



“Education is a process in which the natural capacities of the soul — and especially of reason —
are awakened and developed”
Plato, approx. 400 BC

IPC Training for Healthcare Workers – Overview

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The beginning of modern training of healthcare workers

- Abraham Flexner's Report of 1910 (1) on the need for conducting scientifically based and effective training of doctors, which implies changing the nature and process of medical education in the USA and Canada, as well as reducing the number of medical schools from 155 to 31
- Report of Welch WH and and Rose W 1915 (2) to the Rockefeller Foundation on professional education in the field of public health in the United States and abroad - a grant to Johns Hopkins University for the creation of the first public health school.
- Goldmark's Report "Nursing and Nursing Education in the USA" 1923 (3) to the Rockefeller Foundation - increasing the level of nursing education through the establishment of university branches and national accreditation procedures.

1. Flexner A. Medical Education in the United States and Canada. Washington, DC: Science and Health Publications, Inc.; 1910

2. Welch WH, Rose W. Institute of Hygiene: being a report submitted by Dr. William H Welch and Wickliffe Rose to the General Education Board, Rockefeller Foundation . May 27, 1915. RG 1.1, Series 200L. Sleepy Hollow, NY: Rockefeller Foundation Archives; 1916

3. Goldmark (5) The Committee for the Study of Nursing Education. Nursing and nursing education in the United States. New York: The Rockefeller Foundation, 1923.

100 years later...

- The 21st century revealed a different range of problems: **improving the quality** and effectiveness of care, meeting the needs and **social priorities**; rethinking the role of healthcare professionals, as well as providing scientific **evidence** of the effectiveness and safety of any impacts on human health.
- The global consensus on the social responsibility of medical schools can be identified in the following sequence: socially responsible education - socially responsible healthcare – ***qualitative healthcare/safe healthcare***.

Informing Shaping Transforming

- In 2010, The Lancet Commission, consisting of 20 specialists from different countries, developed a common vision and a common **strategy for professional education in medicine, nursing, and public health**, which go beyond national borders and individual professions (1).
- The Commission proposed the concept of transformative learning as the highest of three successive levels, moving from informative to formative to transformative learning.
- Informative learning is about acquiring knowledge and skills; its purpose is to produce experts.
- Formative learning is about socializing students around values; its purpose is to produce professionals.
- Transformative learning is about developing leadership attributes; its purpose is to produce enlightened change agents.
- As a valued outcome, transformative learning involves three fundamental shifts: from fact memorization to searching, analysis, and synthesis of information for decision making; from seeking professional credentials to achieving core competencies for effective teamwork in health systems; and from non-critical adoption of educational models to creative adaptation of global resources to address local priorities.

1. Julio Frenk*, Lincoln Chen*, Zulfiqar A Bhutta, et al., Health professionals for a new century: transforming education to strengthen health systems in an interdependent world. The Lancet 376(9756): 1923-1958. 2010

Training based on competence building

- The Commission's publication discusses the **competency-based** approach to curriculum and team training. Efforts are being made to develop curricula that will be a learning tool to achieve the necessary competencies as an educational goal.
- **Competence is** an observable ability of a medical professional that combines components such as **knowledge, skills, and behaviors**. Since competencies can be observed, they can be measured and evaluated to ensure their acquisition. Competencies can be assembled as building blocks to promote progressive development.

- **Competencies (1)** are measurable or observable knowledge, skills, and behaviors that a person demonstrates as part of their work.
- In the healthcare sector, our patients rely on the medical staff to be competent in performing their functions, including infection prevention methods specific to each role.
- It is extremely important that medical personnel have the competencies necessary to provide proper, evidence-based care to our patients.
- Competency is measured by evaluating standard performance criteria based on evidence.
- **Competencies** – "The knowledge, skills, ability, and behaviors that a person possesses in order to perform responsibilities correctly and skillfully."
- "The application of knowledge and the interpersonal, decision-making, and psychomotor skills expected for the practice role."

