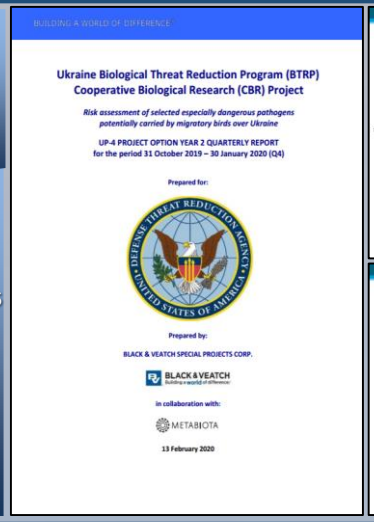
Study of the spreading highly dangerous pathogens through migratory birds

UP-4 Project

UP-4 PROJECT

Study of the spreading highly dangerous pathogens through migratory birds


BUILDING A WORLD OF DIFFERENCE

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:

DEFENSE THREAT REDUCTION AGENCY · UNITED STATES OF AMERICA

Prepared by:

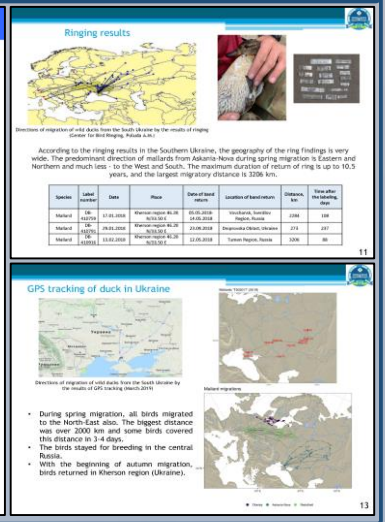
BLACK & VEATCH SPECIAL PROJECTS CORP.

BLACK & VEATCH
Building a world of difference

in collaboration with:

METABIOTA

13 February 2020


Ringing results

Directions of migration of wild ducks from the South Ukraine by the results of ringing (Center for Bird Ringing, Pulsata a.m.)

According to the ringing results in the Southern Ukraine, the geography of the ring findings is very wide. The predominant direction of mallards from Askania-Nova during spring migration is Eastern and Northern and much less - to the West and South. The maximum duration of return of ring is up to 10.5 years, and the largest migratory distance is 3206 km.

Species	Label number	Date	Place	Date of band return	Location of band return	Distance, km	Time after the labelling, days
Mallard	UA 4337[illegible]	17.01.2018	Kherson region 46.18 N/33.36 E	05.05.2019 14.05.2018	Vorotkivsk, Sumskiy Region, Russia	2284	150
Mallard	UA 4337[illegible]	29.01.2018	Kherson region 46.18 N/33.36 E	23.09.2018	Dniprovska Oblast, Ukraine	273	237
Mallard	UA 4339[illegible]	13.02.2018	Kherson region 46.18 N/33.36 E	12.05.2018	Tyumen Region, Russia	3206	88

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GPS tracking of duck in Ukraine

Directions of migration of wild ducks from the South Ukraine by the results of GPS tracking (march 2019)

Mallard migrations

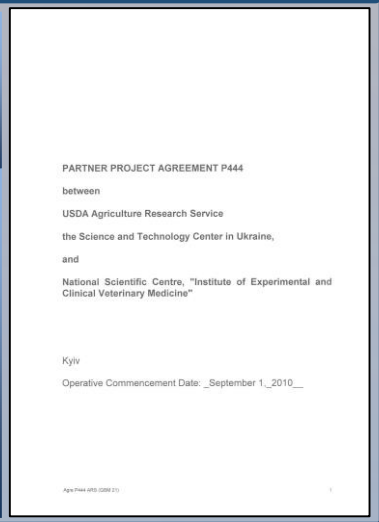
- During spring migration, all birds migrated to the North-East also. The biggest distance was over 2000 km and some birds covered this distance in 3-4 days.
- The birds stayed for breeding in the central Russia.
- With the beginning of autumn migration, birds returned in Kherson region (Ukraine).

13

P444 Project

P444 PROJECT

Monitoring of Avian influenza, Newcastle disease, Paramyxoviruses aong wild birds from Azova-Black Sea region


PARTNER PROJECT AGREEMENT P444

between

USDA Agriculture Research Service

the Science and Technology Center in Ukraine,

and

National Scientific Centre, "Institute of Experimental and Clinical Veterinary Medicine"

Kyiv

Operative Commencement Date: _September 1,_2010__

FLU-FLYWAY Project

FLU-FLYWAY PROJECT

Examining the wild ducks' migration patterns in Europe and the spread of avian influenza among domestic bird populations


PROJECT: FLU-FLYWAY

Date: 31.03.2020 PREPROPOSAL ID: 66

PROJECT TITLE

From flyway to farm – wild birds as vectors for avian influenza virus in Europe

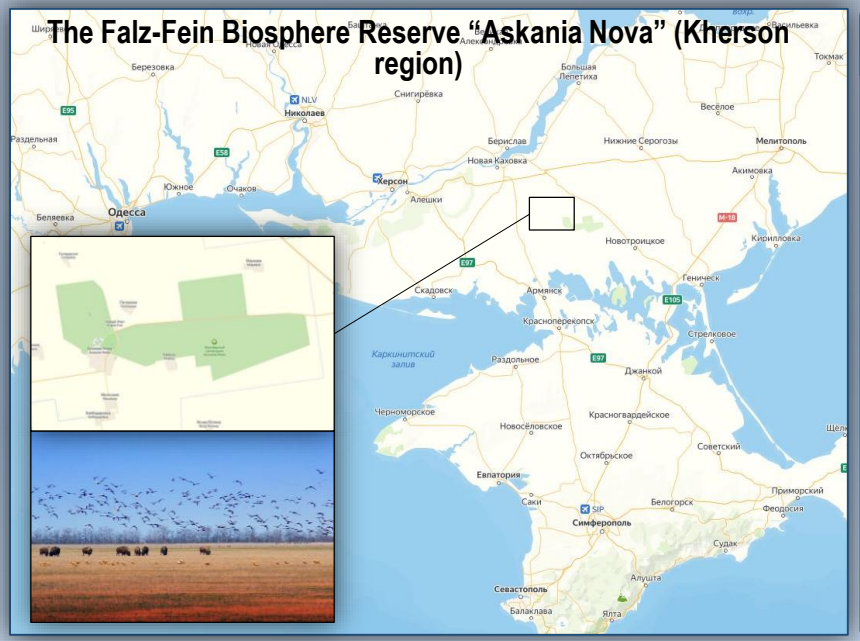
RESEARCH AREA

Research Area 1: Improved understanding of epidemic and emerging infectious animal diseases

PROJECT DURATION TOTAL REQUESTED FUNDING TOTAL COSTS

CONSORTIUM

The Falz-Fein Biosphere Reserve “Askania Nova” (Kherson region)



Depositing a strain of highly pathogenic avian influenza virus (H5N8) for making biopreparations


НАЦІОНАЛЬНА АКАДЕМІЯ АГРАРНИХ НАУК УКРАЇНИ
Національний науковий центр «Інститут експериментальної і клінічної ветеринарної медицини»

NATIONAL ACADEMY OF AGRARIAN SCIENCES OF UKRAINE
National Scientific Center «Institute of Experimental and Clinical Veterinary Medicine»

Директору Державного науково-контрольного інституту біотехнології і штамів мікроорганізмів, доктору ветеринарних наук, професору, академіку НААН України Головку А.М.

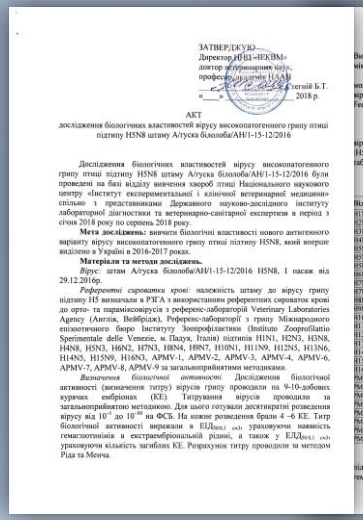
Національний Науковий Центр «Інститут експериментальної і клінічної ветеринарної медицини» просить провести депонування штаму A/Уганда/Білозобка/AH/1-15-12/16 (H5N8) вірусу високопатогенного грипу птиці. Штам буде використано в якості виробничого для виготовлення біопрепаратів, а також для наукових досліджень.

Просимо дозволити проведення робіт з депонування високопатогенного грипу птиці, а також подальше його зберігання у відділі вивчення хвороб птиці ННЦ «ІЕКВМ» в умовах BSL2+.

Додатки:
1. Паспорт на штам.
2. Програма проведення комісійних випробувань – 1 екз.
3. Календарний план проведення комісійних випробувань – 1 екз.

