



REPUBLICAN RESEARCH & PRACTICAL CENTRE FOR EPIDEMIOLOGY &
MICROBIOLOGY

MINISTRY OF PUBLIC HEALTH OF THE REPUBLIC OF BELARUS

State control of dangerous human infection diseases

Anatoli G. KRASKO

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MAP OF BELARUS



Total land area of Belarus
207,600 km²
Nationality of Belarus
Population – 9.463,8 million
(on 1 January 2013)
The capital is MINSK –
1.901,1
million inhabitants



CONTROL ON DANGEROUS INFECTIONS IS PRIORITY PROBLEM OF PUBLIC HEALTH IN BELARUS



Geographic location of the country

- *center of east Europe*
- *crossroad of population migratory streams –*
West ↔ *East*, *South* ↔ *North*



Specific natural conditions

- *almost 1/3 of the country is forest land with numerous swamps, rivers and more than 10000 lakes => natural foci diseases: rabies, tick-borne encephalitis, lymphocytic choriomeningitis, Lyme borreliosis, hemorrhagic fever with renal syndrome et. alt.*
- *migration ways of birds => existence of “exotic” for Belarus agents: West Nile virus (Flaviridae), Tyahyna virus (California encephalitis virus Group), Kindia, Bluetongue (Reoviridae), Moussuril (Rhabdoviridae), etc.*



Ecological conditions

- *developed chemical industry*
- *radionuclide-contamination after Chernobyl disaster*



Infection Control in Belarus:

- **State** System of Public Health
- **State** Epidemiological Service – Regional and Republican Centers for Epidemiology & Hygiene
- Regional, State & International Programs
- National Reference Centers on Different Actual Infections
- Close Collaboration with Research & Practical Centers in Country and International





INTERNATIONAL PROGRAMMS

- **European Influenza Surveillance Scheme (EuroFlu);**
- **Global Polio Eradication Initiative;**
- **International Programme for the Elimination of Measles and Rubella in the European Region**
- **European Laboratory Working Group on Diphtheria (ELWGD) & Diphtheria Surveillance Network (DIPNET);**
- **Interstate Coordination Council of the CIS on hospital-acquired infections, monitoring of antibiotic resistance of microorganisms;**
- **WHO Global Outbreak Communications Network**



ORGANIZATION of WORK WITH SPECIAL PATHOGENS in BELARUS

- 1. Effective norm and law basis**
 - *Laws and sub-laws acts of the Republic of Belarus*
- 2. Scientific and methodical basis**
 - *Special research on biosafety*
 - *Developing of instructions, methodical recommendation, and guides*
 - *Test systems developed and produced on the basis of Republican Research & Practical Centre for Epidemiology and Microbiology (RRPCEM)*
- 3. Existence of labs of P3-P4 levels**
- 4. Large experience of the work: since 1972**
- 5. Developed infrastructure and mechanism of control of biosafety**
 - *State system of Public health*
 - *Research and practice institutions working on the problem*
 - *Effective working system of sanitary and epidemiological surveillance*



Legal documents

1. Laws of the Republic of Belarus:

- The law on a health care, 1818.06.1993
- On the sanitary-epidemiological welfare of the population, 07.01.2012
- On the safety of genetic engineering, 09.01.2006

2. Resolution of the Council of Ministers "On some issues about movement of certain goods across the customs border of the Republic of Belarus", 23.09.2008 № 1397