1. <https://www.cdc.gov/infectioncontrol/pdf/strive/CBT101-508.pdf>

"Transforming and scaling up education and training of health professionals",
WHO Guidelines (2013)

- Concerted and immediate efforts to transform and scale up health professionals' education are required to attain the right mix of **skills and competencies** of health professionals who can respond to the ever-changing and evolving needs of populations around the world
- Twelve evidence-based recommendations are a culmination of evidence-informed decision interventions to guide a focused transformational process of and for scaling up health professionals' education and training globally.

United Nations Commission on Health Employment and
Economic Growth (Working for health and growth: investing
in the health workforce, 2016).

- The importance of strengthening the **competencies** of healthcare workers
- 10 recommendations and five immediate actions have been formulated to transform the health workforce for the SDGs
- Promoting transformative education and lifelong learning so that all health workers have skills that match the health needs of populations

Luxembourg Declaration on Patient Safety (1): "Patient Safety – Making it Happen!"

- Access to high-quality medical care is a **key human right** recognized and valued by the European Union (EU), its Institutions, and the citizens of Europe
- Create a culture that focuses on **near misses and adverse events** as opposed to concentrating on “blame and shame” and subsequent punishment.

1. Luxemburg Declaration of Patient Safety, 2005. Available at:
http://ec.europa.eu/health/ph_overview/Documents/ev_20050405_rd01_en.pdf

Ten threats to global health in 2019, WHO

- The WHO strategic plan identifies **ten global** health threats (1). Among them, **five were directly related to infection prevention and control (IPC)**
 - **The training of Healthcare Workers (HCW) IC is the cornerstone of all patient safety programs and the prevention and control of HAI.**
 - **In Europe**, several organizations and working groups provided supervision and guidance, including the "Training Strategy for Infection Control in the European Union" (TRICE) project commissioned by ECDC, Prevention of Hospital Infections by Intervention and Training (PROHIBIT), and The European Committee on Infection Control (EUCIC).
 - The heterogeneity of the content and learning opportunities of IPC in European countries has been repeatedly emphasized in studies. This observed heterogeneity hinders the implementation of national and international containment strategies while limiting the opportunities for the exchange of experiences and know-how in IPC between countries.
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- 1.WHO. Ten threats to global health in 2019. 2019 [cited 2020 Sep 29]. <https://www.who.int/vietnam/news/feature-stories/detail/ten-threats-to-global-health-in-2019>].

EU – 2020 – comparison across 11 countries on IPC training

- In 2014, IC qualification as a separate discipline was certified in only 17% of European countries, while more than a third of countries did not have a national curriculum or a training program for doctors or nurses.
- In most countries, there are either no or limited training programs for other healthcare professionals, such as pharmacists (for example, short-term seminars at the postgraduate level).
- Since IPC is an interdisciplinary field that requires active participation and knowledge sharing between healthcare professionals with different backgrounds, training and staffing needs in the field of IPC should be directed **at healthcare workers with any basic education**.
- This has become even more evident during the current 2019 coronavirus pandemic. (COVID-19), when national and international guidelines emphasize the need for education and **training of all health professionals on IPC issues**.
- There are several important initiatives aimed at harmonizing education and training in IPC. For example, **EUCIC has implemented the "EUCIC Training programme", a two-year training programme designed for medical professionals of different training levels. The programme aims to cover all the core competencies necessary to become an IPC professional, as well as to meet local needs and build capacity**. Various short-term educational modules with mandatory basic and advanced modules are included, as well as local modules organized in each European country considering local problems. The program is organized in cooperation with ECDC.