Директор ННЦ «ІЕКВМ» доктор ветеринарних наук, професор, академік НААН Б.Т. Стегній

Виконавець: Музика Д.В. (057)707-20-18


ЗАТВЕРДЖУЮ
Директор ННЦ «ІЕКВМ»
доктор ветеринарних наук, професор, академік НААН
Стегній Б.Т.
2018 р.

АКТ

дослідження біологічних властивостей вірусу високопатогенного грипу птиці підтипу H5N8 штаму A/Уганда/Білозобка/AH/1-15-12/2016

Дослідження біологічних властивостей вірусу високопатогенного грипу птиці підтипу H5N8 штаму A/Уганда/Білозобка/AH/1-15-12/2016 були проведені на базі відділу вивчення хвороб птиці Національного наукового центру «Інститут експериментальної і клінічної ветеринарної медицини» спільно з представниками Державного науково-дослідного інституту лабораторної діагностики та ветеринарно-санітарної експертизи в період з січня 2018 року по серпень 2018 року.

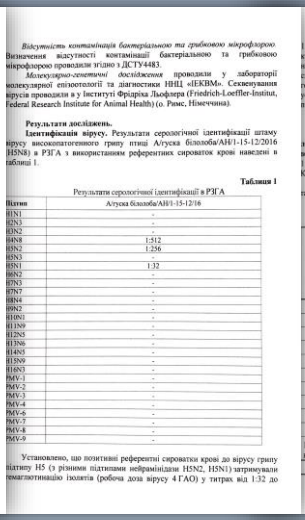
Мета дослідження: вивчити біологічні властивості нового антигенного варіанту вірусу високопатогенного грипу птиці підтипу H5N8, який вперше виділено в Україні в 2016-2017 роках.

Матеріали та методи досліджень.

Вірус: штам A/Уганда/Білозобка/AH/1-15-12/2016 H5N8, 1 пасаж від 29.12.2016р.

Референтні сироватки крові: належність штаму до вірусу грипу підтипу H5 визначали в РЗГА з використанням референтних сироваток крові до орто- та парміксовірусів з референс-лабораторій Veterinary Laboratories Agency (Англія, Вейбрідж), Референс-лабораторії з грипу Міжнародного епізоотичного бюро Інституту Зоопрофілактики (Institute Zooprofilattio Sperimentale delle Venezie, м. Падуя, Італія) підтипів H1N1, H2N3, H3N8, H4N8, H5N3, H6N2, H7N3, H8N4, H9N7, H10N1, H11N9, H12N5, H13N6, H14N5, H15N9, H16N3, APMV-1, APMV-2, APMV-3, APMV-4, APMV-6, APMV-7, APMV-8, APMV-9 та загальноприйнятими методиками.

Визначення біологічної активності: Дослідження біологічної активності (визначення титру) вірусів грипу проводили на 9-10-добових курячих ембріонах (КЕ). Титрування вірусів проводили за загальноприйнятою методикою. Для цього готували десятикратні розведення вірусу від 10^{-1} до 10^{-10} на ФСБ. На кожне розведення брали 4 –6 КЕ. Титр біологічної активності виражали в $ЕД_{50(КЕ)}$, з урахуванням наявність гемаглютинінів в екстраембріональній рідині, а також у $ЕД_{50(КЕ)}$, з урахуванням кількість загиблих КЕ. Розрахунок титру проводили за методом Ріда та Менча.


Відсутність контамінацій бактеріальною та грибковою мікрофлорою. Визначення відсутності контамінації бактеріальною та грибковою мікрофлорою проводили згідно з ДСТУ4483.

Молекулярно-генетичні дослідження проводили у лабораторії молекулярної епізоотології та діагностики ННЦ «ІЕКВМ». Секвенування вірусів проводили в у Інституті Фрідріха Льофлера (Friedrich-Loeffler-Institut, Federal Research Institute for Animal Health) (о. Рімс, Німеччина).

Таким чином, зазначений штам належить до вірусу грипу підтипу H5.

Результати досліджень.

Ідентифікація вірусу. Результати серологічної ідентифікації штаму вірусу високопатогенного грипу птиці A/уганда білозобка/AH/1-15-12/2016 (H5N8) в РЗГА з використанням референтних сироваток крові наведені в таблиці 1.

Таблиця 1

Результати серологічної ідентифікації в РЗГА

Підтип	A/уганда білозобка/AH/1-15-12/16
H1N1	-
H2N3	-
H3N2	1:512
H4N8	1:256
H5N3	-
H5N1	1:32
H6N2	-
H7N3	-
H7N7	-
H8N4	-
H9N2	-
H10N7	-
H11N9	-
H12N5	-
H13N6	-
H14N5	-
H15N9	-
H16N3	-
PMV-1	-
PMV-2	-
PMV-3	-
PMV-4	-
PMV-6	-
PMV-7	-
PMV-8	-
PMV-9	-

Установлено, що позитивні референтні сироватки крові до вірусу грипу підтипу H5 (з різними підтипами нейрамінідази H5N2, H5N1) затримували гемаглютинацію ізолята (робоча доза вірусу 4 ГАО) у титрах від 1:32 до 1:256. Необідно зазначити, що усі інші позитивні референтні сироватки крові з антитілами до вірусів грипу та парміксовірусів птиці сероптипів 1–9 не викликали затримки гемаглютинації, за виключенням референтної сироватки до вірусу грипу підтипу H4N8, яка також викликала затримку гемаглютинації в титрі 1:512 – 1:1024. Наявність затримки гемаглютинації усіх ізолятів з референтною сироваткою крові H4N8 пов'язано з наявністю перехресної реакції між нейрамінідазою N8.

Визначення гемаглютинуючої активності вірусу, інфекційного та летального титру вірусу. При постановці РГА в 1% еритроцитів півня встановлено, що титр гемаглютинінів в екстраембріональній рідині 1:32 – 1:64 (при первинному виділенні), але при подальшому пасажуванні вірусу на КЕ титр гемаглютинінів в екстраембріональній рідині становив 1:128-256.

Результати визнання інфекційного та летального титру наведені в таблиці 2.

Таблиця 2

Результати титрування вірусу високопатогенного грипу підтипу H5N8 після первинного виділення (I пасаж)

Розведення	Кількість КЕ, шт.	Час спостереження, год			Результати РГА	Летальність, %	Інфікованість, %
		24	48	72			
		Кількість загиблих ембріонів					
10^{-1}	4	-	2	2	+++-	100	96,15
10^{-2}	4		2	2	++++	100	95,65
10^{-3}	4		1	3	+---	100	81,81
10^{-4}	4		-	4	+++-	100	77,27
10^{-5}	4		-	4	++++	100	73,68
10^{-6}	4		-	4	+++-	100	58,82
10^{-7}	4		-	4	++++	100	53,33
10^{-8}	4		-	4	++++	100	36,36
10^{-9}	4		-	-	----	0	0
10^{-10}	4		-	-	----	0	0
Контроль неінф. КЕ	4				----	0	0
Летальний титр, $ЕД_{50}$, lg						8,5	-

Інфекційний титр, $ЕД_{50}$, lg	-	7,19

Примітки: + — наявність гемаглютинінів (позитивна РГА); - — відсутність гемаглютинінів (негативна РГА)

Встановлено, що вірус високопатогенного грипу птиці A/уганда білозобка/AH/1-15-12/2016_H5N8 при первинному виділенні на КЕ має летальний титр 8,5 lg $ЕД_{50}$, а інфекційний 7,87 lg $ЕД_{50}$.

Відсутність контамінацій бактеріальною та грибковою мікрофлорою. Визначення відсутності контамінації сторонньою бактеріальною та грибковою мікрофлорою проводили згідно з ДСТУ4483.

Протягом строку спостереження в жодній та жодному флаконі не виявлено росту мікроорганізмів.

Вірус грипу H5N8 A/уганда білозобка/AH/1-15-12/2016 вільний від бактеріальної та грибкової мікрофлори.

Молекулярно-генетичні дослідження. Патогенність вірусу визначали за результатами секвенування сайту розрізання гемаглютиніну. Установлено, що сайт розрізання гемаглютиніну має наступний вигляд PLRERKKRRR*GLF, що є характерним для високопатогенних вірусів грипу.

За результатами філогенетичного аналізу цей вірус належить до кладу 2.3.4.4b високопатогенних вірусів грипу підтипу H5 та має філогенетичні зв'язки з вірусами з Росії та Західної Європи, які циркулювали в 2017 році.

