



## INFECTION PREVENTION AND CONTROL CURRICULUM IN THE NATIONAL CENTER FOR PUBLIC HEALTH OF THE MOH RK FOR EPIDEMIOLOGISTS AND LEADERS OF HEALTHCARE ORGANIZATIONS

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of biological sciences, professor*

**Almaty, 2022**



## PURPOSE OF THE PROGRAM:



To form a pool of infection control specialists with modern competencies in infection prevention and control, and to implement best practices and international guidelines for IPC in healthcare facilities.







Утверждаю  
Зам. Председателя Правления  
РГП на ПХВ "Национальный центр  
общественного здравоохранения" МЗ РК к.м.н.  
А.М. Куатбаева  
«21» мая 2021г.



# CURRICULA

## Программа курса повышения квалификации

Наименование специальности в соответствии с Номенклатурой специальностей и специализаций	Менеджмент в здравоохранении
Наименование программы	«Профилактика инфекции и инфекционный контроль (ПИИК) для менеджеров здравоохранения»
Вид программы (повышение квалификации/сертификационный цикл/мероприятие неформального образования)	повышение квалификации
Требования к предшествующему уровню образования (целевая группа)	высшее образование в здравоохранении
Язык обучения	Казахский, русский
Объем в кредитах	2
Объем часов	60 ч
/из них аудиторные/самостоятельные	/30/30
Документ об окончании (свидетельство об окончании СК, свидетельство о повышении квалификации, сертификат об участии в мероприятиях неформального образования)	свидетельство об окончании курса повышения квалификации
Присваиваемая квалификация (для программ СК)	-
Уровень программы повышения квалификации (базовый, средний, высший, специализированный)	высший уровень
Полное наименование организации разработчика	НЦОЗ МЗ РК

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А.М. Куатбаева  
«21» мая 2021г.



## Программа о повышении квалификации (специализированный цикл)

Наименование специальности в соответствии с Номенклатурой специальностей и специализаций	Общественное здоровье (Эпидемиология)
Наименование программы	«Профилактика инфекции и инфекционный контроль (ПИИК)»
Вид программы (повышение квалификации/сертификационный цикл/мероприятие неформального образования)	сертификационный цикл
Требования к предшествующему уровню образования (целевая группа)	Высшее или среднеспециальное образование в здравоохранении
Язык обучения	Казахский, русский
Объем в кредитах	7
Объем часов	210 ч
/из них аудиторные/самостоятельные	/110/100
Документ об окончании (свидетельство об окончании СК, свидетельство о повышении квалификации, сертификат об участии в мероприятиях неформального образования)	свидетельство о повышении квалификации (специализированный цикл)
Присваиваемая квалификация (для программ СК)	-
Уровень программы повышения квалификации (базовый, средний, высший, специализированный)	средний уровень
Полное наименование организации разработчика	НЦОЗ МЗ РК

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Ж.А. Калмакова  
«17» июня 2022г.



## Программа о повышении квалификации

Наименование организации образования и науки, разработчика образовательной программы	Национальный центр общественного здравоохранения МЗРК
Вид дополнительного образования	Повышение квалификации
Наименование программы	«Инфекционный контроль в сестринском деле»
Наименование специальности и (или) специализации (в соответствии с Номенклатурой специальностей и специализаций)	Специальность: Сестринское дело, Гигиена и эпидемиология
Уровень образовательной программы (базовый, средний, высший, специализированный)	высший
Уровень квалификации по ОРК	4,5,6
Требования к предшествующему уровню образовательной программы	Сестринское дело Общественное здоровье Гигиена и эпидемиология Медико-профилактическое дело
Продолжительность программы в кредитах(часах)	6 кредитов/180академический час
Язык обучения	Русский, казахский,
Место проведения	г. Нур-Султан, Алматы
Формат обучения	Очное/дистанционное/комбинированное
Присваиваемая квалификация по специализации (сертификационный курс)	-
Документ по завершению обучения	свидетельство о повышении квалификации
Полное наименование организации экспертизы	
Дата составления экспертного заключения	
Срок действия экспертного заключения	

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А.М. Куатбаева  
«21» мая 2021г.



## Программа о повышении квалификации (специализированный цикл)

Наименование специальности в соответствии с Номенклатурой специальностей и специализаций	Общественное здоровье (Эпидемиология)
Наименование программы	«Профилактика инфекции и инфекционный контроль (ПИИК)»
Вид программы (повышение квалификации/сертификационный цикл/мероприятие неформального образования)	сертификационный цикл
Требования к предшествующему уровню образования (целевая группа)	Высшее или среднеспециальное образование в здравоохранении
Язык обучения	Казахский, русский
Объем в кредитах	8
Объем часов	240 ч
/из них аудиторные/самостоятельные	/120/120
Документ об окончании (свидетельство об окончании СК, свидетельство о повышении квалификации, сертификат об участии в мероприятиях неформального образования)	свидетельство о повышении квалификации (специализированный цикл)
Присваиваемая квалификация (для программ СК)	-
Уровень программы повышения квалификации (базовый, средний, высший, специализированный)	средний уровень
Полное наименование организации разработчика	НЦОЗ МЗ РК



The specialized advanced training course cycle on IPC includes topics that are key building blocks of the core components of IPC recommended by the WHO, the course curriculum for IPC training in Sierra Leone for all categories of trainees (Chief health managers, epidemiologists, clinical physicians, nursing staff).







