Laboratory Personnel

Balazs Antal Somogyi, University of Pécs, National Laboratory of Virology, Hungary

This proposal and topic is a common work with Péter Szabó (University of Pécs, National Laboratory of Virology)

Behind every accurate result and safely handled sample is a person working in an environment that demands sustained attention, strict procedures, and little tolerance for error. During and after the COVID-19 pandemic, a growing body of research assessed mental health outcomes in laboratory staff, yet reported estimates vary widely across settings, making it difficult to understand the true burden and what drives it. We conducted a systematic review and meta-analysis to quantify depression, anxiety, stress, and burnout among employed laboratory personnel working in real-world laboratory environments, and to compare key outcomes with other healthcare worker groups where data allowed. PubMed, Embase, Web of Science, Scopus, and Ovid MEDLINE were last searched on September 1, 2024. We included peer-reviewed English-language studies published from 2019 to 2024 that reported psychological outcomes in laboratory staff. Cross-sectional human-factors studies were appraised using the Joanna Briggs Institute checklist. We pooled odds ratios and symptom prevalence using random-effects meta-analysis (REML with Knapp–Hartung adjustment), assessed heterogeneity with Q and I^2, and explored small-study effects using funnel plots and Egger's tests. In parallel, we performed an inductive thematic analysis to identify recurring contextual factors discussed in the psychological literature.

Across 23 eligible studies that compared laboratory personnel with other healthcare worker groups, labora-

tory staff showed significantly higher odds of depression (6 studies, N = 3,516; OR 2.27, 95% CI 1.13–4.56) and anxiety (6 studies, N = 3,508; OR 2.47, 95% CI 1.29–4.75). Evidence for stress was inconclusive (5 studies, N = 353; OR 1.84, 95% CI 0.91–3.70). Pooled prevalence estimates were high but highly variable across contexts: stress 0.64 (7 studies, N = 7,728; 95% CI 0.29–0.89), depression 0.44 (9 studies, N = 6,308; 95% CI 0.24–0.66), anxiety 0.51 (10 studies, N = 10,921; 95% CI 0.31–0.70), and burnout 0.67 (N = 13,890; 95% CI 0.13–0.97). Heterogeneity for prevalence estimates was extreme ($I^2 \approx 1.00$), indicating substantial differences between settings. The thematic synthesis further highlighted leadership as a recurring cross-cutting factor linked to psychological outcomes, suggesting that team climate and management practices may shape both wellbeing and safety-relevant behavior.

Overall, the evidence indicates that laboratory personnel face higher odds of depression and anxiety than other healthcare worker groups, while the wide spread of prevalence estimates points to strong setting-level drivers of burden. Future research should move beyond describing symptom rates to testing which modifiable workplace factors track changes in mental health and safety-critical performance, alongside strengthening leadership capability in occupational psychology within laboratory organizations.

What We Don’t Know We Don’t Know: Mapping Regulatory Gaps in Laboratory Work (A BAVBD Project)

Balazs Somogyi, University of Pécs, National Laboratory of Virology, Hungary

Just as in research and development, international and regional collaboration and the professional networks behind it are essential in biosafety and biosecurity. In practice, however, substantial differences still exist between countries and regions, often even within the European Union, despite widely available standardized laboratory protocols and guidance. These differences can affect laboratory and diagnostic workflows, sample transport, reporting obligations, and even basic terms and definitions.

Such gaps often become visible only when cross-border projects start or when institutions host staff from other countries. In many cases, these “invisible” discrepancies reflect regulatory gaps and mismatches between national requirements and operational practice. Then it may become clear that the same procedures and terminology are interpreted differently, which can slow down work, create misunderstandings, and increase compliance risks. The same “unknown unknowns” dynamic, the “I didn’t know that I didn’t know” phenomenon, can also appear locally when teams discover late that an important requirement or reporting pathway was overlooked. A simple example is terminology: while the term and definition of “biological agent” is generally harmonized across Europe, some countries use different legal categories. In Hungary, for instance, the regulatory framework defines not a “biological agent” but a “biological factor”, showing how small wording differences can lead to practical consequences.