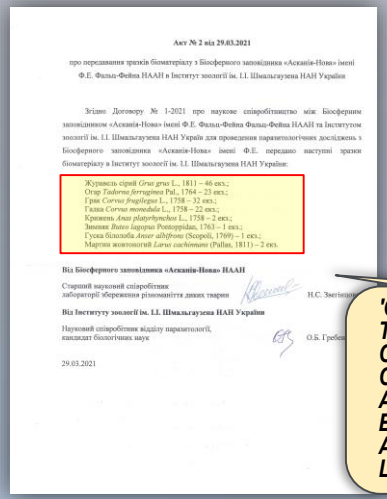
Висновок: Досліджені зразки штаму вірусу грипу H5N8 A/уганда білозобка/AH/1-15-12/2016 відповідають паспортним даним за перевіреними показниками (серологічна ідентифікація, біологічні властивості, контамінація бактеріальною та грибковою мікрофлорою, молекулярно-генетичні) та можуть бути задепоновані у Національному центрі штамів мікроорганізмів ДНКБШМ.

Підписи:

Д.В. Музика
О.М. Рула
С.В. Ткаченко
О.В. Пищанський

Deterioration of the epizootic situation with highly pathogenic avian influenza

Act of handover of bio-samples collected during mass mortality of poultry in Askania Nova Nature Reserve in 2021



Акт № 2 від 29.03.2021

про передавання зразків біоматеріалу з Біосферного заповідника «Асканія-Нова» імені Ф.Е. Фальц-Фейна НААН в Інститут зоології ім. І.І. Шмальгаузена НАН України

Згідно Договору № 1-2021 про наукове співробітництво між Біосферним заповідником «Асканія-Нова» імені Ф.Е. Фальц-Фейна Фальц-Фейна НААН та Інститутом зоології ім. І.І. Шмальгаузена НАН України для проведення паразитологічних досліджень з Біосферного заповідника «Асканія-Нова» імені Ф.Е. передано наступні зразки біоматеріалу в Інститут зоології ім. І.І. Шмальгаузена НАН України:

Журавель сірий *Grus grus* L., 1811 – 46 екз.;
Огар *Tadorna ferruginea* Pal., 1764 – 23 екз.;
Грак *Corvus frugilegus* L., 1758 – 32 екз.;
Галка *Corvus monedula* L., 1758 – 22 екз.;
Кряквень *Anas platyrhynchos* L., 1758 – 2 екз.;
Зимняк *Buteo lagopus* Pontoppidan, 1763 – 1 екз.;
Гуска білолоба *Anser albifrons* (Scopoli, 1769) – 1 екз.;
Мартин жовтоногий *Larus cachinnans* (Pallas, 1811) – 2 екз.

Від Біосферного заповідника «Асканія-Нова» НААН

Старший науковий співробітник лабораторії збереження різноманіття диких тварин — Н.С. Звягінцева

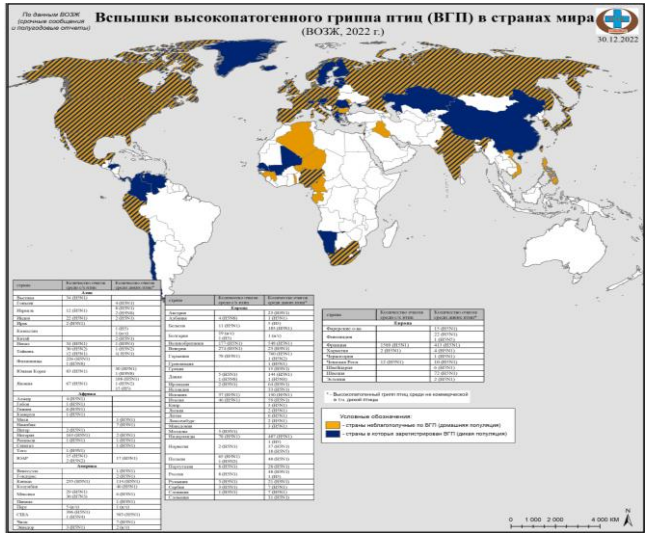
Від Інституту зоології ім. І.І. Шмальгаузена НАН України

Науковий співробітник відділу паразитології, кандидат біологічних наук — О.Б. Гребенюк

29.03.2021

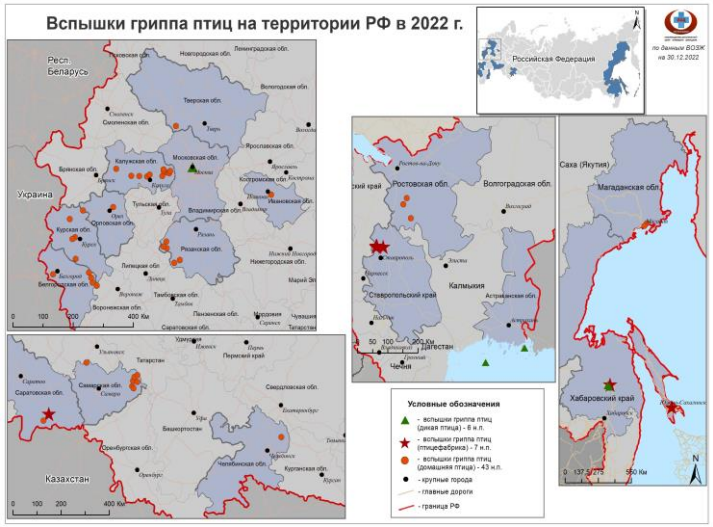
'Grus communis, 46 pcs.;
Tadorna ferruginea, 23;
Corvus frugilegus, 32;
Corvus monedula, 22;
Anas platyrhynchos, 2;
Buteo lagopus, 1;
Anser albifrons, 1;
Larus cachinnans, 2'

Outbreaks of highly pathogenic avian influenza in Russia and worldwide (2022)



In Europe in 2020–2022, the damage amounted to €3,000,000.0

In the Russian Federation in 2020–2022, the damage exceeded RUB 4,500,000,000.0, more than 10,000,000 poultry eliminated



Human cases of highly pathogenic avian influenza (2009–2023)

Country	2003-2009*		2010-2014*		2015-2019*		2020		2021		2022		2023		Total	
	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths
Azerbaijan	8	5	0	0	0	0	0	0	0	0	0	0	0	0	8	5
Bangladesh	1	0	6	1	1	0	0	0	0	0	0	0	0	0	8	1
Cambodia	9	7	47	30	0	0	0	0	0	0	0	0	2	1	58	38
Canada	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1	1
China	38	25	9	5	6	1	0	0	0	0	1	1	1	0	55	32
Djibouti	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Ecuador	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
Egypt	90	27	120	50	149	43	0	0	0	0	0	0	0	0	359	120
India	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	1
Indonesia	162	134	35	31	3	3	0	0	0	0	0	0	0	0	200	168
Iraq	3	2	0	0	0	0	0	0	0	0	0	0	0	0	3	2
Lao People's Democratic Republic	2	2	0	0	0	0	1	0	0	0	0	0	0	0	3	2
Myanmar	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Nepal	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	1
Nigeria	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Pakistan	3	1	0	0	0	0	0	0	0	0	0	0	0	0	3	1
Spain	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0
Thailand	25	17	0	0	0	0	0	0	0	0	0	0	0	0	25	17
Turkey	12	4	0	0	0	0	0	0	0	0	0	0	0	0	12	4
United Kingdom of Great Britain and Northern Ireland	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0
United States of America	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
Viet Nam	112	57	15	7	0	0	0	0	0	0	1	0	0	0	128	64
Total	468	282	233	125	160	48	1	0	2	1	6	1	3	1	873	458

* 2003-2009, 2010-2014 and 2015-2019 total figures. Breakdowns by year available on subsequent tables.
Total number of cases includes number of deaths.
WHO reports only laboratory-confirmed cases.
All dates refer to onset of illness.
Source: WHO/GIP, data in HQ as of 3 March 2023

World Health Organization

Всемирная организация здравоохранения

Чрезвычайные ситуации

Новости о вспышках болезней

Последние новости ВОЗ о вспышках болезней, содержащие информацию о подтвержденных чрезвычайных событиях в области общественного здравоохранения или предполагаемых событиях, вызывающих обеспокоенность.

Заражение человека вирусом гриппа птиц A(H5N1) – Чили

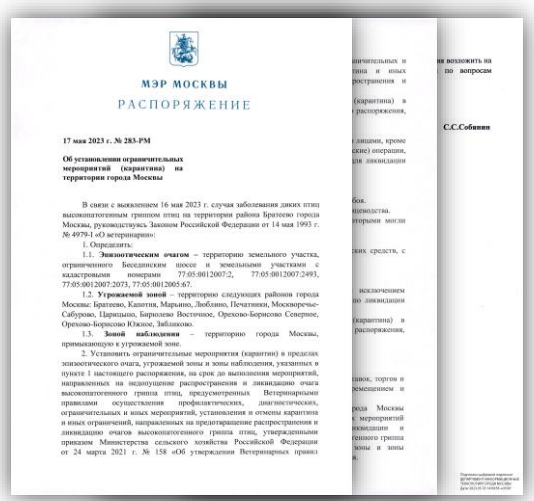
21 апреля 2023 г.