# LIST OF MODULES



**Module 1.** Introduction to infection prevention and control

**Module 2.** Foundations of microbiology for IPC. Antibiotic resistance and antibiotic prophylaxis in infection control

**Module 3.** Main (universal) and special precautions depending on the infection transmission route

**Module 4.** Waste management

**Module 5.** Facility cleaning and disinfection

**Module 6.** Safe injection technique

**Module 7.** Health protection of healthcare workers. Occupational diseases

**Module 8.** Epidemiologic surveillance of HAI and contagious infections

**Module 9.** Cleaning and sterilization of instruments and medical devices

**Module 10.** Prevention of catheter-associated urinary tract infections

**Module 11.** Prevention of catheter-related bloodstream infections

**Module 12.** Prevention of respiratory tract infections

**Module 13.** Prevention of surgical wound infections

**Module 14.** Emergency preparedness and outbreak response. Effect of the coronavirus infection pandemic on organization of IPC

**Module 15.** Quality management, monitoring and measuring the performance

**Module 16.** Education on infection control for healthcare workers, visitors and patients

**Module 17.** Water, sanitation and hygiene issues

**Module 18.** Facility design. IPC during renovation and construction

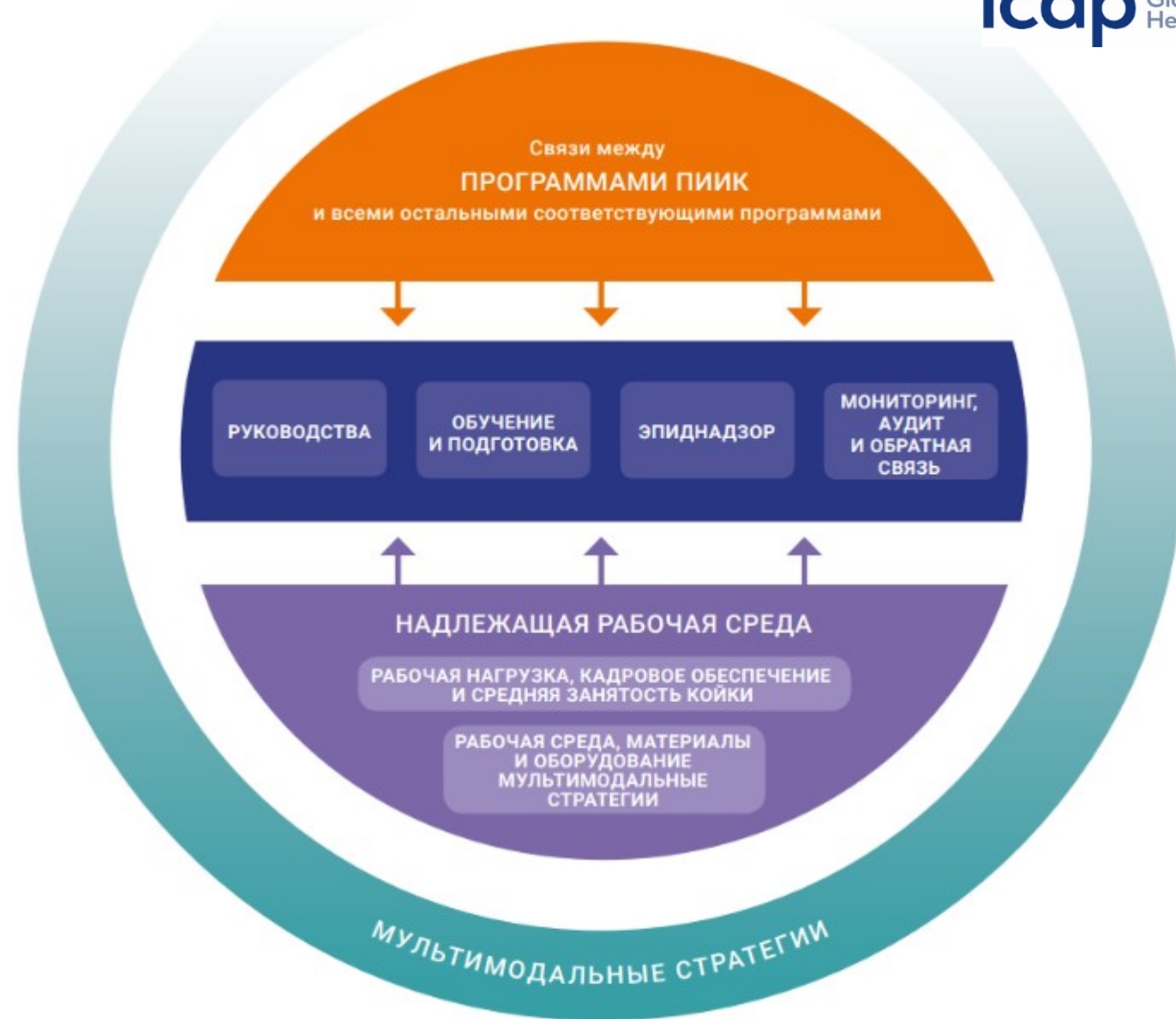
**Module 19.** IPC program governance and management

