



The Grand Challenge: planning for sustainable biocontainment diagnostic laboratories (WP3278)

20 - 22 November 2023

Wilton Park, Wiston House, Steyning, West Sussex, BN44 3DZ



Mon

00:00

20

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Summary

Diagnostic laboratories that safeguard biological materials, equipment, and methodologies (know-how), play a critical role in the global campaign to prevent, detect and respond to infectious disease outbreaks, whether they be naturally-occurring, accidental or deliberate (i.e. bioterrorism). Such laboratory facilities, however, were pioneered in and designed for developed countries with ample resources, and are therefore often too expensive, too complex and too “western” in design to be built and sustained in low- and middle-income countries (LMICs). Identifying ways and means to address this persistent challenge promises to strengthen global health security.

In this context, the World Organisation for Animal Health (WOAH), Canada’s Weapons Threat Reduction Program and the United Kingdom’s Ministry of Defence have identified a Grand Challenge for Sustainable Laboratories as an innovative and promising approach. The Grand Challenge seeks to reimagine the physical laboratory infrastructure in order to reduce ongoing operational costs and ensure safe and secure handling of high consequence pathogenic materials, including ‘disease X’, whilst maintaining core functions of a diagnostic lab in low- and middle-income countries.

It is assessed that this Grand Challenge would stand a greater chance of success if supported by a broad-based, multi-sectoral consortium. Such a consortium would have significant advantages: diversity of interests across health, development, security and innovation sectors; a wider outreach to the innovation community; and greater ability to leverage resources to see innovative ideas through to reality.

WOAH and GAC are convening this Wilton Park conference to invite key stakeholders and investment partners to consider financial and technical contributions to make the Grand Challenge for sustainable laboratories a reality.

GAC and WOA will present the outputs of a feasibility study, which demonstrated the potential to develop innovative solutions for biocontainment diagnostic laboratories, with a view to engaging and encouraging investment partners and stakeholders to form a coalition to implement the Grand Challenge.

Rationale and objectives

Infectious disease laboratories play a central role in supporting animal health and public health services. However, complex and persistent barriers, both technical and systemic, hinder the sustainable operation of diagnostic laboratories in low-and middle-

income countries. Innovation designed to sustain the functions of a diagnostic laboratory safely and securely in low-resource settings would not only reduce risks to global health security but also support agricultural productivity, food security and safety, livelihoods, economic prosperity and animal and human health.

Past efforts to enhance laboratory capacity in many low- and middle-income countries have encountered serious challenges related to sustainability, operation and maintenance. While laboratories designed and built in LMIC have prioritised sustainability, many have experienced challenges owing to the fundamental disconnect between the high-tech, high-cost nature of biocontainment laboratory infrastructure and the financial and human resources constraints they must operate within. The challenges to laboratory sustainability are both technical and systemic in nature, including building design and construction; operational issues (e.g. equipment maintenance and availability of reagents and other consumables); maintaining the skills and competencies of staff; policy challenges (i.e. inadequate operating budgets and lack of political support); and technological challenges (e.g. interruptions to power supply, lack of or inadequate access controls, inability to safely dispose of dangerous waste, and poorly maintained or dysfunctional equipment). Given these multi-faceted and complex challenges, an integrated solution is needed to pioneer sustainable new laboratory solutions specifically for low-resource countries.

Accordingly, the conference will:

- Present the idea/concept/opportunity of a Grand Challenge, and the outcomes of the recent feasibility study;
- Assess practical next steps;
- Invite investment partners and key stakeholders to join a consortium to implement a Grand Challenge

13:00

Participants arrive and buffet lunch available

15:00 - 15:30

Welcome and introduction

Mark Smith

Senior Programme Director, Security and Defence, Wilton Park, Steyning, United Kingdom

Monique Eloit (virtual speaker)

Director General, World Organisation for Animal Health, Paris, France

Trevor Smith

Weapons Threat Reduction Program, Senior Program Manager:
Biological & Chemical Security, UNSCR 1540 Implementation,
Global Affairs Canada, Ottawa, Canada

15:30 - 16:45

1. The challenges of building, operating and maintaining laboratories in LMICs

This session will set out the nature of the challenges for establishing sustainable laboratories, beginning with the generic cross-state challenges and then focusing on those specific to LMICs.

Laboratories in developed and developing states – what are the challenges of sustainable labs?