Current epizootic situation with highly pathogenic avian influenza in Russia

РОССЕЛЬХОЗНАДЗОР
Федеральная служба по ветеринарному и фитосанитарному надзору

Сводные картографические данные хронологии неблагополучия в РФ по особо опасным и экономически значимым болезням животных

– **Высокаптогенный грипп птиц** – по данным ВОЗЖ на 18 мая, в 2023-м году зарегистрировано 32 вспышки ВГП в РФ, в т.ч. 5 – среди домашней, 27 – среди дикой и декоративной птицы. На отчётную дату неоздоровленными остаются 29 очагов. Кроме этого, в ВОЗЖ не подана вспышка ВГП в Херсонской области, заболевание выявлено в Биосферном заповеднике Аскания Нова среди страусов.



МЭР МОСКВЫ

РАСПОРЯЖЕНИЕ

17 мая 2023 г. № 283-РМ

Об установлении ограничительных мероприятий (карантина) на территории города Москвы

В связи с выявлением 16 мая 2023 г. случая заболевания диких птиц высокопатогенным гриппом птиц на территории района Братеево города Москвы, руководствуясь Законом Российской Федерации от 14 мая 1993 г. № 4979-1 «О ветеринарии»:

1. Определить:

1.1. **Эпизоотическим очагом** – территорию земельного участка, ограниченного Бесединским проезд и земельными участками с кадастровыми номерами 77:05:0012007:2, 77:05:0012007:2493, 77:05:0012007:2073, 77:05:0012005:67.

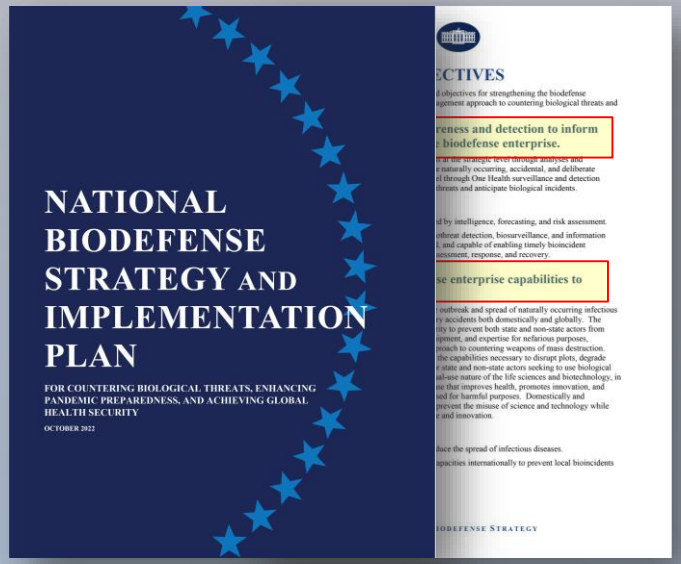
1.2. **Угрожаемой зоной** – территорию следующих районов города Москвы: Братеево, Капотня, Марьино, Люблино, Печатники, Москворечье-Сабурово, Царицыно, Бирюлево Восточное, Орехово-Борисово Северное, Орехово-Борисово Южное, Зябликово.

1.3. **Зоной наблюдения** – территорию города Москвы, примыкающую к угрожаемой зоне.

2. Установить ограничительные мероприятия (карантин) в пределах эпизоотического очага, угрожаемой зоны и зоны наблюдения, указанных в пункте 1 настоящего распоряжения, на срок до выполнения мероприятий, направленных на недопущение распространения и ликвидацию очага высокопатогенного гриппа птиц, предусмотренных Ветеринарными правилами осуществления профилактических, диагностических, ограничительных и иных мероприятий, установления и отмены карантина и иных ограничений, направленных на предотвращение распространения и ликвидацию очагов высокопатогенного гриппа птиц, утвержденными приказом Министерства сельского хозяйства Российской Федерации от 24 марта 2021 г. № 158 «Об утверждении Ветеринарных правил

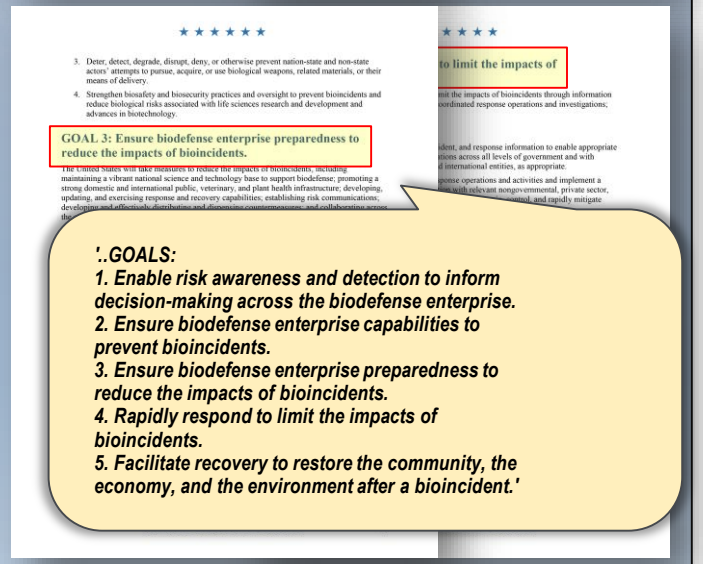
U.S. Biosecurity Strategies

National Biodefense Strategy (October 2022)

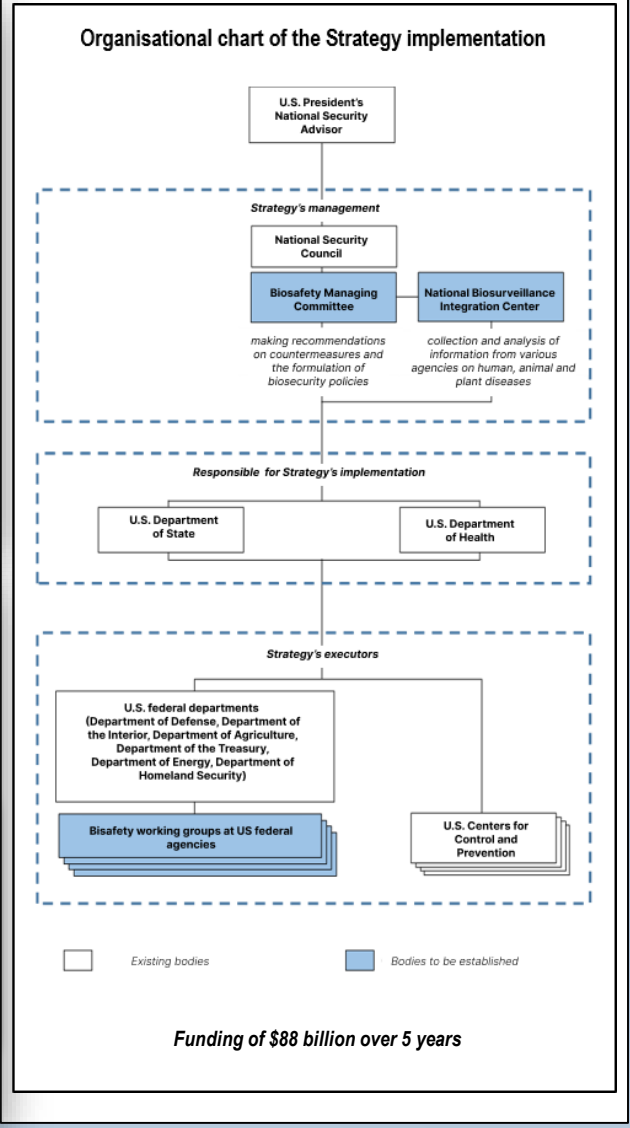

NATIONAL BIODEFENSE STRATEGY AND IMPLEMENTATION PLAN

FOR COUNTERING BIOLOGICAL THREATS, ENHANCING PANDEMIC PREPAREDNESS, AND ACHIEVING GLOBAL HEALTH SECURITY

OCTOBER 2022

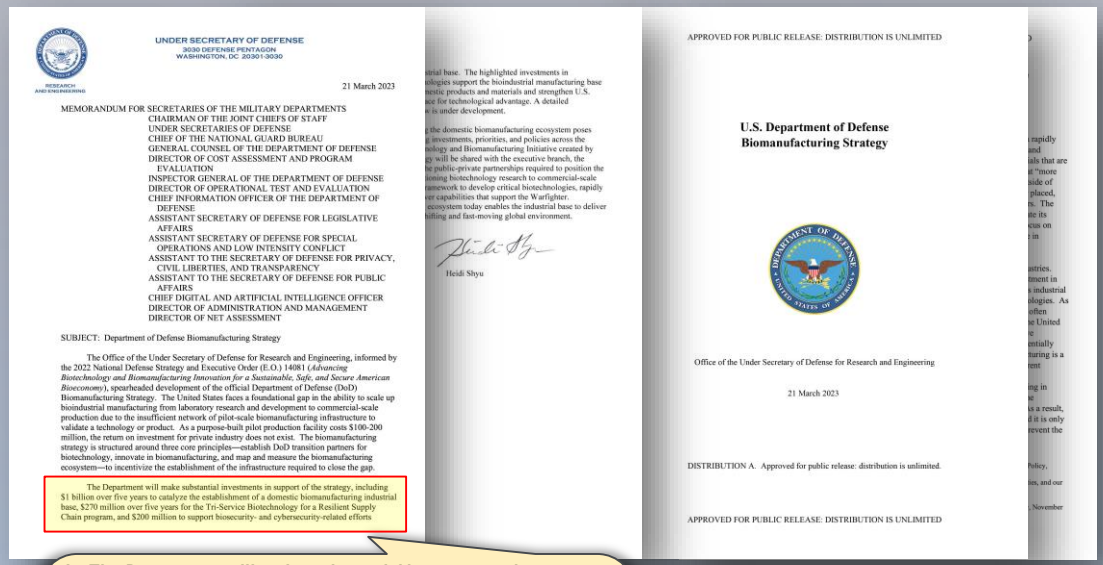

GOAL 3: Ensure biodefense enterprise preparedness to reduce the impacts of bioincidents.