**Module 20.** OneHealth concept and its application



• According to WHO guidelines published in 2017, the organization of an effective IPC system, both at the country level and at the level of individual health care organizations, should include eight basic components:

- ✓ IPC program;
- ✓ Methodological guidance, guidelines and standard operating procedure on IPC;
- ✓ Training and capacity building on IPC for healthcare workers;
- ✓ Epidemiologic surveillance for healthcare-associated infections (HAI);
- ✓ Multimodal strategies;
- ✓ Monitoring/audit of IPC methods and feedback;
- ✓ Load, personnel count and average bed occupancy;
- ✓ Infrastructure, IPC materials and equipment on healthcare facility level.

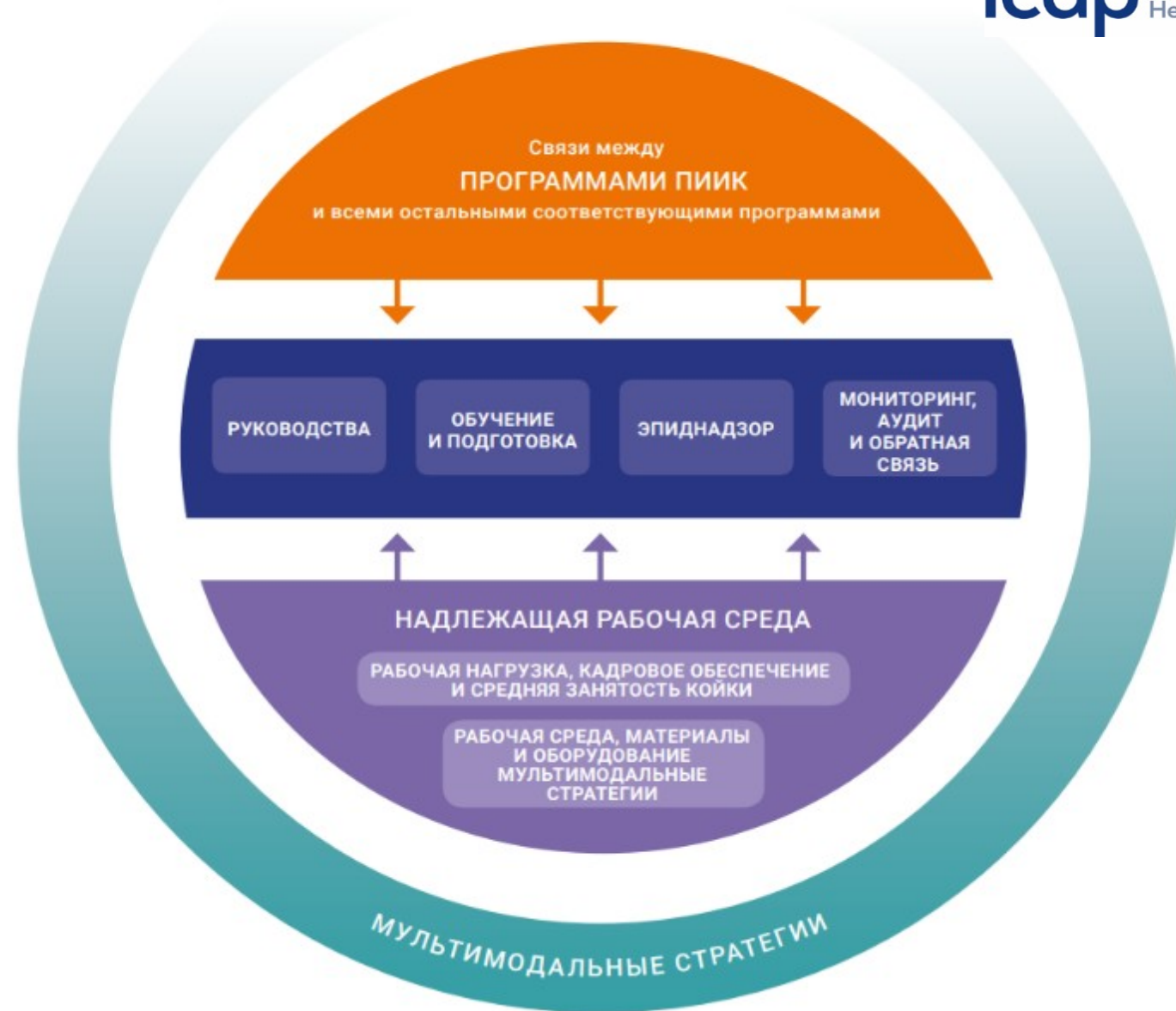


Main IPC components (WHO)



Therefore, the above-mentioned topics were included in the Training Cycle for all categories (*public health managers, epidemiologists, clinical physicians, nurses*) which are the key elements of the infection control system.