Phoebe Readford

Lead of International Program, Australian Centre for Disease Preparedness, Geelong, Australia

Sustainable labs in LMICs: challenges of building, operating and maintaining them

Samantha Letsholo

Principal Veterinary Officer I, Botswana National Veterinary Laboratory, Gaborone, Botswana

Sacha Wallace Sankarsingh

International Consultant, Independent, Port-of-Spain, Trinidad and Tobago

Ken Ugwu

Senior Biocontainment Advisor, Weapons Threat Reduction Program, Global Affairs Canada, Ottawa, Canada

16:45 - 17:30

Photograph followed by tea/coffee

17:30 - 18:30

2. The road to the Grand Challenge: how and why did we get here?

This session will look at what has already been tried: what worked, what did not and why, and the lessons learned.

Dave Elliott

UK International Biosecurity Programme Lead , Defence Science and Technology Laboratory (DSTL), Salisbury, United Kingdom

David Harper

Senior Consulting Fellow, Chatham House, London, United Kingdom

Keith Hamilton

Head of Preparedness and Resilience , World Organisation for Animal Health (WOAH), Paris, France

19:00 Reception

19:30 Dinner

Tue

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08:00 - 09:00 Breakfast

09:15 - 10:45 **3. The potential role of “Open Innovation” in addressing laboratory sustainability**

The Grand Challenge model: Outcomes of a feasibility study
Deepika Devadas

Director, Program Strategy, Grand Challenges Canada, Toronto, Canada

Maureen Ellis

Executive Director, International Federation of Biosafety Associations (IFBA), Ottawa, Canada

The potential role of innovation in general, including other models

Patrick Ferran

Chief Executive Officer, Hypsous: Decentralized Innovation, Paris, France

Evidence-based approaches to improve the sustainability of biosafety and biosecurity

Prof Stuart Blacksell

Professor of Tropical Microbiology/Biorisk & Zoonosis Leader, University of Oxford, Medical Sciences Division, Bangkok, Thailand

10:45 - 11:15 Tea/coffee

11:15 - 12:45 **4. Sustainable laboratories and global health security**

This session will place sustainable laboratories in the context of evolving global health security.

Trevor Smith

Weapons Threat Reduction Program, Senior Program Manager: Biological & Chemical Security, UNSCR 1540 Implementation, Global Affairs Canada, Ottawa, Canada

Yenew Kebede (virtual speaker)

Head of Division, Laboratory Systems, Africa Centres for Disease Control and Prevention (CDC), Addis Ababa, Ethiopia

Kazunobu Kojima

Medical Officer, World Health Organization, Geneva, Switzerland

Paul Friedrichs

Director, White House Office of Pandemic Preparedness and Response Policy, ., Washington D.C., United States of America

13:00 - 14:00 Lunch

14:00 - 15:00 Free time

15:00 - 16:30 **5. Multisectoral partnerships for sustainable laboratories: opportunities and challenges**

This session will assess how the multisectoral partnerships that are integral to sustainable laboratories function, the challenges that they will confront, and how to most effectively take advantage of their potential.

Andrew Nerlinger

Executive Director, Global Health Security Fund, Geneva, Switzerland

Fee Zimmermann

Head, One Health Surveillance Unit, Helmholtz Institute for One Health, Greifswald, Germany

Nada Essawy

Resource Mobilisation and Grants Management Officer, World Organisation for Animal Health (WOAH), Paris, France

16:30 - 17:00 Tea/coffee

17:00 - 18:30

6. Partner/investor perspectives on sustainable labs and role for global security

This session will feature input and perspectives from potential investors and partners: their criteria for involvement, their requirements, and their definitions of success.

Gregers Chalker

Managing director, Independent, Johannesburg, South Africa

David Blazes

Deputy Director, Genomics, Epidemiology & Modelling, Bill and Melinda Gates Foundation (BMGF), Seattle, United States of America

Olivia Iannone (virtual speaker)

Biodefense Policy Advisor, United States Department of Defense, Washington D.C., United States of America

19:00

Reception

19:30

Dinner

Wed

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08:00 - 09:00

Breakfast and checkout (key cards will not work after 0900)

09:15 - 10:45

7. Operationalising the Sustainable Laboratories Initiative: pathways, partnerships and pilots

This session will be a roundtable discussion drawing on the preceding sessions, which will attempt to set out conference outcomes and a work plan for implementing them.

10:45 - 11:15

Tea/coffee

11:15 - 11:25

Evaluation survey

11:25 - 12:45

8. Conclusions and wrap-up

13:00

Lunch

14:00

Participants depart