List of core **Core competencies for infection control and** hospital hygiene professionals in the European Union, grouped by areas and spheres
<https://www.ecdc.europa.eu/sites/default/files/media/en/publications/Publications/infection-control-core-competencies.pdf>, 2013
 Table A1. Areas and domains of competence in the field of infection control and hospital hygiene

Area	Domain
Area 1. Programme management	Elaborating and advocating an infection control programme Management of an infection control programme, work plan and projects
Area 2. Quality improvement	Contributing to quality management Contributing to risk management Performing audits of professional practices and evaluating performance Infection control training of employees Contributing to research
Area 3. Surveillance and investigation of healthcare associated infections (HAIs)	Designing a surveillance system Managing (implementation, follow up, evaluation) a surveillance system Identifying, investigating and managing outbreaks
Area 4. Infection control activities	Elaborating infection control interventions Implementing infection control healthcare procedures Contributing to reducing antimicrobial resistance Advising appropriate laboratory testing and use of laboratory data Decontamination and sterilisation of medical devices Controlling environmental sources of infections

APIC – Association of Professionals in IC and Epidemiology

- The competence model of an **Infection preventionists**
- In 2012, APIC created the first competency model to ensure Infection Preventionists (IPs) are competent in core skills.
- The updated APIC Competency Model (2019) for the IP also reflects the dynamic nature of the IPC field. Patient safety remains the core of IPC practice.
- New to the updated model is a focus on the continuum of care. The updated model has four career stages (Novice, Becoming Proficient, Proficient, and Expert) and six future-oriented competency domains (each with subdomains) to guide IPs in progressing through the career stages and pursuing leadership roles.
- The 6 competency areas are Professional stewardship, Research, IPC Operations, Quality improvement, IPC Informatics, and Leadership (1)

Core Competencies for IPC Professionals, WHO, 2020

- **Competency:** Proven ability to use knowledge, skills, and personal, social, and/or methodological abilities in work or study situations and in professional and personal development.
- **Core competencies:** Refer to the knowledge, skills and attitudes required for an infection prevention and control (IPC) professional to practice with an in-depth understanding of situations, using reasoning, critical thinking, reflection and analysis to inform assessment and decision-making in the prevention and control of HAI and AMR

Core Competencies for IPC Professionals, WHO, 2020

- IPC programme management and leadership
- Built environment in health care facilities
- Basic microbiology
- AMR prevention
- HAI surveillance
- Standard precautions
- Transmission-based precautions
- Decontamination and reprocessing of medical devices and equipment
- Catheter-associated bloodstream infection prevention
- Catheter-associated urinary tract infection prevention
- Surgical site infection prevention
- Prevention of healthcare-associated pneumonia
- Health care-associated outbreak prevention and management
- IPC education and training
- Quality and patient safety
- Occupational health

Core Competencies for IPC Professionals, WHO, 2020

- **Infection Prevention and Control Professional (IPCP):** Health care professional (medical doctor, nurse, or other health-related professional) who has completed a certified postgraduate IPC training course, or a nationally or internationally recognized postgraduate course on IPC, or another core discipline including IPC as a core part of the curriculum.

Source: adapted from 1) Guidelines on core components of infection prevention and control programmes at the national and acute health care facility level. Geneva: World Health Organization; 2016 (<https://www.who.int/gpsc/ipc-components-guidelines/en/>, as of September 10, 2020); and 2) Minimum requirements for infection prevention and control programmes, Geneva: World Health Organization; 2019 (<https://www.who.int/infection-prevention/publications/core-components/en/>, as of September 10, 2020).

Core Competencies for IPC Professionals, WHO, 2020

- Infection prevention and control professional I (**IPCP I - junior**): PC professional with up to 3 years of IPC practical experience.
- Infection prevention and control professional II (**IPC II - senior**): IPC professional with more than 3 years of IPC practical experience and more senior roles and responsibilities.
- **IPC link person**: Nurse or doctor (or other health professional) in a ward or within the facility (for example, staff working in clinical services such as intensive care unit or maternal and neonatal care, or water, sanitation and hygiene or occupational health professionals) who has been trained in IPC and links to an IPC focal point/team at a higher level in the organization (for example, IPC focal point/team at the facility or district level). IPC is not the primary assignment of this professional but, among others, he/she may undertake tasks in support to IPC, including for example supporting implementation of IPC practices; providing mentorship to colleagues; monitoring activities; and alerting on possible infectious risks (1).
- **IPC focal point**: : IPC professional (according to the above definition) appointed to be in charge of IPC at the national, sub-national or facility/organization level.