By implementing the basic components of IPC recommended by WHO in health care facilities, we contribute to improving the IPC system at all levels of health care (national, regional, facility level), its proper and effective operation in facilities in order to ensure the safety of patients, the environment, personnel and the quality of health care.



Main IPC components (WHO)



## Visits to the clinics in Nur-Sultan



- *During the training, epidemiologists visited leading healthcare facilities in Nur-Sultan: "National Scientific Center of Maternity and Child health", "National Center of Neurosurgery", "Multiprofile City Hospital №1", "National Research Cardiac Surgery Center", "Alanda Clinic" medical center with their mentors.*
- *Epidemiologists from healthcare facilities shared their experience and showed the guidance documents they had developed on IPC. The trainees visited the central sterile supply department, the temporary waste storage areas, procedure rooms, intensive care units, and other departments, where epidemiologists asked questions and got answers to them.*





## Visits to the leading clinics in Nur-Sultan, supervisor: Alimbetov Kuanish Kobzhassarovich

Alanda Clinic is a modern clinic with a wide range of services. The clinic is designed to provide outpatient, day-stay and in-patient skilled, specialized and high-tech medical care to the population of the Republic of Kazakhstan, as well as the population of the neighboring and foreign countries.



1460

оперативных  
вмешательств за  
2021г.

100

докторов ведут  
приём в нашей  
клинике

4000

поликлинических  
пациентов нас  
посещают  
ежемесячно.

30

Доктора с  
учеными  
степенями

СПЕЦИАЛИЗИРОВАННУЮ МЕДИЦИНСКУЮ ПОМОЩЬ ОКАЗЫВАЮТ:

- Хирург
- Сосудистый хирург
- Бариатрический хирург
- Гинеколог
- Терапевт
- Педиатр
- Уролог
- Уролог-андролог
- Офтальмолог
- Гастроэнтеролог
- Эндокринолог
- Пластический хирург
- Нейрохирург
- Проктолог
- Оториноларинголог
- Стоматолог
- Гепатолог
- Кардиолог
- Психолог
- Гематолог
- Маммолог
- Пульмонолог
- Травматолог-ортопед
- Невролог
- Нарколог
- Аллерголог
- Дерматовенеролог
- Трихолог
- УЗИ диагностика
- Лабораторные исследования
- Эндоскопические исследования
- Ведение беременности
- Физиотерапия, массаж
- Функциональная диагностика
- Карбокситерапия
- Иглорефлексотерапия
- Гирудотерапия
- Ведение беременности
- Медицинское прерывание беременности
- Центр боли
- Изжога центр
- Дневной стационар
- Круглосуточный стационар

ALANDA Clinic operates under the license issued by the Department of Health of Astana City Akimat № 17020054 dated 24.12.17.









## Visits to the leading clinics in Nur-Sultan, supervisor: Tekebayev Kanat Omerbayevich

**Multi-profile city hospital №1** was founded in 1925, when the first hospital in Akmolinsk was organized on the basis of the district medical institution of Akmolinsk with 40 beds.

Today it is a modern multidisciplinary clinical center, which has unique equipment and provides highly specialized medical care in urgent and routine procedures. The hospital has a team of professionals trained in the world's leading clinics.

The capacity of the clinic is 842 beds.

Clinical block:

- 538 beds in the 24/7 in-patient department;
- 73 beds in day-stay hospital;
- 46 private beds.

Obstetrics block:

- 185 beds in the 24/7 in-patient department ;
- 10 beds in day-stay hospital ;
- 5 private beds

The efforts of the healthcare system should be focused on solving the problems affecting the wellbeing and the future of our country, among them the issue of improving health and vital capacity of our citizens

Abduov Marat Karsybekovich,  
Director



ГОРОДСКАЯ  
БОЛЬНИЦА







## Visits to the leading clinics in Nur-Sultan, supervisor: Tekebayev Kanat Omerbayevich







## Visits to the leading clinics in Nur-Sultan, supervisor: Imasheva Bagdat Sakenovna



### НАЦИОНАЛЬНЫЙ ЦЕНТР НЕЙРОХИРУРГИИ



The National Center for Neurosurgery is one of the leading clinics in Central Asia, providing a full range of neurosurgical services, from diagnostics to rehabilitation of patients using the most modern treatment methods. The Center's facilities and equipment are second to none in Central Asia and meet the highest international standards allowing for precise diagnostics and selection of the most appropriate treatment method in each particular case. The Center employs 92 doctors and 185 nurses, of whom 48% of doctors have the highest category, 2 doctors of medical sciences, 17 candidates of medical sciences, 1 candidate of biological sciences and 6 PhD doctors.