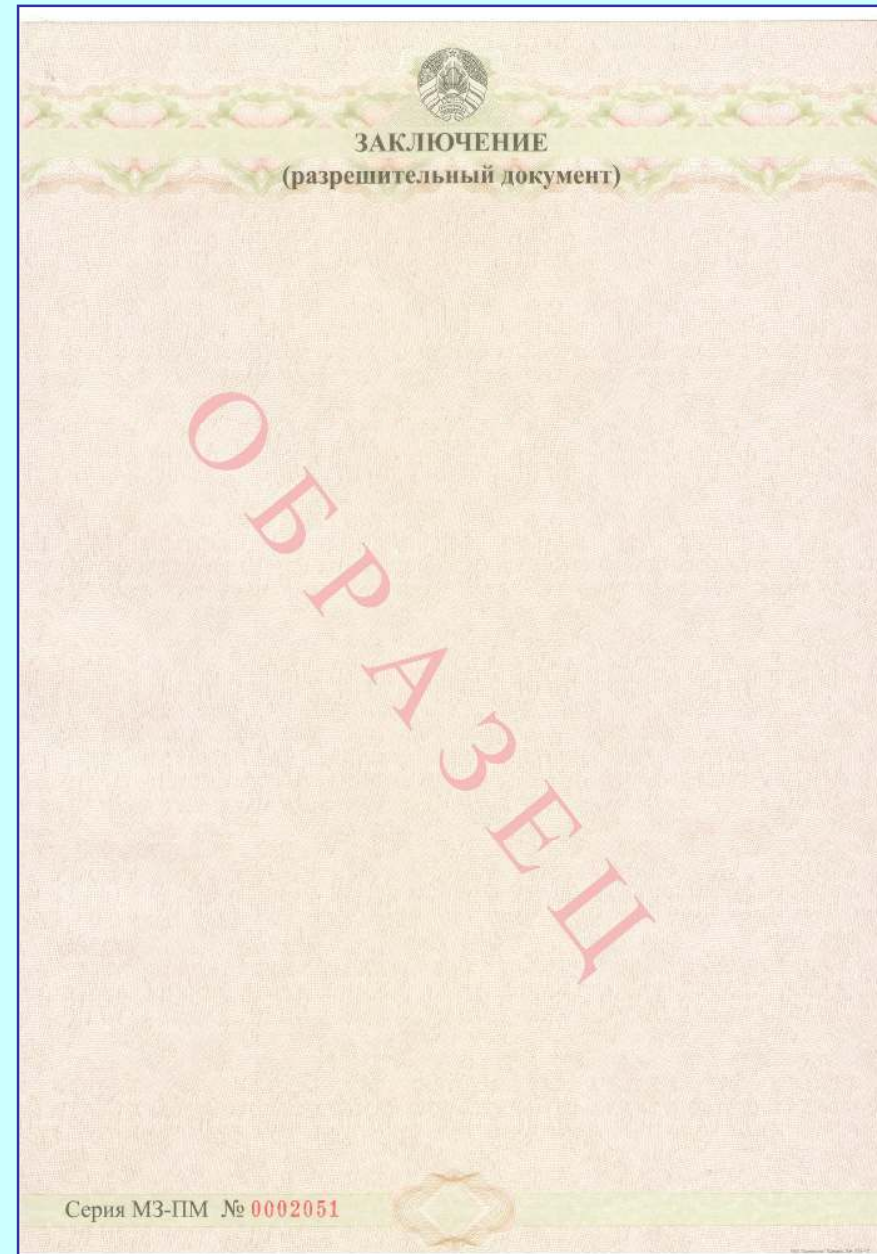
3. Sanitary norms and rules:

- *Sanitary and Epidemiological Requirements for the safe operation of microbial pathogenicity groups 1-2;*
- *The treatment, storage, transfer and transport of microorganisms I-IV pathogenicity groups;*
- *The sanitary and epidemiological requirements for sanitary protection of the territory of the Republic of Belarus.*



Permit - 1

From 1 January of 2013 in Belarus, as well as in other countries of the Customs Union (Russia and Kazakhstan), introduced a single form of conclusion (permit) for cross-border movement of goods, which are subject to bans or restrictions on cross-border movement. The form of permission is a form of strict accountability, made typographically with several degrees of protection.





Permit - 2

The completed form shall be signed by the heads of the Custom Union agencies; specimen signatures of authorized persons and the stamp submitted to the State Customs Committee of the Republic of Belarus.