To map these differences and to support harmonization across institutions, the Balkan Association for Vector Borne Disease (BAVBD) launched a multi-level assessment in its member countries. The survey covers laboratory staff knowledge, management awareness, national legal and regulatory requirements, and relevant international agreements. Our goal is to identify the key points that determine whether long-term, safe, routine, and sustainable regional collaboration is realistically achievable.

In this presentation we describe the structure of the initiative, early experiences, and the areas where “invisible” differences most often appear in everyday practice. Tangible outputs include a shared glossary, identification of protocol elements that can be standardized, and, most importantly, a regionally acceptable “common minimum” that member institutions can adopt while still meeting local regulatory requirements.

POSTER PROGRAMME - P26

Transmission experiments define safe time-frames for downgrading retro- and lentivirally transduced cells to BSL-1

Jens Bohne, Hannover Medical School, Germany

VSVg–pseudotyped retro- and lentiviral vectors are widely used for the creation of stable cell lines for various purposes. Production and transduction require BSL 2 containment. Transduced cell lines can be downgraded to BSL-1 after decay of the input vector supernatant. However, the determination of a safe time frame for downgrading, rather than testing each individual transduction for the absence of vector particles, is mandatory. Because standard assays (capsid ELISA, RT qPCR) detect noninfectious remnants, confirming the absence of residual infectious particles demands empirical transmission tests. We systematically assessed factors influencing the persistence of VSVg-pseudotyped particles using a sensitive fluorescent co-culture transmission assay. Direct transfer of ~70% positive donor cells 24 h after transduction yielded 18% double positive target cells, confirming secondary transduction. However, two washing steps reduced this transfer rate to <0.2%. The interval between transduction and co-culture was also decisive: medium exchange and transfer onto indicator cells at day 3 achieved the predefined safety threshold (<0.1% transfer rate), without any further reduction upon initiation of the co-culture experiments within the next 12 days. In accompanying qPCR assays, we demonstrate the loss of lentiviral helper plasmids within 6 days after transduction and even faster clearance of VSVg plasmids. These results show that two washes and a 3-6-day culture period effectively eliminate the secondary transduction potential of VSVg-pseudotyped lentiviral vectors, supporting the safety of current practices while suggesting that substantially shorter downgrading intervals are feasible.

POSTER PROGRAMME - P27

Making Biosafety and Biosecurity Training Available for Everyone: The BioPrevail Journal Club Experience (An opportunity to Learn and Share Knowledge)

Luis Ochoa Carrera, Michigan State University - United States

The Global Health Security Fund (GHSF)/BioPrevail™ Journal Club is a year-long virtual academic initiative designed to enhance global preparedness and response to biological threats. By building professional competencies in biosafety and biosecurity, the Journal Club contributes to regional and global health security efforts. Since its launch in 2016, the initiative has grown into a widely respected platform for academic engagement and professional development. As of 2025, it marks nine years of sustained impact. Journal Club started with just 3 participants in 2016 and continued to growth steadily up to date. In 2024, it engaged participants from 39 countries with an average of 110 attendees per session. By 2025, the initiative has reached 74 countries—16 Spanish-speaking and 58 non-Spanish-speaking—across Latin America, the Caribbean, Africa, and other regions. Held weekly in a dynamic virtual format, each one-hour session includes a 40-minute presentation of a peer-reviewed article followed by a 20-minute interactive discussion. Sessions are primarily conducted in Spanish, with English-language materials and live captions for inclusivity. Additional sessions are offered in English and Portuguese to accommodate growing regional diversity. The Journal Club targets researchers, laboratory professionals, veterinarians, biotechnologists, and policymakers—especially from low- and middle-income countries. It provides a platform for critical engagement with current literature from leading journals such as Applied Biosafety, focusing on themes like risk assessment, risk analysis, risk management, and biosafety practices.