'..GOALS:
1. Enable risk awareness and detection to inform decision-making across the biodefense enterprise.
2. Ensure biodefense enterprise capabilities to prevent bioincidents.
3. Ensure biodefense enterprise preparedness to reduce the impacts of bioincidents.
4. Rapidly respond to limit the impacts of bioincidents.
5. Facilitate recovery to restore the community, the economy, and the environment after a bioincident.'



Funding of $88 billion over 5 years

U.S. Department of Defense Biomanufacturing Strategy (March 2023)


UNDER SECRETARY OF DEFENSE
3030 DEFENSE PENTAGON
WASHINGTON, DC 20301-3030

21 March 2023

MEMORANDUM FOR SECRETARIES OF THE MILITARY DEPARTMENTS
CHAIRMAN OF THE JOINT CHIEFS OF STAFF
UNDER SECRETARIES OF DEFENSE
CHIEF OF THE NATIONAL GUARD BUREAU
GENERAL COUNSEL OF THE DEPARTMENT OF DEFENSE
DIRECTOR OF COST ASSESSMENT AND PROGRAM EVALUATION
INSPECTOR GENERAL OF THE DEPARTMENT OF DEFENSE
DIRECTOR OF OPERATIONAL TEST AND EVALUATION
CHIEF INFORMATION OFFICER OF THE DEPARTMENT OF DEFENSE
ASSISTANT SECRETARY OF DEFENSE FOR LEGISLATIVE AFFAIRS
ASSISTANT SECRETARY OF DEFENSE FOR SPECIAL OPERATIONS AND LOW INTENSITY CONFLICT
ASSISTANT TO THE SECRETARY OF DEFENSE FOR PRIVACY, CIVIL LIBERTIES, AND TRANSPARENCY
ASSISTANT TO THE SECRETARY OF DEFENSE FOR PUBLIC AFFAIRS
CHIEF DIGITAL AND ARTIFICIAL INTELLIGENCE OFFICER
DIRECTOR OF ADMINISTRATION AND MANAGEMENT
DIRECTOR OF NET ASSESSMENT

SUBJECT: Department of Defense Biomanufacturing Strategy

The Office of the Under Secretary of Defense for Research and Engineering, informed by the 2022 National Defense Strategy and Executive Order (E.O.) 14081 (*Advancing Biotechnology and Biomanufacturing Innovation for a Sustainable, Safe, and Secure American Bioeconomy*), spearheaded development of the official Department of Defense (DoD) Biomanufacturing Strategy. The United States faces a foundational gap in the ability to scale up bioindustrial manufacturing from laboratory research and development to commercial-scale production due to the insufficient network of pilot-scale biomanufacturing infrastructure to validate a technology or product. As a purpose-built pilot production facility costs $100-200 million, the return on investment for private industry does not exist. The biomanufacturing strategy is structured around three core principles—establish DoD transition partners for biotechnology, innovate in biomanufacturing, and map and measure the biomanufacturing ecosystem—to incentivize the establishment of the infrastructure required to close the gap.

The Department will make substantial investments in support of the strategy, including $1 billion over five years to catalyze the establishment of a domestic biomanufacturing industrial base, $270 million over five years for the Tri-Service Biotechnology for a Resilient Supply Chain program, and $200 million to support biosecurity- and cybersecurity-related efforts

APPROVED FOR PUBLIC RELEASE: DISTRIBUTION IS UNLIMITED

U.S. Department of Defense
Biomanufacturing Strategy

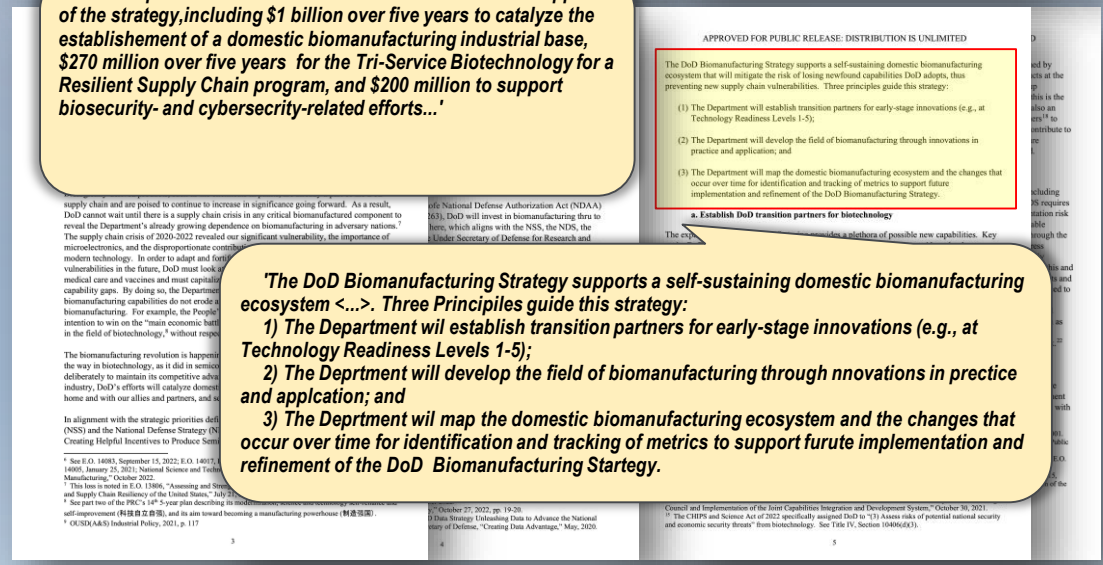
Office of the Under Secretary of Defense for Research and Engineering

21 March 2023

DISTRIBUTION A. Approved for public release: distribution is unlimited.

APPROVED FOR PUBLIC RELEASE: DISTRIBUTION IS UNLIMITED

'... The Department will make substantial investments in support of the strategy,including $1 billion over five years to catalyze the establishment of a domestic biomanufacturing industrial base, $270 million over five years for the Tri-Service Biotechnology for a Resilient Supply Chain program, and $200 million to support biosecurity- and cybersecurity-related efforts...'


APPROVED FOR PUBLIC RELEASE: DISTRIBUTION IS UNLIMITED

The DoD Biomanufacturing Strategy supports a self-sustaining domestic biomanufacturing ecosystem that will mitigate the risk of losing newfound capabilities DoD adopts, thus preventing new supply chain vulnerabilities. Three principles guide this strategy:

(1) The Department will establish transition partners for early-stage innovations (e.g., at Technology Readiness Levels 1-5);

(2) The Department will develop the field of biomanufacturing through innovations in practice and application; and

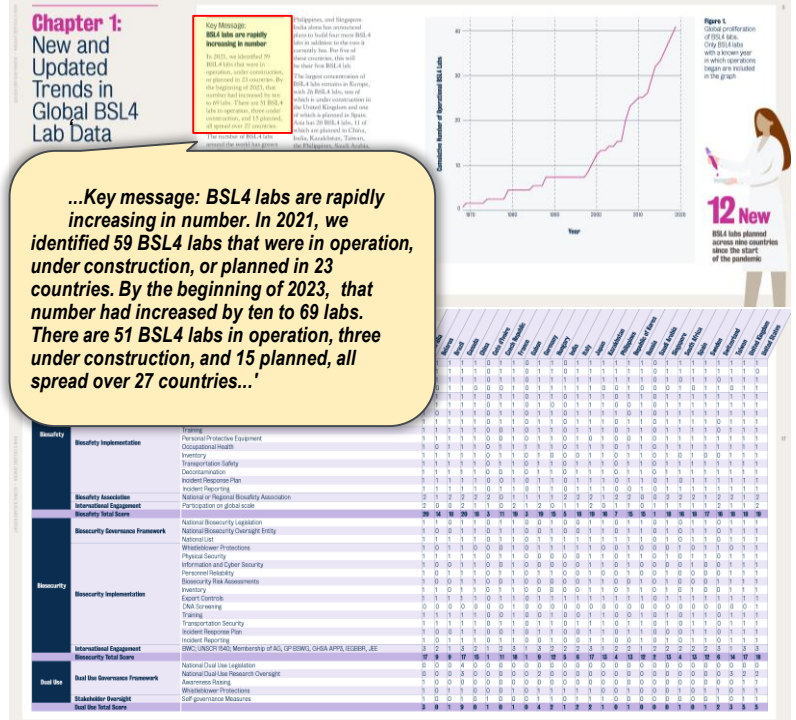
(3) The Department will map the domestic biomanufacturing ecosystem and the changes that occur over time for identification and tracking of metrics to support future implementation and refinement of the DoD Biomanufacturing Strategy.