Приложение № 1
к Решению Коллегии
Евразийской экономической комиссии
от 16 мая 2012 г. № 45

ЗАКЛЮЧЕНИЕ
(разрешительный документ)

№ ___/201/_____

(Наименование органа государственной власти государства - члена Таможенного союза,
выдавшего заключение)

Выдано _____
(Название организации, юридический адрес, страна (для физических лиц Ф.И.О.))

Вид перемещения _____
(Вид перемещения)

(Раздел Единого перечня товаров) _____
(Код ТН ВЭД ТС*)

Наименование товара	Количество	Единица измерения

Получатель/отправитель* _____
(Название, юридический адрес, страна)

Страна назначения/отправления* _____
Цель ввоза (вывоза) _____
Срок временного ввоза (вывоза) _____
Основание: _____

Дополнительная информация _____

Страна транзита* _____
(Транзит по территории)

Подпись _____ Дата _____

Заключение действительно до _____

МП _____
(Ф.И.О.)

(Должность)

*строки заполняются с учетом требований к категориям товаров.



MAIN ELEMENTS OF SAFETY WORK IN LABS OF P3-P4 LEVELS IN RRPCEM

1. *Cabinet system*

- Protected technological lines: 2-3 types biosafety cabinets

2. *Exhausted ventilation*

- Negative pressure
- Pressure gradients in rooms of different zones
- Multiple filtration of outlet air

3. *Regular supply of electricity*

- Doubling and reserving of sources
- Autonomic emergency supply of electricity

4. *Organization of research*

- Rules of regimen
- Staff training
- Maximal transfer of dangerous work steps with infectious material on safety ones (gene engineering and others biotechnologies)

5. *Organization of security*

- Separate lab's rooms
- Labs
- Lab's building in the whole





GENERAL VIEW OF LABS OF P3-P4 LEVELS



NEW TECHNOLOGIES & EQUIPMENT – NEW POSSIBILITIES





Necessity of improvement of lab's system safety

➤ Reasons of nature origin:

- investigations of new dangerous agents (AIDS, SARS, MERS CoV, avian flu H5N1, H7N9, etc.)**
- investigations unstudied agents (f.ex. prions)**
- possibility of new dangerous agent isolation**

➤ Reasons of artificial origin:

- investigations of eliminated agents (smallpox, wild poliomyelitis)**
- bioterrorism**
- biological weapons threat**

➤ International commitments:

- Cartagena Protocol on Biosafety to the Convention on Biological Diversity**
- Revision of International Medical Regulations**
- Resolution of United Nations Security Council # 1540 (2004)**



Storage and maintenance of collection of microorganisms in RRPCEM

National collection of pathogenic viruses and bacteria in RRPCEM includes lots of strains and cultures isolated in different periods in the territory of Belarus, CIS, several countries of Africa, Latin America and were obtained from another collections.

The collection includes agents of slow infections, filo-, flavi-, togo-arena-, orthomyxo- viruses, HIV, pathogenic strains of bacteria. The collection, also, includes prototype bacterial strains, resistance variants of bacteria, and recombinant plasmids.

Maintaining collection, we:

- ✓ provide standard conditions for pathogens culturing**
- ✓ upgrade laboratory technic to maintain special temperature parameters for culture freezing and storage**
- ✓ introduce modern recombinant plasmid technologies.**