Source: Minimum requirements for infection prevention and control programmes. Geneva: World Health Organization; 2019 (<https://www.who.int/infection-prevention/publications/core-components/en/>, as of September 10, 2020).

WHO-ASPHER Competency Framework for the Public Health Workforce (2020)

- This is a shared resource of the Coalition of Partners for Strengthening Public Health Services in the European Region.
- The Coalition of Partners brings together leaders serving in national and subnational public health services, policy-makers and colleagues serving in several international organizations.
- Together, these partners adopt shared
- objectives, plan joint action, developed shared resources and share the learning from implementation in the **European Region in 2020.**

1.

https://www.euro.who.int/__data/assets/pdf_file/0009/461826/WHO-ASPHER-Public-Health-Workforce-Europe-rus.pdf

The WHO-ASPHER Competency Framework

can be useful:

- in designing the curricula of degree and continuing professional development programmes;
- in assessing existing capacity and capability and identifying training requirements;
- in ensuring the appropriate numbers, mix and distribution of staff and skills for public health teams in various contexts;

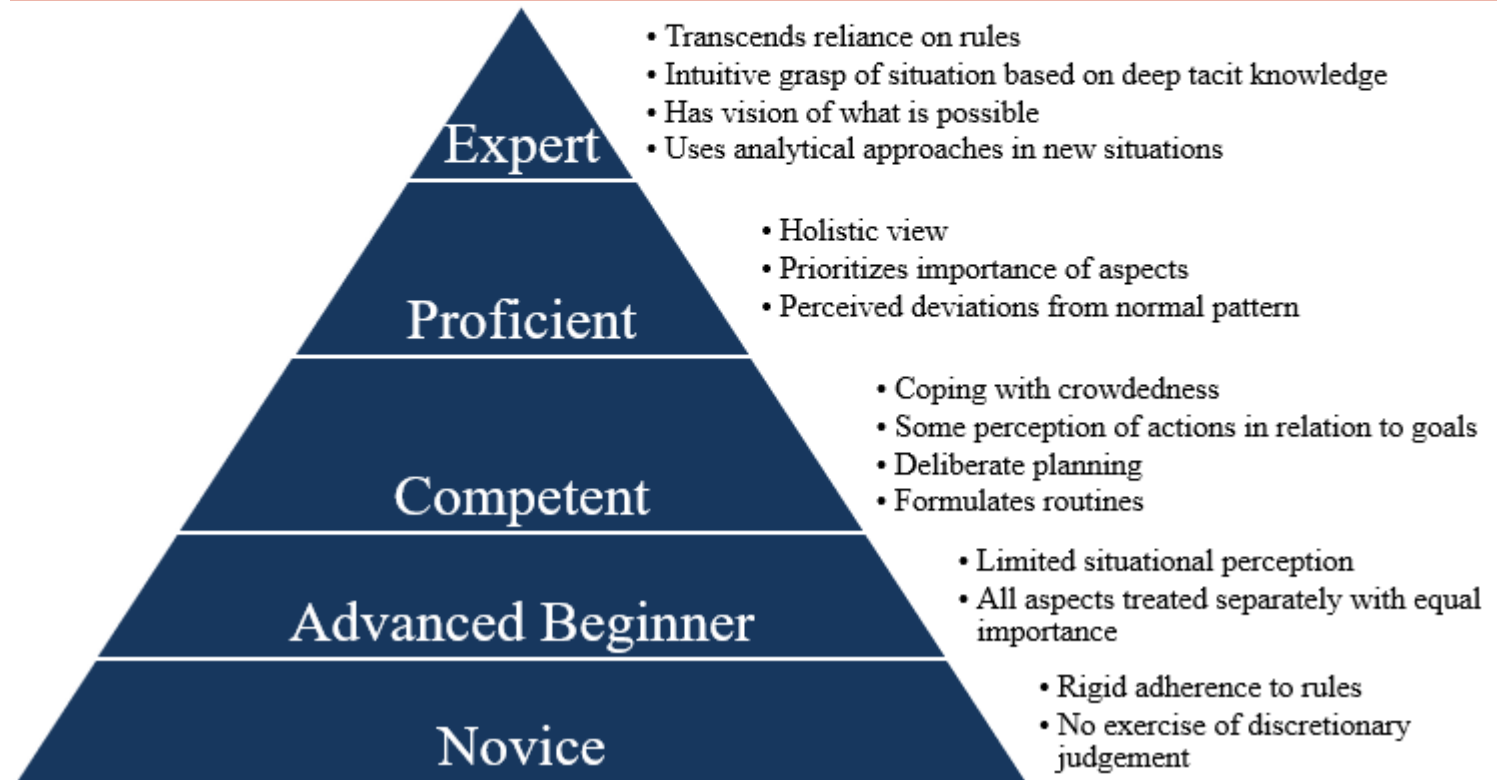
Three categories:

- Content and context: the science, **knowledge** and theory that underpin public health practice;
- **Relations** and interactions: the communication, collaboration and networking competencies for leadership and partnership with stakeholders;
- Performance and achievements: the **competencies** needed to ensure that the right decisions and actions are taken to improve the health of the public.

10 sections and 84 competencies.

- For each competency in the Framework, level descriptors are provided to help guide the interpretation of the extent to which competencies are mastered.
- Three levels are used: competent, proficient and expert. These three levels are based on the Dreyfus model of adult skill acquisition.

Dreyfus Model



[wikipedia.org/wiki/Dreyfus_model_of_skill_acquisition](https://en.wikipedia.org/wiki/Dreyfus_model_of_skill_acquisition)

Public-Health-Workforce-Europe-rus.pdf - Adobe Reader

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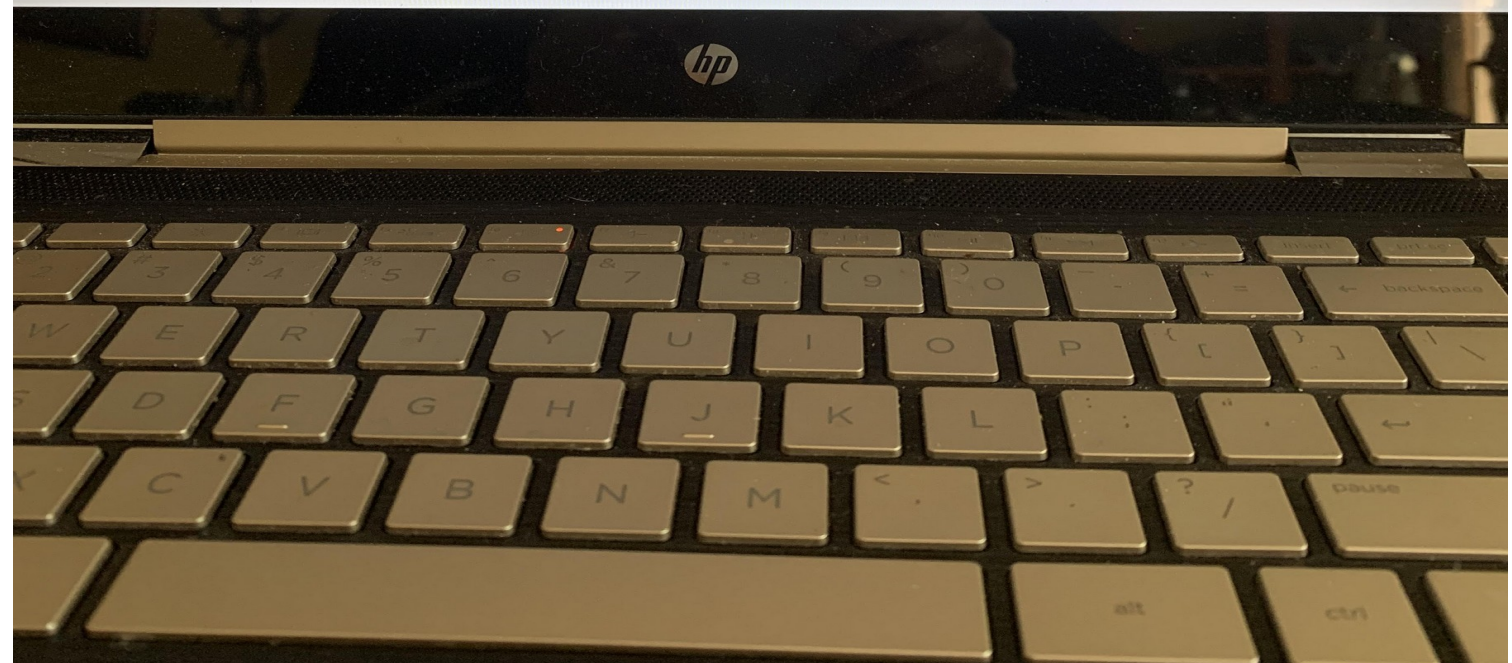
ИнструментыЗаполнить и подписатьКомментарии