a. Establish DoD transition partners for biotechnology

'The DoD Biomanufacturing Strategy supports a self-sustaining domestic biomanufacturing ecosystem <...>. Three Principiles guide this strategy:
1) The Department wil establish transition partners for early-stage innovations (e.g., at Technology Readiness Levels 1-5);
2) The Deprtment will develop the field of biomanufacturing through nnovations in prectice and applcation; and
3) The Deprtment wil map the domestic biomanufacturing ecosystem and the changes that occur over time for identification and tracking of metrics to support furute implementation and refinement of the DoD Biomanufacturing Startegy.

Expert Community Assessment of Biorisk Associated with U.S. Biological-Military Activities

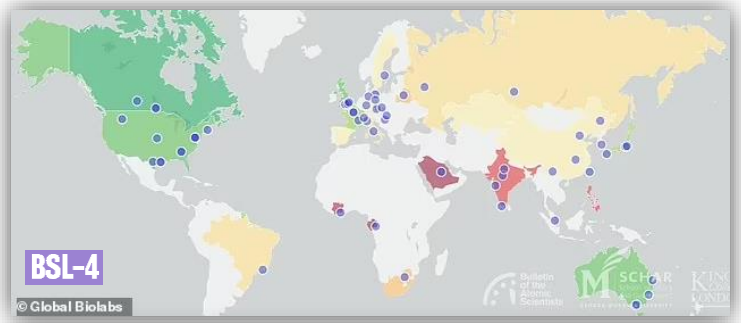
Global distribution of BSL4 and BSL3+ labs
King's College Longon Report (Global Biolabs, 2023)

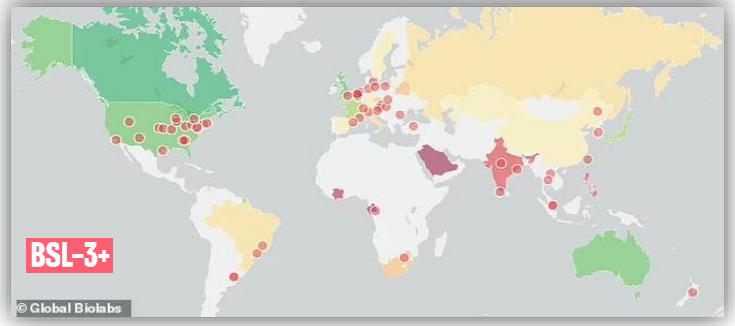


...Key message: BSL4 labs are rapidly increasing in number. In 2021, we identified 59 BSL4 labs that were in operation, under construction, or planned in 23 countries. By the beginning of 2023, that number had increased by ten to 69 labs. There are 51 BSL4 labs in operation, three under construction, and 15 planned, all spread over 27 countries...'

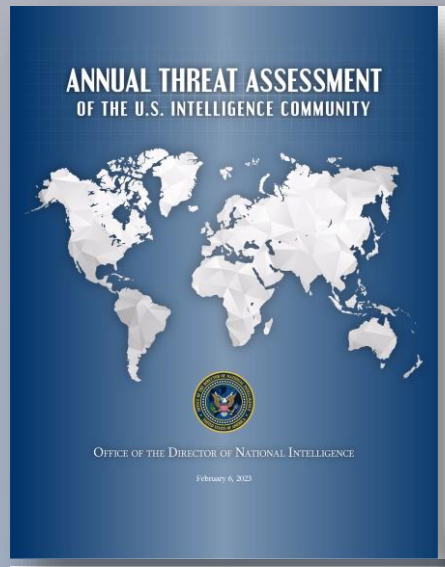
Table 1: Global distribution of BSL4 and BSL3+ labs

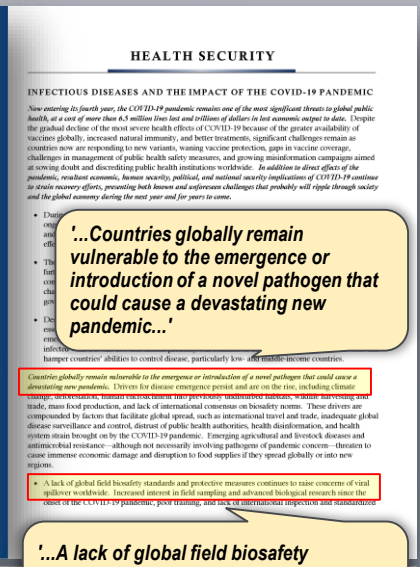
	BSL-4			BSL-3+			
	Per Region	Operational	Planned/Under Construction	Per Region	Operational	Planned/Under Construction	Total
Europe	26	24	2	21	21	0	47
Asia	20	9	11	10	10	0	30
Africa	3	2	1	2	2	0	5
North America	15	12	3	19	18	1	34
Oceania	4	4	0	1	1	0	5
South America	1	0	1	4	3	1	5
Total	69	51	18	57	55	2	126





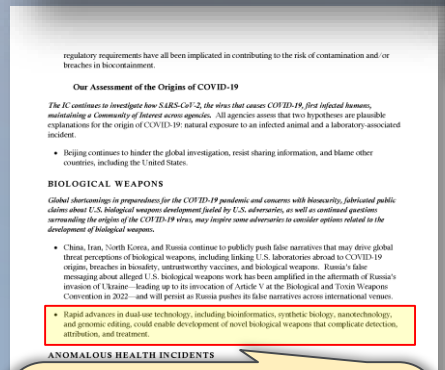
Annual Threat Assessment of the U.S. Intelligence Community (6 February 2023)



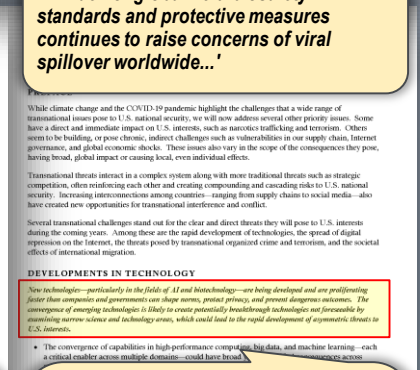


'...Countries globally remain vulnerable to the emergence or introduction of a novel pathogen that could cause a devastating new pandemic...'

'...A lack of global field biosafety standards and protective measures continues to raise concerns of viral spillover worldwide...'



'...Rapid advances in dual-use technology, including bioinformatics, synthetic biology, nanotechnology, and genomic editing, could enable development of novel biological weapons that complicate detection, attribution, and treatment...'



'...New technologies—particularly in the fields of AI and biotechnology—are being developed and are proliferating faster than companies and governments can shape norms, protect privacy, and prevent dangerous outcomes...'

Confirmed Biosecurity Violations in the U.S.

Publication by The Intercept, a U.S. nonprofit news organization, about biosecurity violations in the U.S.

Experimenting With Disaster Part 1

In America's biolabs, hundreds of accidents have gone undisclosed to the public.

Experimenting With Disaster Part 2

In America's biolabs, hundreds of accidents have gone undisclosed to the public.

Experimenting With Disaster Part 3

In America's biolabs, hundreds of accidents have gone undisclosed to the public.

'In America's labs, hundreds of accidents have gone undisclosed to the public'.

EXPAND ALL PARTS

THE GRADUATE STUDENT was on a Saturday, handling a mouse infected with a debilitating virus, when the needle slipped. She wore two gowns, two pairs of shoe covers, a hair net, a face mask, and two pairs of gloves. Gingerly, she had pointed the needle at the mouse's abdomen and injected the antibody. The animal was infected with a recombinant strain of Chikungunya virus, a mosquito-borne pathogen that has sparked epidemics in Africa and the Caribbean. Chikungunya can wreak havoc in other regions when the right kind of mosquito is present; in 2007 and 2017 there were outbreaks in Italy, and in 2014 the virus hit Florida, infecting 11 people who had not recently traveled abroad. In January 2016, nine months before the researcher stood in the lab that weekend, a locally acquired infection was diagnosed in Texas.

