U.S. AND UKRAINIAN DOCUMENTS RELATED TO BIOLOGICAL ACTIVITY IN UKRAINE

Ukraine Biological Threat Reduction Program (BTRP)
Cooperative Biological Research (CBR) Project

Risk assessment of selected especially dangerous pathogens potentially carried by migratory birds over Ukraine

UP-4 PROJECT OPTION YEAR 2 QUARTERLY REPORT
for the period 31 October 2019 – 30 January 2020 (Q4)

Prepared for:

Prepared by:

BLACK & VEATCH SPECIAL PROJECTS CORP.

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in collaboration with:

METABIOTA

13 February 2020

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Clinical Veterinary Medicine (IECVM) isolated multiple low pathogenicity influenza viruses and NDV isolates in 2010-2016 at these locations.

- Northern Ukraine:
  - Chernihiv Oblast (Ripky rayon, Chernihiv rayon/Mena ornithological sanctuary, and Ichnia rayon, which are situated at the intersection of several migratory routes).
  - HPAIV outbreaks were detected in the Chernihiv region in 2016-2017 (possibly H5N8).

2.2.4 Expected Impact

Through examination of the ecologic, epizootic, and epidemiologic risk of avian disease transmission from wildlife to poultry and humans, the UP-4 projects (base year, OY1, and OY2) will provide a foundation of knowledge permitting a more current and robust evaluation of risk focused on the most prevalent risk factors in Ukraine. In UP-4 OY2, research activities centered on Ukraine and regional partners, will advance ongoing efforts in longitudinal avian ecology analysis, biosafe sample collection, diagnostic capabilities, data management and analysis, and reporting. Data and database development will support the forecasting and contingency plan for the National Veterinary and Health Authorities of Ukraine concerning selected EDP risks in wildlife.

2.2.5 Project Participants

- National Scientific Center Institute of the Experimental and Clinical Veterinary Medicine (IECVM)
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  Principal Investigator: Dr. Borys Stegniy, Director

- The State Scientific Research Institute of Laboratory Diagnostics and Veterinary and Sanitary Expertise (SSRILDVSE)
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  Principal Investigator: Dr. Maryna Sapachova, Head of Department

- Ukrainian Anti-Plague Research Institute (UAPRI)
  Address: 2/4 Tserkovna Street, 65003 Odesa, Ukraine
  Principal Investigator: Dr. Oksana Yurchenko, Acting Head of Laboratory of Indication of Especially Dangerous Biological Pathogenic Agents

- Institute of Veterinary Medicine (IVM)
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  Principal Investigator: Dr. Sergiy Nychyk, Director

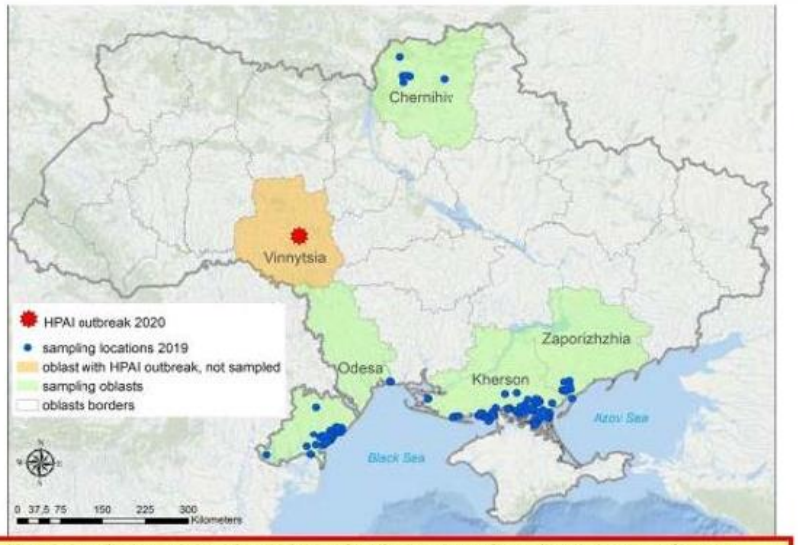

Fig. 16. A preliminary Avian Virus Risk Map for Ukraine. Sites of sampling and a recent (January 2020) HPAIV outbreak in Vinnitsyia are indicated.

2.7.2 Summary of Technical Accomplishments for this Period.

- The ornithological situation in southern and northern Ukraine was estimated, considering weather conditions from November 2019 – January 2020.
- Laboratory testing (PCR and virus genome sequencing) was improved, with full genome sequencing of 3 viruses by MinION in Ukraine (bioinformatics analysis of data is ongoing).
- Field expeditions, with annotated GIS mapping of sampling sites, species identification, and metadata recording, resulted in collection of 991 specimens from wild birds.
- Detailed analysis was performed for 4 samples from UP-4 OY2 MinION sequencing data generated in Ukraine.