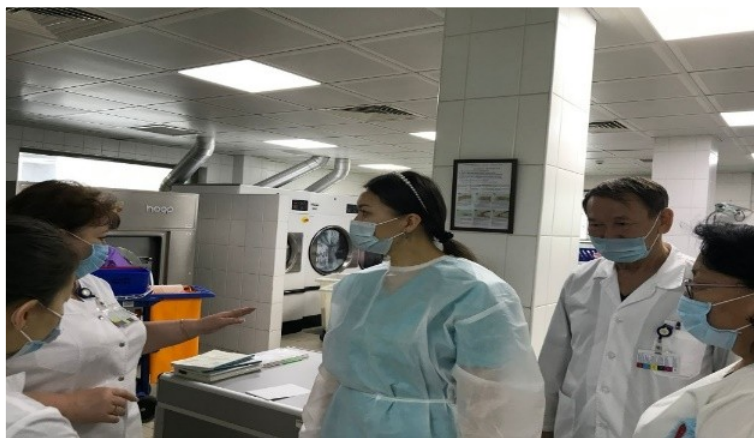




## Visits to the leading clinics in Nur-Sultan, supervisor: Tekebayev Kanat Omerbayevich



НАЦИОНАЛЬНЫЙ ЦЕНТР  
НЕЙРОХИРУРГИИ







## Visits to the leading clinics in Nur-Sultan, supervisor: Goncharova Anna Sergeevna



National Research Cardiac Surgery Center JSC was founded by the order of the President of the Republic of Kazakhstan N.A. Nazarbayev and opened its doors on October 12, 2011.

The Center is a leading cardiac surgery center in the Central Asian region, meeting the global standards for quality and level of medical care and services, with national and international recognition of scientific and educational activities, with a strong human resource potential, with efficient corporate and business-oriented management.

The Center has 6 operating rooms and two intensive care units with 36 beds and 24-hour life support monitoring. The Center has a capacity of 200 beds.







# Visits to the leading clinics in Nur-Sultan, supervisor: Goncharova Anna Sergeevna







## Visits to the leading clinics in Nur-Sultan, supervisor: Agazhayeva Gaukhar Onerkhanovna



**НАЦИОНАЛЬНЫЙ НАУЧНЫЙ ЦЕНТР  
МАТЕРИНСТВА И ДЕТСТВА**  
Национальный медицинский холдинг

Nine major research projects were implemented.

102 innovative technologies were implemented.

More than 1,350 medical services provided.

About 15,000 inpatients annually.

Number of deliveries - 15,474.

Number of IVF procedures - 1 605.

15 partner clinics from 10 countries.

The National Research Center for Maternity and child health, a branch of the University Medical Center corporate foundation, is a multidisciplinary hospital with 500 beds.

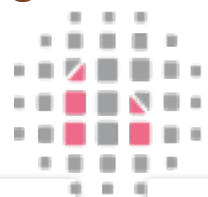
The branch provides specialized and highly specialized care in pediatrics, pediatric surgery, neonatology, obstetrics-gynecology and in vitro fertilization.







## Visits to the leading clinics in Nur-Sultan, supervisor: Agazhayeva Gaukhar Onerkhanovna



НАЦИОНАЛЬНЫЙ НАУЧНЫЙ ЦЕНТР  
МАТЕРИНСТВА И ДЕТСТВА  
Национальный медицинский холдинг





**Field assignments for the modules of the specialized cycle on Infection prevention and control  
prepared in the framework of the project of NCPH and ICAP  
for epidemiologists, cohort 1**



<b>№</b>	<b>Topic</b>
<b>1</b>	Organizing the education on IPC for healthcare workers, patients and visitors
<b>2</b>	Prevention of respiratory tract infections
<b>3</b>	Prevention of catheter-related bloodstream infections
<b>4</b>	Prevention of surgical wound infections
<b>5</b>	Prevention of catheter-associated urinary-tract infections

[Link to field work presentations for 2022](#)



**Field assignments for the modules of the specialized cycle on Infection prevention and control  
prepared in the framework of the project of NCPH and ICAP  
for epidemiologists, cohort 1  
1<sup>st</sup> stage (01.11. - 15.12.2021)**



<b>№</b>	<b>Topic</b>
<b>1</b>	Introduction of self-assessment in a healthcare facility for hand hygiene compliance and drafting a hand hygiene improvement plan
<b>2</b>	Improving the induction training and refresher training on infection control
<b>3</b>	Introducing an effective system of visual aids and creating conditions for hand hygiene
<b>4</b>	Introducing an effective system of hand hygiene audit (checklists and observations)
<b>5</b>	Introducing an effective system for infection control knowledge assessment and reinforcement among healthcare workers
<b>6</b>	Introducing an annual self-assessment of work environment, IPC materials and equipment on the healthcare facility level
<b>7</b>	Introducing an annual self-assessment of healthcare associated infections (HAI) surveillance in healthcare facilities