A researcher was smack in the middle of Manhattan, in a lab one block from Central Park's East Meadow. It was the Friday afternoon before Labor Day in 2011, and people were rushing out of the city for a long weekend. Three days earlier, the ferret had been inoculated with a recombinant strain of 1918 influenza, which killed between 20 and 50 million people when it swept through the world at the end of World War I. To prevent it from sparking another pandemic, 1918 influenza is studied under biosafety level 3 conditions, the second-tightest of biosafety controls available. The researcher at Mount Sinai School of Medicine (now Icahn School of Medicine at Mount Sinai) was wearing protective equipment, including two pairs of gloves. But the ferret bit hard enough to pierce through both pairs, breaking the skin of his left thumb.

STARTED WITH a bold idea. "Someone finally convinced me to do something really, really stupid," virologist Ron Fouchier told Scientific American in 2011. Fouchier, of Erasmus Medical Center in Rotterdam, and another scientist, Yoshihiro Kawaoka of the University of Wisconsin–Madison, had separately tweaked the H5N1 virus — an influenza that primarily infects birds — in a way that made it spread more easily in ferrets. H5N1 is a prime pandemic candidate, and ferrets are often used as proxies for humans in flu experiments. When word got out that the two scientists were planning to publish papers detailing their experiments, making a blueprint available to the world, the outcry was extreme. The scientists were trying to better understand H5N1 in order to prevent a pandemic, but critics worried that their experiments could instead cause one — or provide would-be bioterrorists with an outbreak manufacturing guide.

The Intercept_

- In 2013, a researcher at Kansas State University in Manhattan, Kansas, pricked their finger while drawing blood from a chicken infected with H5N1 avian influenza. The scientist had handed a used syringe to an assistant while trying to get a better grasp of the chicken's jugular vein. The assistant returned it needle side out, piercing through the scientist's gloves. The researcher was prescribed Tamiflu for one week and told to immediately report a fever. Kansas State University did not respond to a request to comment.
- Between April 2013 and March 2014, the University of North Carolina at Chapel Hill reported five mouse escapes, including one of an animal that had been infected with SARS four days earlier. In a letter to NIH, a biosafety specialist argued that the frequency of escapes was due to the "complex research taking place at our institute" rather than a failure of training, noting that several teams at the university use a breed of transgenic mouse known for its unpredictable behavior. After the SARS-infected mouse darted under lab equipment, researchers cornered it with a broom and returned it to its cage. The University of North Carolina did not respond to a request to comment.

The Intercept_

- In 2018, a researcher at the Food and Drug Administration's Center for Biologics Evaluation and Research in Silver Spring, Maryland, contracted a MRSA infection, a condition that can become severe if left untreated, after working with the antibiotic-resistant bacteria MRSA in the lab. The researcher could not recall any mishaps that would have led to infection, a situation that experts say is common with laboratory-acquired infections. The FDA center did not respond to a request to comment.
- In early 2020, amid the shortage in respirators and masks brought on by the pandemic, a lab at Tufts University conducted low-risk experiments with the H3N2 flu virus without proper equipment. A student spilled a test tube containing a small about of virus, potentially exposing five people. None were initially wearing masks. (Two later put them on to clean up the spill.) H3N2 is a seasonal flu virus and not considered a dangerous pathogen, but in an email to Tufts, an administrator at NIH highlighted a series of omission and errors. These included the lab's failure to provide personal protective equipment, a lack of proper safety signage, and the failure of researchers to seek appropriate medical care after being exposed to the virus. The NIH administrator also recommended that the principal investigator be retrained. Tufts declined to comment.

Publications about biosecurity violations at Fort Detrick on the website of the Embassy of the People's Republic of China in Germany and the Chinese newspaper China Daily


中华人民共和国驻德意志联邦共和国大使馆
Botschaft der Volksrepublik China in der Bundesrepublik Deutschland

Home > Themen > Bekämpfung COVID-19

Full text: Doubtful Points about Fort Detrick (USAMRIID)

2021-11-09 10:50

The full text of the non-paper entitled "Doubtful Points about Fort Detrick (U.S. Army Medical Research Institute of Infectious Diseases)."

Fort Detrick, where the United States Army Medical Research Institute of Infectious Disease (USAMRIID) is located, is the center of U.S. bio-military activities and notorious for its illegal, non-transparent and unsafe practices. Serious concerns have long been raised by the international community over U.S. activities at Fort Detrick, in particular about USAMRIID, and there are many doubtful points about its connections with COVID-19.

1. Fort Detrick was the center of the U.S. biological weapons program in history and USAMRIID was the main research entity there. Fort Detrick was known as the center of the U.S. government's darkest experiments. It remains the development center for U.S. germ warfare research, even after U.S. renouncement of all offensive biological weapons programs in 1969 and ratification to the Biological Weapons Convention (BWC) in 1975.

2. The BSL-4 lab in USAMRIID is the only BSL-4 lab of the U.S. military.

USAMRIID stores almost all known deadly pathogens, such as Ebola, anthrax, smallpox, plague, and coronaviruses including SARS. Several staff in USAMRIID have conducted researches related to SARS, MERS and other coronaviruses. Back in 2003, after the SARS outbreak, USAMRIID worked with Ralph Baric's team from the University of North Carolina (UNC) and developed a novel reverse genetic system for manipulation of a full-length cDNA of the SARS-CoV, and relevant outcomes were published in a paper in 2005. According to the paper, within two months after obtaining the RNA of the SARS virus, the full-length cDNA of the virus was successfully synthesized. This shows that as early as 2003, these institutes already had the advanced capabilities to synthesize and modify SARS-related coronaviruses. In 2007, USAMRIID published a paper on the Journal of Virology about using the Ebola virus to conduct animal testing on rhesus monkeys. The virus strains used in the experiments were obtained through reverse genetics techniques, to specifically remove the furin cleavage site, in order to compare the changes in virulence of the viruses. It is worth noting that the furin cleavage site is believed to be one of the reasons that makes SARS-CoV-2 highly virulent. In 2018, USAMRIID carried out experiments on African green monkeys. The monkeys were experimentally infected with MERS-CoV to help study viral pathogenesis and develop vaccines. After COVID-19 broke out, USAMRIID and the Walter Reed Army Institute of Research (WRAIR), a research institute affiliated to the U.S. Army Medical Research and Development Command, co-developed the SARS-CoV-2 vaccine.

CHINADAILY.COM.CN Global Edition

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Full text: Doubtful Points about Fort Detrick (USAMRIID)

Xinhua | Updated: 2021-08-26 08:17

Personnel at work in the biosafety level-4 laboratory at the US Army Medical Research Institute of Infectious Diseases at Fort Detrick in 2002. [OLIVIER DOULIERY/AGENCE FRANCE-PRESSE]

'...In 2009, U.S. officials discovered during inspections that many of the pathogens being studied at the institute had not been entered into the laboratory's database, after which they suspended some of its research.<...>
During CDC inspections at the USAMRIID laboratory in June 2019, serious irregularities were found. The CDC then closed the laboratory <...>.
After the labs were closed, there were outbreaks of respiratory disease in nearby communities...'

Publication on U.S. WUSF's website about the Fort Detrick leak

wusf Public Media

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Did a military lab spill anthrax into public waterways? Book reveals details of a US leak

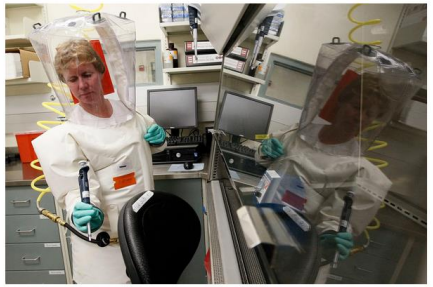
Health News Florida | By Alison Young - via KFF Health News

"...On the morning of 25 May 2018, an overpressure occurred at a sterilisation facility in a waste tank from the USAMRIID laboratory at Fort Detrick working with deadly pathogens, causing the unsterilised substance to spill out..."

The New York Times publication on biosecurity breaches at Fort Detrick

The New York Times

Deadly Germ Research Is Shut Down at Army Lab Over Safety Concerns



Problems with disposal of dangerous materials led the government to suspend research at the military's leading biodefense center.

Italian protests over the placement of biolaboratories

NAMRU-3 military biolab moves to Italy

l'ANTIDIPLOMATICO
LIBERI DI SVELARVI IL MONDO

EUROPA 12 Settembre 2022 14:00

I BIOLABORATORI MILITARI TRASLOCANO E UNO È GIÁ A CASA "NOSTRA"

Il segreto che avvolge i biolaboratori americani permette di trasferirli nel silenzio generale anche in paesi come l'Italia. Nel dicembre 2019 ad esempio era iniziato il complesso

'...The secrecy surrounding American laboratories allows them to be reduced to widespread quiet, even in nations like Italy...'