Содержание и контекст

1. Наука и практика

Эпидемиология инфекционных и неинфекционных заболеваний; демография; биологическая статистика; качественные и количественные методы исследования; оценка отдельных результатов, анализ и оценка общего итога; исследования на доказательной основе; количественная оценка, мониторинг и отчетность; показатели здоровья; системы здравоохранения; здоровье населения; неравенства в отношении здоровья

Оперативные функции общественного здравоохранения (ОФОЗ)	Компетенция	Уровень 1 – эксперт	Уровень 2 – специалист	Уровень 3 – компетентный
<div>ОФОЗ 1</div> <div></div>	1.1 Знает особенности демографической структуры в данном обществе или местном сообществе и понимает процесс демографических изменений и их последствий для общественного здоровья	Я обладаю экспертными знаниями демографической структуры населения, с которым я работаю, включая все значимые подгруппы. Я также знаю, как прогнозировать демографические изменения в этих подгруппах. Я понимаю, как стареющее население, имеющее множественные продолжительные нарушения здоровья, или население, становящееся все более полиэтничным, может влиять на потребности в медико-санитарной помощи.	Я хорошо разбираюсь в демографической структуре населения, с которым я работаю, включая все значимые подгруппы. Я также знаю, как прогнозировать демографические изменения в этих подгруппах. Я понимаю, как стареющее население, имеющее множественные продолжительные нарушения здоровья, или население, становящееся все более полиэтничным, может влиять на потребности в медико-санитарной помощи.	Я знаю демографическую структуру населения, с которым я работаю, включая подгруппу, с которой я работаю чаще всего. Я понимаю, как стареющее население, имеющее множественные продолжительные нарушения здоровья, или население, становящееся все более полиэтничным, может влиять на потребности в медико-санитарной помощи.



WHO Competency Framework for Health Workers'
Education and Training on **Antimicrobial Resistance**, 2018

- Target users include pre-service and in-service health education and training institutions; accreditation and licensing bodies; and health policy- and decision-making authorities.

WHO Competency Framework for Health Workers' Education and Training on **Antimicrobial Resistance, 2018**

- **IPC Competency statement:** Health worker understands and implements the principles of hygiene, sanitation and IPC to reduce the spread of AMR.

All health workers

Knowledge:

1. Understands the infection chain especially the four components required for transmission of an infection: (organism, source, route of transmission and susceptible host).
2. Understand the role of hand hygiene to prevent transmission of pathogens.
3. Understand the principles of prevention of health care associated infections (HAI), including surgical site infections, catheter-associated bloodstream and urinary tract infections.
4. 4. Importance of strategies to prevent infection at community and health facility levels, e. g. water, sanitation and hygiene (WASH), waste management and immunization.
5. Introduction to infectious diseases and role of the laboratory in identification of microbes and susceptibility testing to antimicrobials.