[Link to field work presentations for 2021](#)





# Field assignments for the modules of the specialized cycle on Infection prevention and control

prepared in the framework of the project of NCPH and ICAP  
for epidemiologists, cohort 1  
1<sup>st</sup> stage (20.06. - 29.07.2022)



№	Topic
1	Prevention of SSI. Pre-operative antibiotic prophylaxis
2	Multimodal IPC strategy. Developing an action plan based on the multimodal safe injections strategy
3	Using the WHO multimodal strategy for improving hand hygiene in healthcare facilities
4	Infection control risks. Risk assessment and infection risks mitigation plan development
5	Infection control during renovation and construction works
6	Protecting the health of healthcare workers. Occupational diseases
7	Standard precautions. Risk assessment, development of an improvement plan for precautions

[Link to the field work presentations for 2022](#)



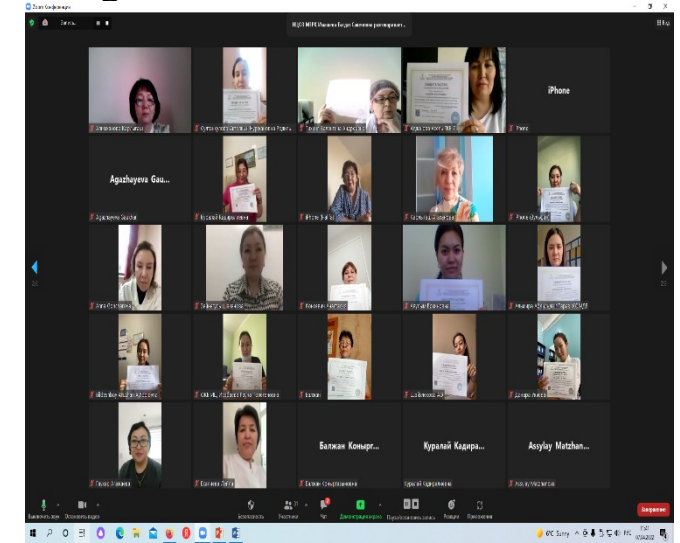
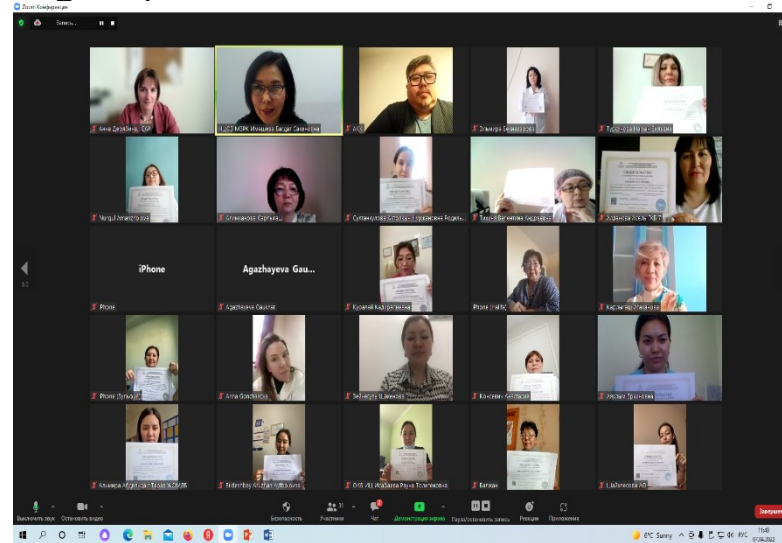
## Module 2 «Foundations of microbiology in the context of IPC. Antibiotic resistance and antibiotic prophylaxis in IPC»



This module, when developed, was aimed at covering microbiological aspects in IPC issues, but in the process of training and active discussion with the students, it was decided to expand this module to include general mechanisms of resistance of microorganisms to antimicrobial agents, and resistance to beta-lactam antibiotics, the main ways to contain resistance to antimicrobial agents and issues of their rational use, issues of digitalizing data collection for the IPC Commission.

### •Conclusion:

- During the training there was a lively interest in the module materials, an exchange of experience and an open discussion of issues.
- There is insufficient baseline knowledge of clinical microbiology among all groups of specialists who participated in trainings.
- Further improvement of knowledge and training of specialists of healthcare facilities on microbiological issues is needed.







# TRAINING OF HEALTHCARE LEADERS AND MANAGERS



## Aim of the trainings:

- To convey to students the importance of management support in preventing HAIs in healthcare organizations
- To convey the concept of a multidisciplinary, team approach, safe culture, and the role and function of the hospital epidemiologist as a guardian of an effective HAI prevention policy
- Active use of regulations of the RK and international evidence
- Significance of hand hygiene in prevention of HAI
- Introduction to the issue of antimicrobial-resistant pathogens and possible ways of rational use of antibiotics
- Introduction to the system of surveillance for HAI in Kazakhstan and in the world, the most common infection types: CAUTI, SSI, VAP, CLABSI etc.