Si tratta di un'unità, tra le maggiori del suo genere, che ha il compito di "studiare, monitorare ed individuare minacce sanitarie emergenti e riemergenti di importanza militare e

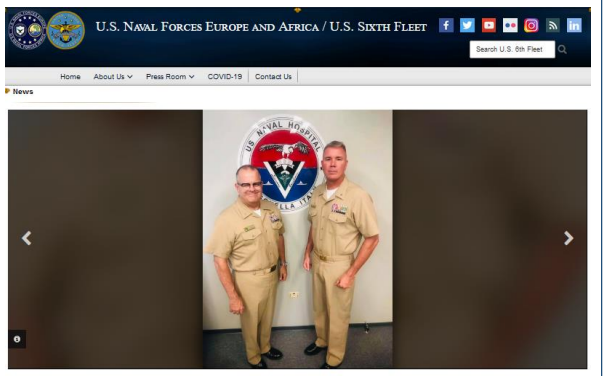
L'importanza e le dimensioni di questa struttura, pur se situata in una base militare fuori dalla giurisdizione italiana, avrebbero imposto al governo di informare i cittadini, ma tutto ciò non è avvenuto. Non dimentichiamo che questo trasferimento ha avuto luogo nel 2020 in piena "emergenza Covid", risulta quindi oltremodo sospetto che non si sia colta l'occasione per parlare di questo laboratorio se, sulla carta, aveva come obiettivo proprio lo studio delle minacce sanitarie.

'...The importance and size of this structure, even if it were on a military base outside Italian jurisdiction, would have required the government to inform the citizens, but it did not...'

..'.the transfer took place in 2020 in the midst of a 'COVID emergency,' so it is highly suspicious that there was no story about this lab if, on paper, its purpose was to study health threats...'

Così, mentre l'intero paese veniva messo in lockdown, ufficialmente per "proteggere la salute degli italiani", arrivava a Sigonella un biolaboratorio militare americano del quale non si doveva sapere nulla. Esiste pure un comunicato [illegible] ma i nostri

"...while the entire country was under lockdown, officially to 'protect the health of Italians,' an American military biolab arrived in Sigonella, of which nothing was known..."



NEWS | Dec. 12, 2019

NAMRU-3 Moves to Sigonella, Italy

By Cmdr. Dean J. Wagner, executive officer of NAMRU-3

Reaction of the residents of Pesaro on construction of biolabs

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Cronaca e Attualità

Biolaboratorio sperimentale a Pesaro, presentato il ricorso al presidente della Repubblica

'Experimental Biolab in Pesaro, Address to the President of Italy'.

L'associazione ne spiega i motivi. «Il Comu[illegible] confronto competitivo tra offerenti – regola che non è derogabile neppure per l'ipotesi in cui la vendita corra tra enti pubblici. In ogni caso, e forse ancor più gravemente, non ha fatto stimare il valore dell'area, sicché ha accettato il prezzo proposto da Istituto Zooprofilattico senza alcun approfondimento. Oltre a rendere invalida la delibera, questi vizi portano alla responsabilità avanti la Corte dei Conti di tutti i consiglieri che hanno votato a favore della vendita. Inoltre, gli uffici comunali avevano subordinato il loro parere favorevole al fatto che il laboratorio e le stalle non fossero industrie insalubri di prima classe e, invece, secondo costante giurisprudenza, sono inclusi tra le lavorazioni insalubri di prima classe».

https://youtu.be/65pPS4QlcTI

Marco Palangi, a resident of the Torraccia district (a suburb of Pesaro) said in an interview: 'In these kinds of biolaboratories they bring healthy animals, subject them to artificial infection with a virus, and then experiment on them in order to produce a vaccine, which, in his opinion, is unacceptable behavior towards animals'.

ATTUALITÀ PESARO

Laboratorio sperimentale a Pesaro, il comitato pronto all'esposto. «Pericoloso per uomini e animali»

I cittadini si sono riuniti in assemblea e hanno raccolto oltre 1.000 firme. «Potrà eseguire esperimenti su animali (in vivo) o su cellule (in vitro) e manipolare virus»

Luigi Benelli - 8 Gennaio 2023

'Experimental Laboratory in Pesaro, committee ready for exhibition. "Dangerous to people and animals".'

La riunione del comitato

affaritaliani.it 26 ANNI ONLINE DAL 1996

Biolaboratorio, livello sicurezza 3 a Pesaro. La paura di un'altra Wuhan...

Pesaro proteste dei cittadini per la creazione in città di un laboratorio di bio-sicurezza (BSL3), un gradino sotto quello di Wuhan al centro del Sars Cov 2

di Antonio Amorosi

'Biolab, BSL-3 security level in Pesaro. Fear of Another Wuhan'

Laboratorio sperimentale di Bio sicurezza a Pesaro nelle Marche. Il Comune del sindaco Matteo Ricci ha approvato la vendita del terreno per il progetto

Il Comune di Pesaro ha autorizzato la vendita di un terreno pubblico per **"la creazione di un laboratorio di bio-sicurezza (BSL3)"** a cura "dell'Istituto Zooprofilattico Sperimentale dell'Umbria e delle Marche 'Togo Rosati'". Nella delibera il Comune spiega cosa si intenda per laboratorio di bio-sicurezza BSL3: **"ossia una struttura in grado di garantire sperimentazioni e manipolazioni, in vivo e in vitro, di agenti virali pericolosi per la salute animale e**

Involvement of Walter Reed Army Institute of Research in implementation of military-biological programmes in Ukraine

WRAIR Walter Reed Army Institute of Research
Defense Health • Global Health

Walter Reed Army Institute of Research and the U.S. Army Medical Research Units

Creating a global biological monitoring system

EIDSS Electronic Integrated Disease Surveillance System

Terms of Reference
Introduction of the Electronic Integrated Disease Surveillance System (EIDSS) and the Pathogen Asset Control System (PACS) in Ukraine

'...Establish a nationwide disease surveillance and reporting system...'

'...The development of EIDSS is based on cutting edge expertise from institutes such as ... Walter Reed Army Institute of Research (WRAIR)...'

Training for Ukrainian specialists

BTRP Train-the-Trainer Program Meeting
January 27-29, 2009

'BTRP Train-the-Trainer Program Meeting'

'...Robert Lipnick - Director, Epidemiology and Biostatistics, U.S. Walter Reed Army Institute of Research (WRAIR)...'

Study of tick-borne encephalitis, West Nile fever, Crimean-Congo hemorrhagic fever and tularemia pathogens, and other diseases (UP-1 Project)

Clinical Protocol

'A seroprevalence study of prior exposure to select arthropod-borne infections in western Ukraine'

'Statistician: Danielle Clark, MPH, Division of Preventive Medicine, Walter Reed Army Institute of Research (WRAIR)...'

'Phenotypic and genotypic characterization of antibiotic resistance in military hospital-associated bacteria from war injuries in the Eastern Ukraine conflict between 2014 and 2020'

'...Blood samples will be obtained from approximately 815 people in a population survey. people in a population survey. Samples can be tested for antibodies against the following potentially arthropod-borne infections: spotted fever and typhus group Rickettsiae, Crimean-Congo hemorrhagic fever (CCHF), tick-borne encephalitis (TBE), Q fever, tularemia, West Nile Fever virus (WNV), Lyme disease...'

Journal of Hospital Infection
Volume 112, June 2021, Pages 69-76

Phenotypic and genotypic characterization of antibiotic resistance in military hospital-associated bacteria from war injuries in the Eastern Ukraine conflict between 2014 and 2020

V. Kondratiuk[a], B.T. Jones[b], V. Kovalchuk[c], I. Kovalenko[c], V. Ganiuk[d], O. Kondratiuk[e], A. Frantsishko[f]

[a] Department of Emergency and Military Medicine, National Pirogov Memorial Medical University, Vinnytsia, Ukraine
[b] Walter Reed Army Institute of Research, Multidrug-Resistant Organism Repository and Surveillance Network, Silver Spring, MD, USA

'...B.T.Jones Walter Reed Army Institute of Research (WRAIR)...'

Creation of a system of continuous monitoring of the epidemic process of especially dangerous diseases (UP-2 project)

'...Partner is Gavin Brownstein (PhD),Walter Reed Army Institute of Research (WRAIR)...'

PARTNER PROJECT AGREEMENT STCU P363 / DTRA UP-2

between

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

the Science and Technology Center in Ukraine

and

Central Sanitary Epidemiological Station
Lviv Research Institute of Epidemiology and Hygiene

Kyiv

Operative Commencement Date: __________

ПРОПОЗИЦІЯ ПО ПАРТНЕРСЬКОМУ ПРОЕКТУ УНТЦ P363 ПР-1

'...Project Supervisor - Mr. Troy Baker, U.S. DoD/Defense Threat Reduction Agency

Address: Walter Reed Army Institute of Research (WRAIR)...'