IMPROVEMENT OF LAB'S SYSTEM SAFETY

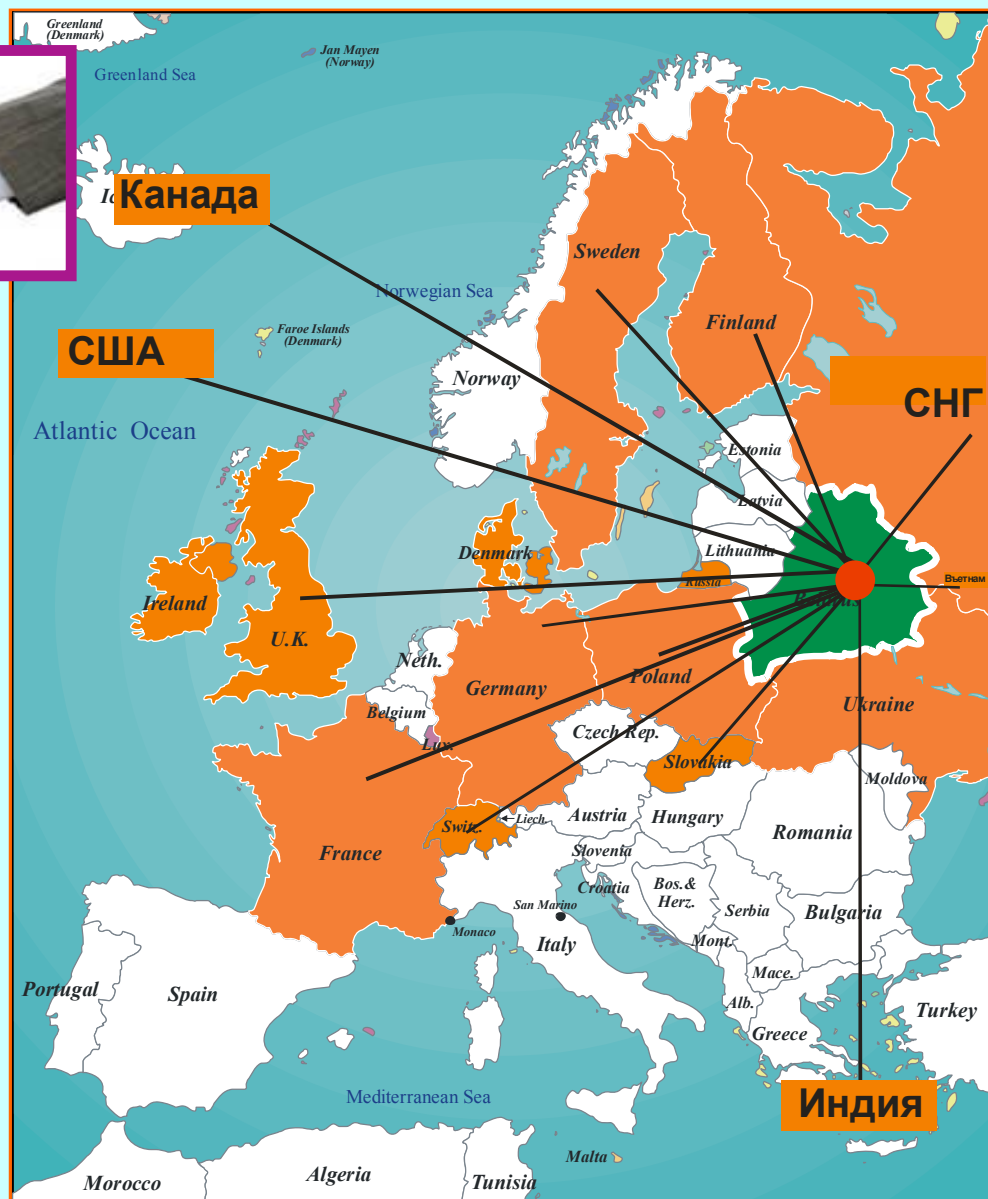
- ❖ ***Providing of safety storage of biological material***
 - Upgrading of physical security system of refrigeration equipment to prevent unsanctioned access
 - Upgrading of room's security level to storage of biological material to prevent unsanctioned access

- ❖ ***Providing and improvement of system of regular supply of electricity, ventilation of cabinet lines and lab's rooms***

- ❖ ***Providing of security of labs and lab's building in the whole to prevent unsanctioned access by following means:***
 - technical devices
 - physical security
 - arrangement measures



INTERNATIONAL COLLABORATION



- Denmark
- England**
- Estonia
- France
- Germany**
- Holland
- India
- Iran**
- Kazakhstan**
- Latvia
- Lithuania**
- Luxemburg
- Moldova
- Poland
- Russia**
- Sweden
- Switzerland
- Tajikistan
- USA
- Canada



Thanks for attention