Between 2016 and 2025, the initiative has been linked to a significant increase in biosafety compliance among participants—from 50% to 90%. Its expanding audience includes professionals from public health labs, national institutes of health, private labs, academia, and non-profit organizations. Participants atten-

ding at least 50% of sessions receive a Certificate of Attendance. Those who attend over 90% and actively contribute may receive sponsorship for the IFBA Biorisk Management Certification exam fee or an alternative credential. Now in its ninth year, the GHSF/BioPrevail™ Journal Club remains a powerful force for global capacity-building, academic collaboration, and professional growth in biosafety and biosecurity.

POSTER PROGRAMME - P28

Biocontainment Training Across Sectors: Challenges in Research Laboratories and Biopharmaceutical Production Environments

Carrie Smith, Merrick & Company, United States

Biocontainment training varies between research laboratories and biopharmaceutical production environments due to differences in workforce expertise, facility design, regulatory drivers, and organizational priorities. Research laboratories emphasize scientific flexibility and risk-based decision making, while biopharmaceutical settings integrate stringent quality and GMP requirements shaped by external stakeholders and product driven outcomes. Despite these distinctions, both sectors share core challenges, including establishing foundational risk understanding, meeting biocontainment expectations, managing staffing constraints, and maintaining effective communication across disciplines. Lessons learned from biopharmaceutical production's structured quality systems and research laboratories' adaptable training approaches, provide opportunities to strengthen cross-sector training practices. When developing a biocontainment curriculum, educators should consider their audience, facility context, operational workflows, and regulatory requirements, using tailored content and interactive delivery methods to enhance relevance and support a robust culture of safety.

POSTER PROGRAMME - P29

Strengthening compliance with the Foot-and-Mouth Disease Minimum Biorisk Management Standards

A. Jimenez Pellicer, F. Rosso, K. Tjørnehøj, M. Nardi, R. Nova, D. Sammin.

Foot-and-Mouth Disease (FMD) is a highly contagious viral disease affecting cloven-hoofed animals (cattle, sheep, goats, pigs, and wild species such as deer, antelopes and llamas). In endemic regions, production losses and vaccination costs together up to USD 28 billion annually. Most of European countries have achieved "FMD-free without vaccination" but remain vulnerable to FMD incursions, with significant epizootics occurring in 2001, 2007, 2025 and 2026.

The European Commission for the Control of Foot-and-Mouth Disease (EuFMD), one of the Food and Agriculture Organization of the United Nations' (FAO) oldest Commissions, helps countries reduce risks and strengthen their capacity to prevent and control FMD and similar transboundary animal diseases for its 41 Member Nations. The Minimum Biorisk Management Standards (MBRMS) are a set of technical and organizational requirements designed to ensure the safe handling of FMD virus in laboratories. Their purpose is to prevent accidental release of the virus, ensure appropriate biosafety and biosecurity practices, and support consistent, high quality diagnostic and research work across countries with different levels of FMD risk and laboratory capacity. To help laboratories meet these mandatory requirements, EuFMD and the Special Committee for Biorisk Management (SCBRM) apply a practical support strategy built around capacity development, peer exchange, and technical mentoring.

This poster highlights the pillars of that strategy:

1. Supporting the expert advice through the Special Committee for Biorisk Management (SCBRM)
2. A Community of Practice (CoP): a network for shared solutions and continuous learning
3. Expert feedback visits: practical, tailored guidance for MBRMS implementation
4. Online training: building competence across all Member Nations