**Conclusion:** The course was relevant for the participants, there were requests for clear, practical advice on certain issues, such as including a section on renovation and construction in healthcare facilities.



## TRAINING OF CLINICAL DOCTORS

### Conclusion:

Pre-tests and pre-screening of physicians for knowledge of IPC issues showed some knowledge deficits that should be supported by both individual training and support from an experienced hospital epidemiologist to coordinate policies and practice skills of IPC.







### **Aim of the trainings:**

- To convey the principles of IPC monitoring/audit and feedback
- To define modern principles of disinfection, sterilization of medical devices
- To cover principles of linen management, cleaning
- To describe safe medical waste management, injection safety
- To introduce to the system of surveillance and prevention of HAI in Kazakhstan and worldwide, including the most common types of infections: catheter-associated urinary tract infections (CAUTI), surgical site infections (SSI), ventilator-associated pneumonia (VAP), central line-associated bloodstream infections (CLABSI), etc.



### **Conclusions made during the training:**

- There is a need for active use of self-assessment systems (WHO) on hand hygiene, IPCAF, emergency preparedness and others
- Promotion and implementation of multi-disciplinary, team approach and safe culture in healthcare organizations to implement IPC programs
- The need to include biostatistics issues (epidemiological analysis tools) in the curriculum
- It was noted that precautions based on infection transmission routes were a difficult topic to understand and implement during field work
- There is a need to introduce hand hygiene as the foundation in prevention of HAIs





### **Conclusions made during the training :**

- There is a need to make changes in the Republic of Kazakhstan regulations in terms of HAIs prevention and the introduction of national standards for defining cases of HAI.
- Effectiveness of epidemiologists' training offline
- Implementation of basic risk-management training for epidemiologists
- To develop a course on decontamination for specialists of the CSSDs
- To develop a module on application of the quality instruments for the purpose of process improvement



## RECOMMENDATIONS:

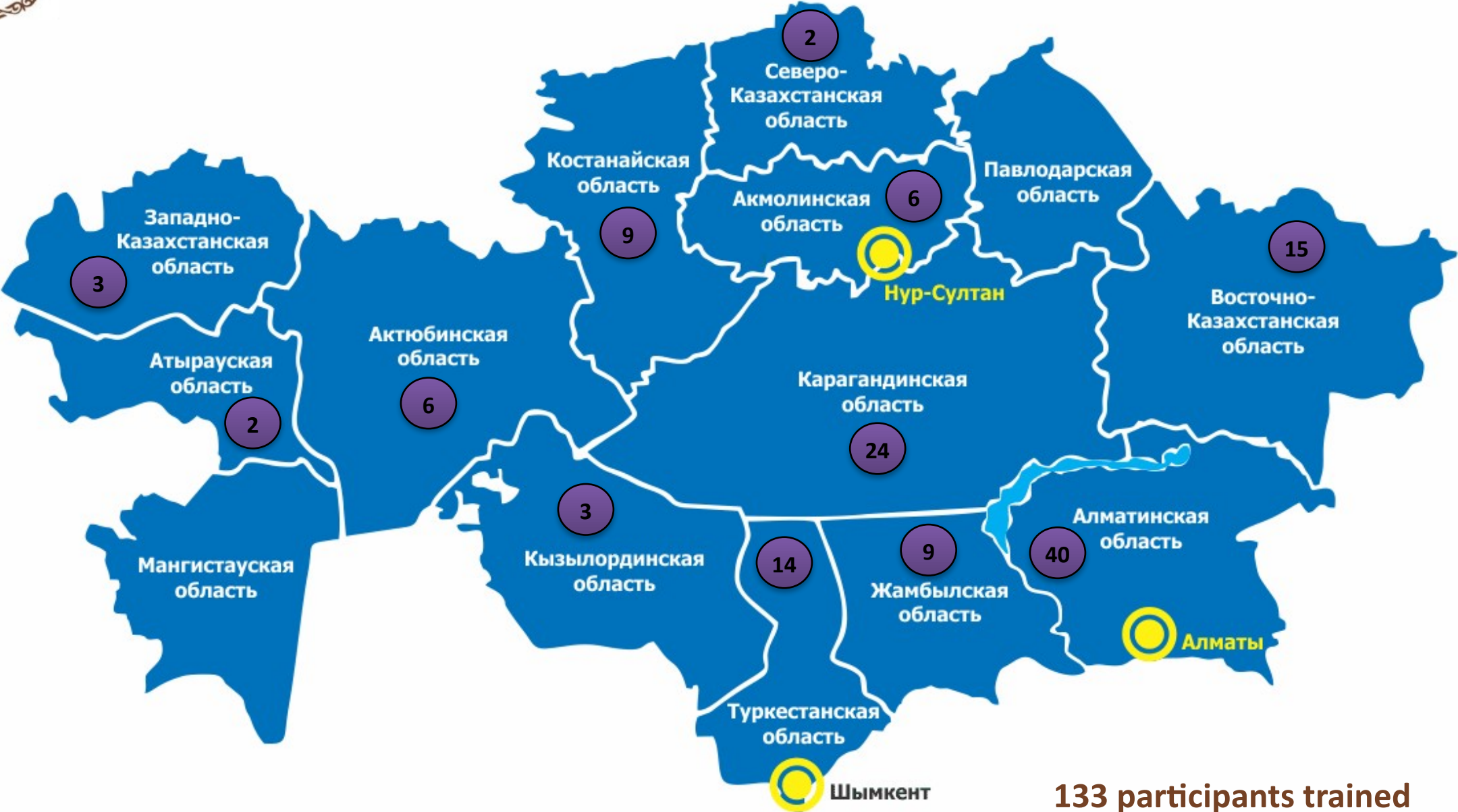
### **2) Promotion and implementation of multi-disciplinary, team approach and safe culture in healthcare organizations to implement IPC programs**

