

# PANORAMA

Thematic portfolio



Strengthening preparedness  
and resilience to emergencies



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# PERSPECTIVES

# DOSSIER

# AROUND THE WORLD

*Science plays a critical role in moments of crisis, when leveraging scientific knowledge, creativity and innovation can not only solve current challenges, but also drive a clear path forward for future preparedness. However, 'working in silos' in scientific institutions, as individual nations often do, can slow down developments and result in delayed emergency responses. Scientific diplomacy is crucial for the world's preparedness and response strategies, and it is critical in the fight against the current COVID-19 pandemic and other zoonotic disease outbreaks as they emerge.*

In 2016, Canada took a leading role in addressing global bio-surveillance capabilities and established the Biosafety Level 4 Zoonotic Laboratory Network (BSL4ZNet), with an objective to strengthen international coordination and improve knowledge sharing. The BSL4ZNet aims to enhance preparedness for current and future emerging pathogens, applying a One Health approach to zoonotic diseases, and has been steadily working towards this goal ever since.

**The principles and actions of BSL4ZNet are demonstrative of the potential impact of a strong scientific international network, as we enter the pandemic era**

The Network's strong international consortium is built on trust and established best practices of open and transparent scientific information sharing. Rising to the challenge, partners from 17 government organisations across five countries, Australia, Canada, Germany, the United Kingdom and the United States of America, quickly responded to the emerging threat and established a strategic COVID-19 response group. Emergency meetings have been held since early January 2020 to facilitate prompt and efficient intelligence sharing on organisational responses, laboratory protocols and other actions to improve COVID-19 diagnostic methods. Research studies were quickly established to examine animal models, transmission and disease dynamics, and many important discussions were held to enhance global awareness and understanding of risks associated with the human–animal interface.

The BSL4ZNet organised the COVID-19 International Scientific Symposium mini-series. During six virtual sessions, scientists from academia, government and industry presented cutting-edge research on the biology of SARS-CoV-2, COVID-19 epidemiology, animal studies, diagnostics, vaccines and therapeutics. With approximately 2,000 registrants, these events served as a dynamic forum encompassing the full ecosystem of COVID-19 science in an open and transparent manner to advance global response capabilities.

The BSL4ZNet is a true example of an international network coming together during a crisis to support global resources in order to better understand disease transmission patterns and assess risks, aiming to develop and apply situational awareness to help manage this evolving pandemic.

Overcoming a global zoonotic crisis requires transparency, openness and trusted international collaborations. The actions of BSL4ZNet have contributed a body of knowledge towards the global fight, and its principles and actions are demonstrative of the potential impact of a strong scientific international network, as we enter the pandemic era.

For more information, please visit the [BSL4ZNet website](https://bulletin.woah.org/)





## Biosafety Level 4 Zoonotic Laboratory Network

2020

**VISION:** BSL4ZNet is a Network of government-mandated organizations with national level responsibility for protecting animal and human health by working together to enhance knowledge, competency and capacity to meet current and future high containment needs.

**MISSION:** To establish & sustain trusted BSL4 partnerships to strengthen international coordination, improve knowledge sharing and leverage capacity for diagnostics, research & training.

### 4 Established Working Groups: key achievements & outcomes



#### TRAINING WORLD-CLASS PERSONNEL

- To strengthen high containment laboratory personnel training through identification and creation of training opportunities, building a highly trained, collaborative workforce able to respond to emerging procedures.



#### SCIENTIFIC EXCELLENCE

- To promote scientific collaboration and learning within the Network, enhancing diagnostic capabilities, scientific collaborations & collective advice for decision makers.



#### INSTITUTIONAL COOPERATION

- To promote institutional cooperation and knowledge sharing within the network to allow efficient mechanisms for harmonized exchange of laboratory-based information, such as latest advances in infrastructure and research.



#### INTERNATIONAL RESPONSE

- To strengthen laboratory preparedness and response to potential outbreaks through knowledge sharing activities, leading to a better understanding of the hazards, exposure and vulnerability.

**A Networking Opportunity:** Recognizing the global need, emerging threats and the timeliness of the opportunity to re-define the current state, decision-makers and subject matter experts from key international organizations came together face to face in Winnipeg, MB (March, 2016) to develop a common vision for the future. A unanimous decision was reached to move forward with a strategic framework for an international Network. Since then, BSL4ZNet has flourished into a productive group that meets virtually through quarterly Steering Committee Meetings and regular Working Group discussions.



- **Co-Chairs:**  
**Dr. Primal Silva** – Chief Science Operating Officer, Canadian Food Inspection Agency (CFIA) &  
**Dr. Jeffrey Silverstein** – Office of National Programs Deputy Administrator USDA, Agricultural Research Service
- **Dr. Olga Pena** – Science Specialist (CFIA)
- **Funding:** through the Canadian Food Inspection Agency (CFIA); the Canadian Safety and Security Program, Defence Research Development Canada (DRDC) and the Agricultural Research Service, USDA

### PARTNERS

#### COVID-19 Rapid Collaborative Response

**COVID-19 Update Meetings (January 2020 - To Date):** BSL4ZNet facilitated prompt sharing of knowledge concerning SARS-CoV-2 laboratory diagnostic protocols, survival and spread potential, susceptibility of animal species and countermeasures to control the virus. Sharing COVID-19 research plans has been a main outcome of institutional cooperation during these meetings. An inventory of coronavirus experts across the Network was generated to enhance collaboration among partner organizations.

**COVID-19 International Symposium (August - September 2020):** A six-part scientific program focused on different COVID-19 topics, including virology, epidemiology, animal studies, diagnostics, vaccines and therapeutics, was organized by BSL4ZNet involving high quality presentations by well recognized experts. This highly successful event attracted an international audience of over 1200 regulatory scientists, academia, government officials, non-profit organizations and industry.

Integrated global capacity to respond to current and emerging high consequence bio-threats through strengthened partnerships.

Australia	Organization	Laboratory
	Commonwealth Scientific and Industrial Research Organisation (CSIRO)	Australian Centre for Disease Preparedness
	Canadian Food Inspection Agency Public Health Agency of Canada Department of National Defence Global Affairs	National Centre for Foreign Animal Disease National Microbiology Laboratory Canadian Safety and Security Program Threat Reduction Program
	Friedrich Loeffler Institut National Research Institute for Animal Health Robert Koch Institut	Novel and Emerging Infectious Diseases Centre for Biological Threats and Special Pathogens/ Biosafety Level 4 Laboratories
	Biotechnology and Biological Sciences Research Council Animal and Plant Health Agency Public Health England Ministry of Defence of the United Kingdom	The Pirbright Institute Weybridge Veterinary Laboratories Porton Down Laboratory Defence Science and Technology Laboratory
	United States Department of Agriculture Centers for Disease Control and Prevention Department of Homeland Security	Animal and Plant Health Inspection Services Agriculture Research Services National Bio and Agro-Defense Facility Emerging Infectious Disease Laboratory National Biosecurity Analysis and Countermeasures Center Science & Technology Directorate

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## AROUND THE WORLD

### NETWORK INITIATIVES

## Biosafety Level 4 Zoonotic Laboratory Network (BSL4ZNet)

An example of how established trust and scientific diplomacy have contributed towards efforts to overcome global health crises

#### KEYWORDS

#biosafety, #Biosafety Level 4 Zoonotic Laboratory Network (BSL4ZNet), #laboratory, #zoonosis.

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*Biosafety Level 4: under the microscope. © Canadian Food Inspection Agency*

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