PARTNER PROJECT AGREEMENT STCU P364 / DTRA UP-1

between

U.S. Department of Defence/Defence Threat Reduction Agency/Biological Threat Reduction Project,

the Science and Technology Center in Ukraine

and

Lviv Research Institute of Epidemiology and Hygiene Ministry of Health of Ukraine
Ukrainian Research Anti-Plague Institute Ministry of Health of Ukraine
Central Sanitary Epidemiological Station Ministry of Health of Ukraine

Kyiv

Operative Commencement Date: 1 November, 2008

Article 14 - Entry into Force of the Agreement

The Agreement shall enter into force on the first of the month following the date this Agreement is signed by the last signature of Signatory Parties or the date Partner deposited its commitment in accordance with Article 3.6 to Center's account, whichever is later, i.e. on "the Operative Commencement Date".

Prepared in Kyiv in the English and Ukrainian languages (Russian optional, if the project is located only in other CIS State). In the event of inconsistencies between the English and other texts, the English text shall take precedence.

For the Center

5.11.2008
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Ukraine Biological Threat Reduction Program (BTRP)

Program (BTRP) Phase IIb

HDTRA1-08-D-0007-
0004

CDRL A017

Country Science Plan (CSP)

Prepared for:

Prepared by:

BLACK & VEATCH SPECIAL PROJECTS CORP.

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METABIOTA

Rev. 06

Submitted 27 June 2019

Project Designation	Project Title	Planned	Ongoing	Completed	Not Pursued
CBR UP-1	Ecological-Epidemiological Evaluation of Prevalence of Natural Focal Infections Caused by Rickettsia spp. and *Coxiella burnetii* (*C. burnetii*) in Different Landscape Zones of Ukraine				✔
CBR UP-2	Incorporating GIS, Remote Sensing, and Laboratory Diagnostics into Human and Veterinary Disease Surveillance for Tularemia and Anthrax in Ukraine (In Ukraine: Development of the Epidemiological Forecasting System for Zoonotic Diseases Employing GIS Technology)			✔	
CBR UP-3	Epidemiologic Algorithms and Molecular Approaches for Differential Diagnosis of Severe Febrile Illness of Unknown Etiology in Ukraine				✔
CBR UP-4	Risk assessment of selected Especially Dangerous Pathogens potentially carried by migratory birds over Ukraine		✔		
CBR UP-5	Ecological-Epizootological Surveillance for Identifying the Prevalence and Genetic Diversity of Crimean Congo Hemorrhagic Fever Virus, Hantaviruses, Tick-Borne Encephalitis Virus, Pseudorabies Virus, and *Leptospira* spp. in Ukraine				✔
CBR UP-6	Ecological and Epizootiological Evaluation of the Prevalence of Natural Focal Infections Caused by *Rickettsia* spp. and *Coxiella burnetii* in Different Landscape Zones of Ukraine				✔
CBR UP-7	Surveillance capacity building and determination of disease baseline for brucellosis in domestic and wild animal populations of Ukraine				✔
CBR UP-8	Prevalence of Crimean Congo hemorrhagic fever virus and hantaviruses in Ukraine and the potential requirement for differential diagnosis of suspect leptospirosis patients		✔		
CBR UP-9	The spread of African swine fever virus (ASFV) in domestic pigs and wild boar in Ukraine – Building capacity for insight into the transmission of ASFV through characterization of virus isolates by genome sequencing and phylogenetic analysis.		✔		
CBR UP-10	Regional Field-to-Table Risk Assessment of the spread of African swine fever virus (ASFV) across Ukraine in wild fauna and via consumer trade routes – insight into the development of effective ASFV quarantine strategies and public policy		✔		

ЦЕНТР ГРОМАДСЬКОГО ЗДОРОВ'Я

Стратегія забезпечення біологічної безпеки та біологічного захисту

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ЦЕНТР ГРОМАДСЬКОГО ЗДОРОВ'Я

П'ять ключових напрямів Стратегії (1)

Організація контролю у сфері біологічної безпеки та біологічного захисту

7) розроблення та затвердження правил ввезення/вивезення на/з території України штамів мікроорганізмів та **біологічних матеріалів**.

8) визначення **пріоритетних напрямків для державного замовлення на виконання наукових робіт** у галузі біобезпеки та біозахисту та відстеження ефективності їх впровадження.

9) розроблення та затвердження нормативно-правового акту щодо **процедури отримання лабораторіями, що працюють з біологічними патогенними агентами дозволів (ліцензій)** на роботу з біологічними патогенними агентами.

10) розроблення та затвердження нормативно-правового акту щодо **необхідності проведення попереднього контролю за лабораторіями, що планують працювати з біологічними патогенними агентами на етапі їх проектування і надалі до вводу в експлуатацію**.

11) розроблення та затвердження нормативно-правового акту щодо **розвитку вітчизняної наукової та технологічної служб для власного виробництва засобів імунопрофілактики, діагностики та лікування**