- We heard from the participants that due to the punitive system of epidemiological surveillance some of the knowledge that was covered during the training is not possible to implement. There were also statements that there is thinking on the part of health workers that only the epidemiologist is responsible for infection control
- **3) The need to include biostatistics issues (epidemiological analysis tools) in the curriculum**
- During the training, we found that epidemiologists have insufficient knowledge of statistical data processing, so additional issues of biostatistics were included in the training process
- **4) It was noted that precautions based on infection transmission routes were a difficult topic to understand and implement during field work**
- The fieldwork reveals true understanding of the topics and their application in practice, and this topic was not so easy to apply in practice
- **5) There is a need to introduce hand hygiene as the foundation in prevention of HAIs**
- Hand hygiene is one of the effective measures in preventing 60 to 80% of HAIs
- **6) There is a need to make changes in the Republic of Kazakhstan regulations in terms of HAIs prevention and the introduction of national standards for defining cases of HAI**
- For effective epidemiological surveillance and compliance with hand hygiene and other aspects of prevention of HAIs, there is a need to revise the regulations in Kazakhstan
- **Effectiveness of epidemiologists' training offline**
- Conducting the trainings online often lead to epidemiologists being distracted by their routine work (inspections etc.)





# PEOPLE TRAINED UNDER IPC PROGRAM BY REGIONS



133 participants trained



# PEOPLE TRAINED UNDER IPC PROGRAM BY REGIONS



№	наименование области	2021 Октябрь	2021 Ноябрь-Декабрь	2022 Февраль-Апрель	2022 Апрель	2022 Май	2022 Июль	Итого за все время
		Менеджеры высшего звена	Врачи-эпидемиологи (1-этап)	Врачи-эпидемиологи (2-этап)	Менеджеры высшего звена	Врачи клинического профиля	Врачи-эпидемиологи (1-этап)	
1	Алматинская	9	13	11	1	1	5	40
2	Карагандинская	8	5	4	2	2	3	24
3	Восточно-Казахстанская	2	3	2	3	2	3	15
4	Туркестанская				5	7	2	14
5	Жамбылская		2	1	1	2	3	9
6	Костанайская				4	3	2	9
7	Акмолинская	1			2	2	1	6
8	Актюбинская	1	1	1		1	2	6
9	Западно-Казахстанская				1	1	1	3
10	Кызылординская	1			1		1	3
11	Атырауская				1		1	2
12	Северо-Казахстанская				1		1	2
13	Мангистауская							0
14	Павлодарская							0
	ВСЕГО	22	24	19	22	21	25	133





# Analysis of IPC training 2021-2022 by all categories of participants



No	Participants in 4 categories	Participants from healthcare organizations who applied for training	Participants from healthcare organizations who completed the training
1.	Top managers	25	22
2.	Epidemiologists - 1 <sup>st</sup> cohort Stage 1 Stage 2	30 22	24 19
3.	Top managers from 78 healthcare facilities	34	22
4.	Clinical doctors from 78 healthcare facilities	33	21
5.	Epidemiologists from 78 healthcare facilities Stage 1 Stage 2	34 26	25 In October, 2022
6.	Nursing staff	27	In September, 2022
7.	Total	231	133



## KNOWLEDGE IMPROVEMENT CHART

Pre-test results      Post-test results      Knowledge improvement, %  
— результат до тестов    — результат после тестов    — процент прироста знаний

Epidemiologists (1<sup>st</sup> stage)



Clinical doctors



Top management



Epidemiologists (2<sup>nd</sup> stage)



Epidemiologists (1<sup>st</sup> stage)



Top management







"Teach yourself - no one else will do this for you, even if he is at least three times a professor of any science!«

Nikolai Fyodorovich Zamyatkin.



НАЦИОНАЛЬНЫЙ ЦЕНТР ОБЩЕСТВЕННОГО ЗДРАВООХРАНЕНИЯ  
МИНИСТЕРСТВА ЗДРАВООХРАНЕНИЯ РЕСПУБЛИКИ КАЗАХСТАН

# Thank you for your attention!

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