All health workers

Skills:

1. Practice hand hygiene at the right moment and with appropriate technique, according to WHO recommendations.
2. Contribute to the design and implementation of procedures for crisis management in infection control: alert management, patient identification, recall of potentially contaminated equipment and supplies, reporting and exchange with relevant health care professionals.
3. Implement and practice universal precautions and transmission based precautions in health care.

All health workers

Attitudes:

1. Advocate and demonstrate action and accountability for the implementation of IPC and hygiene and sanitation best practices in health care facilities and community settings respectively.
2. Advocate for WASH and for scaling up vaccines against common infections caused by microorganisms such as pneumococcus, rotavirus and Haemophilus influenzae type b.
3. Understand how and when to contact the infection control professional for their facility or area.
4. Promote proper health care waste management.
5. Promote injection safety awareness and techniques.

Laboratory scientists/ technicians

Knowledge: 1. Understand the role of the laboratory (i.e. identification of microbes, susceptibility testing, strain typing and timely communication of results) in enabling IPC measures.

Skills:

- 1. Provide accurate and timely laboratory information, using clear protocols, for IPC planning and implementation, including in outbreak settings.
- 2. Contribute to alignment of antimicrobial stewardship, diagnostic stewardship and IPC planning and implementation efforts.
- 3. Practice appropriate IPC measures in the laboratory.

Attitudes: 1. Promote the important role of the laboratory in IPC.

Public health officers / Health service managers

Knowledge:

1. Understand the relationships between patient safety, IPC, HAI and AMR.

Skills:

2. Support the implementation of multi-modal strategies to achieve behavioral change in IPC practices including necessary resources, monitoring, audit and feedback.
3. Propose appropriate infection control measures for the management of waste, air, water, laundry and food.
4. Develop and update procedures related to decontamination and sterilization guidelines and standards.

Attitudes:

5. Promote the importance of prevention and control of HAI and AMR.
6. Highlight the human, economic and wider public health concerns of HAI and AMR. Use data to illustrate the problem and communicate it to decisionmakers and the affected communities.
7. Take an active role in risk reduction during planning of renovations and new constructions in the health care organization.

Republic of Kazakhstan

Order of the Minister of Science and Higher Education of the Republic of Kazakhstan

No. 2 dated July 20, 2022 "On approval of state compulsory standards of higher and postgraduate education"

The following documents have been approved by the Order:

- 1) The state compulsory standard of higher education;
- 2) The state compulsory standard of postgraduate education.

In addition, amendments have been adopted to the Order of the Minister of Education and Science of the Republic of Kazakhstan No. 604 dated October 31, 2018 "On approval of state compulsory standards for all levels of education".

Order of the Minister of Health of the Republic of Kazakhstan No. ҚР ДСМ-63 dated July 4, 2022 "On approval of state compulsory standards for levels of education in the field of healthcare"

Republic of Kazakhstan

"Student-centered training is a process of qualitative transformation for students and **other trainees** aimed at improving their autonomy and critical ability through an effective approach.

Student-centered training includes the following elements:

- Emphasis on active rather than passive training;
- Emphasis on critical and analytical studying and understanding;
- Increased responsibility and accountability on the part of students;
- Increased autonomy of students;
- **Reflexive** approach to the processes of studying and teaching on the part of students and teachers" (1)

2. The content of training at the level of technical and vocational education is determined by technical and vocational education programs and focuses on competence-based learning outcomes (2).