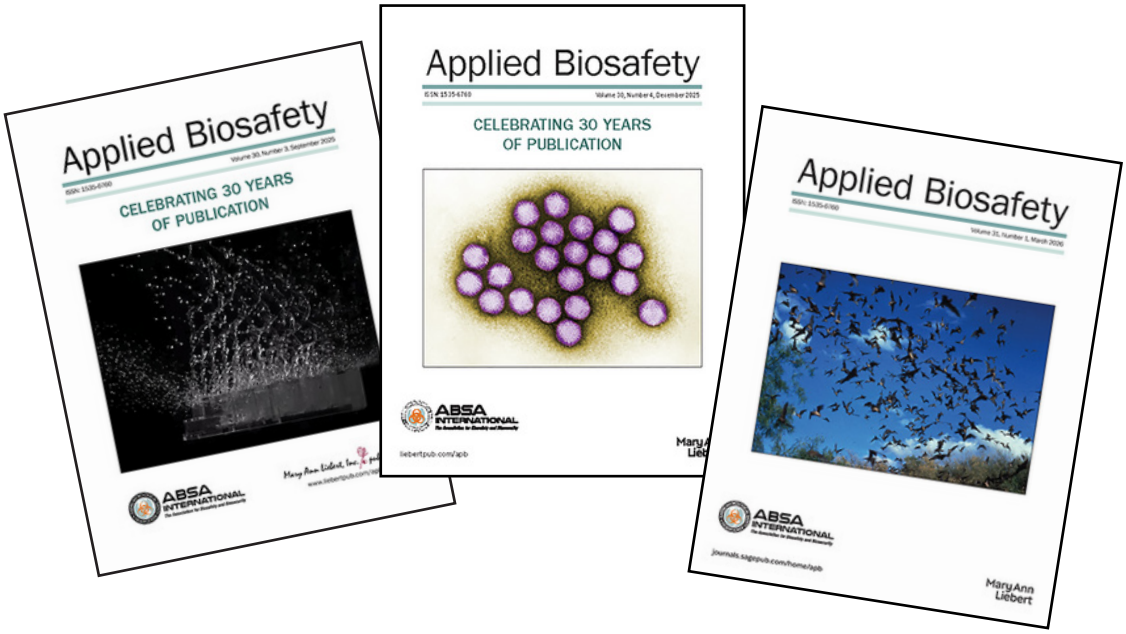
The aim of the Community of Practice is to improve knowledge and networking, facilitated through workshops and virtual meetings across the network. For facilities working with infectious FMD virus, the CoP offers a system of laboratory assessments to foster understanding and implementation of the MBRMS, directly involving all facilities and facilitating networking and knowledge exchange. This system provides practical feedback on the MBRMS implementation, identifies any areas where the facility needs improvement and steps to meet the MBRMS. It is designed to present learning and networking opportunities for facility management and Biorisk Officers.

The online course Introduction to the FMD Minimum Biorisk Management Standards provides an overview of the importance and implications of the role of Biorisk managers in ensuring that laboratories adhere to the FMD Minimum Biorisk Management Standards.

Through targeted training, active community networking, and direct expert support, EuFMD is empowering Member Nations to apply the Minimum Biorisk Management Standards. This integrated approach strengthens laboratory safety, reduces the risk of accidental virus release, and enhances collective preparedness across Europe. The objective of this poster is to present this strategy and provide evidence on the importance to support the compliance to MBRMS for FMD.

Applied Biosafety, the peer-reviewed journal of ABSA International, has partnered with EBSA to produce a Special Issue on Biorisk Management: **Global Approaches and Practices**, guest-edited by EBSA President Pat Casey and EBSA Conference Programming Working Group Chair Marcel van Bergen, alongside colleagues from the United States. **The submission deadline is 1 March 2027** but accepted manuscripts will be published ahead of print online, shortly after acceptance.

The scope is broad — from genetic technologies and laboratory design to fieldwork biorisk and occupational health — and contributions from across the European biosafety community are warmly encouraged. If you are presenting a talk or poster in Bruges, please consider developing your work into a full manuscript for the special issue. It is an ideal way to extend the reach and impact of your conference contribution.

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