Competences are the ability to use in professional practices **knowledge and skills** acquired in the process of training;

- GED – general education disciplines
- BD – basic disciplines
- MD – major disciplines, MC - mandatory component, CC – component of choice

1. State Compulsory Educational Standard 2022

2. Appendix to the Order of the Minister of Health of the Republic of Kazakhstan No. ҚР ДСМ-63 dated July 4, 2022

Mid-level specialist

- 09110100 Dentistry
 - 09120100 – "General Medicine",
Qualification 4S09120101 – Paramedic"
 - 09130100 – "Nursing Care"
Qualification 3W09130101 – "Assistant Nurse" 3W09130102 – "Massage Therapist" 4S09130103 – "General Nurse"
 - 09130200 – "Midwifery"
Qualification 4S09130201 – "Obstetrician"
 - 09140100 – "Laboratory Diagnostics"
Qualification 4S09140101– "Medical Technologists"
- Competences:
Safety and quality:
Provides high-quality and safe emergency care to patients on the basis of the effective use of evidence-based knowledge, technological innovations and professional skills
 - Basic and professional competences

Specialty 09880100 – "Hygiene and Epidemiology"
Qualification – 4S09880101 - "Hygienist - Epidemiologist"

- Safety and quality:
- Complies with sanitary legislation, sanitary and anti-epidemic measures, technological innovations and professional skills.

Specialty 09130100 – "Nursing"

Qualification 5AV09130101 – "Applied Bachelor's Program in Nursing"

- Clinical Nursing: ability to provide safe patient-centered nursing care, assuming responsibility for making independent decisions, actions and personnel management.

State Compulsory Standard of Higher Education 2022 (Appendix 3)

- **Chapter 2. Requirements for the content of higher education in the field of healthcare with a focus on study outcomes**
- 3. The content of continuous integrated medical education programs includes bachelor's degree, internship and field-specific master's degree.
- 4. The content of higher education programs in the field of healthcare and continuous integrated medical education includes three cycles: general education disciplines (GED), basic disciplines (BD) and major disciplines (MD).
- The GED cycle includes the disciplines of the mandatory component (MC) and/or the component of choice (hereinafter – CC). BD and MD cycles include CC disciplines

SCES 051102 – Public health

- Analysis of morbidity indicators
- Monitoring of decontamination compliance in medical facilities
- Prevention of socially significant diseases – HIV, TB
- Epidemiological surveillance

SCES 051301 – General Medicine (5+2)

- BDC 18 – General surgery – **aseptic and antiseptic techniques; acute purulent surgical infection; specific surgical infection; concept of nosocomial infection**
- BDC 23 – Introduction to the clinic 1 – **infection control of the hospital; patient reception and sanitary treatment, concept of disinfection, types of cleaning, inventory processing**
- BDC 24 – Introduction to the clinic 2 – **nursing process – injections**
- BDC 26 – Epidemiology – **anti-epidemic process**
- **CC** – Prevention of hemocontact infections in surgery, obstetrics and gynecology, GP, dentistry

SCES 051101 – Nursing (higher education)

- **The standard curriculum** is developed in accordance with the SCES
- Basics of Nursing – **injections, complications; bladder catheterization**
- BDC 13 **Nursing in surgery and intensive care: aseptics and antiseptics, patient and medical staff safety;**
- BDC 15 **Nursing in epidemiology and infectious diseases**
- BDC 05 – IC in MPIs (180 hours / 4 credits) – prevention of HAI, GR, isolation and restrictive measures, control of infections in the environment of medical institutions, medical waste, AB resistance

Theory of knowledge

- To improve the quality of learning, it is extremely important to understand how people learn, i. e. how information is taken in, processed and stored in the learning process.
- Through behaviorism, cognitivism, constructivism to cognitive constructivism (Jean Piaget), social constructivism, which is based on the cultural and historical theory of L. Vygotsky, Gregory Bateson's theory of learning: there is training I followed by training II
- **Andragogy** is the science of adult lifelong learning. Malcolm Knowles believed that andragogy (adult learning) should be distinguished from pedagogy (teaching children)
- Jack Mesirou's theory of transformational/transformational adult learning is learning that causes students to change much more profoundly than other types of learning, it is learning that shapes the student, has a strong impact and changes paradigms that affect the entire subsequent experience

Thank you for your time!

