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System for forming and maintaining the competence of rapid response teams of the Centres for Disease Control and Prevention of the Ministry of Health of Ukraine

Abstract

Relevance. Under modern biological, chemical, radiological, and other threats to public health, improvement of the system for developing and maintaining the competence of rapid response teams of the Centres for Disease Control and Prevention becomes particularly important.

Aim. To identify the main problems in developing and maintaining professional competence and to substantiate directions for its improvement based on an analysis of regulatory support and the results of a survey of specialists from rapid response teams of the Centres for Disease Control and Prevention.

Materials and methods. Bibliosemantic, information-analytical, and sociological methods, together with descriptive statistics, were used in the work. The sociological stage of the study involved an anonymous questionnaire survey of specialists from rapid response teams (RRTs) of the Centres for Disease Control and

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Prevention (CDCPs) to assess the current training system, experience of participation in emergency response, and directions for its improvement. Regulatory documents, educational and certificate programmes, electronic resources, and the results of sociological studies on the training and activity of RRTs of CDCPs were analysed.
Results. It was established that the competence system of RRTs of CDCPs should include cognitive, operational-technological, communicative, digital, and personal-motivational components. The key competences include emergency response, epidemiological investigation, risk assessment, laboratory diagnostics, interagency interaction, and public information. Competence is maintained through continuous learning, training, updating of the regulatory framework, resource provision, readiness monitoring, and international cooperation. According to the results of the questionnaire survey, 47.0% of respondents indicated the need to strengthen practical training, and 48.5% had experience of responding to public health emergencies. The need to develop psychological training, improve the integrated competence-based approach, and train personnel to work with modern material and technical support was also determined.
Conclusions. The results obtained indicate the need to strengthen the practical and psychological components of training for RRT personnel of CDCPs, develop practice-oriented forms of learning, and regularly practise emergency response algorithms. Professional competence should be maintained by combining continuous professional development, readiness monitoring, interagency drills, and international cooperation. The certificate programme "Emergency Preparedness, Response and Management" can be considered an effective instrument of professional development, as it combines a competence-based approach, practical training, training in response to chemical, biological, radiological, and nuclear threats, and the development of interagency interaction skills.
Keywords: emergencies; professional standards; conditions of uncertainty; epidemiological surveillance; martial law.

INTRODUCTION

Current threats to public health, including epidemics of infectious diseases, the consequences of military actions, technogenic accidents, and chemical, biological, and radiological risks, require the creation of effective response mechanisms at both national and regional levels. The COVID-19 pandemic, the full-scale war in Ukraine, and the growing number of emergencies have demonstrated the importance of trained specialists who can rapidly assess risks, conduct epidemiological investigations, and coordinate response measures [1]. One of the key elements in ensuring the preparedness of public health systems for emergencies is the functioning of specialised rapid response teams. Data from the World Health Organization [2] and N.R. Gillon *et al.* [3] indicated that the effectiveness of such teams depends not only on the professional knowledge of their members but also on the level of development of practical skills, interagency interaction, crisis communication, and readiness to work under conditions of uncertainty. Y. Khan *et al.* [4] focused on the development of a competence-based approach, which involves the integration of theoretical training, practical exercises, and continuous professional development. An important direction of current research concerns mechanisms for maintaining the professional competence of personnel involved in emergency response. H. Utunen *et al.* [5] noted that even a high level of basic training requires regular updating of knowledge and skills due to changes in the nature of threats, the introduction of new monitoring and diagnostic technologies, and the development of digital tools in public health. Simulation-based learning, scenario-based training, and intersectoral educational programmes acquire particular importance, as they allow action algorithms to be practised under conditions close to real crisis situations. The work by M.M. Koziar [6] focused attention on the psychological readiness of personnel, as work in emergency sites is accompanied by considerable psycho-emotional strain, the need for rapid decision-making, and a high level of responsibility. In this regard, stress resistance, self-regulation skills, and the ability to work effectively in a team are increasingly included in the structure of professional competence.

In Ukraine, the issue of developing and maintaining the competence of rapid response teams became especially relevant after the adoption of Law of Ukraine No. 2573-IX [7], according to which rapid response teams and operational-dispatch units must function within the structure of the Centres for Disease Control and Prevention. Under martial law, they are assigned tasks related to epidemiological surveillance, risk assessment, response to outbreaks of infectious diseases, participation in eliminating the consequences of emergencies, laboratory monitoring, and interaction with other actors in the civil protection system. The system for developing the competence of rapid response teams (RRTs) of the Centres for Disease Control and Prevention (CDCPs) is based on the principles of continuous professional development and includes training in epidemiological surveillance, sample collection and transportation, risk assessment, biosafety, crisis communication, and response to chemical, biological, radiological, and nuclear threats. However, the practice of RRT functioning indicates the need for further improvement of existing approaches to personnel training, strengthening of the practical component of learning, development of psychological readiness, and improvement of mechanisms for maintaining

professional competence. Educational and certificate programmes aimed at forming modern professional competencies play an important role in this process. The World Health Organization [1] considered competence-oriented education as one of the key mechanisms for strengthening the workforce capacity of healthcare systems. Among the instruments of continuous professional development, specialised certificate programmes occupy an important place, as they combine theoretical learning with practical training and practising emergency response algorithms. One such instrument is the certificate programme "Emergency Preparedness, Response and Management". Despite the presence of regulatory support and individual publications in the field of professional training for public health specialists, the issue of a comprehensive assessment of the system for developing and maintaining the competence of RRTs of CDCPs, together with identification of ways to improve it in view of specialists' practical experience, remains insufficiently examined, which determined the relevance of the present study. The study aimed to assess the features of developing and maintaining the professional competence of specialists from rapid response teams of the Centres for Disease Control and Prevention and to substantiate directions for its improvement based on an analysis of regulatory support and survey results.

MATERIALS AND METHODS

The study was designed as a cross-sectional medical-sociological study aimed at assessing the features of developing and maintaining the professional competence of specialists from RRTs of CDCPs. The object of the study was the system of training and maintenance of professional competence of RRT personnel, and the subject was the professional, organisational, and educational factors that influence specialists' readiness to respond to public health emergencies. Bibliosemantic and information-analytical methods were used to analyse regulatory documents, scientific publications, methodological materials, and electronic resources that regulate RRT activity and the training of specialists for emergency response, including Resolution of the Cabinet of Ministers of Ukraine No. 321/25 [8] and Order of the Ministry of Health of Ukraine No. 2213 [9]. The source base was selected according to the criteria of relevance, correspondence to the subject of the study, and practical importance for the public health system. The sociological stage of the study was conducted during 2023-2024 through an anonymous questionnaire survey of specialists from the Public Health Centre of the Ministry of Health of Ukraine and regional Centres for Disease Control and Prevention. The survey involved 381 respondents who were members of the main or reserve composition of RRTs. Among them, 195 (51.2%) worked in the biological field, 129 (33.9%) – in the chemical field, and 57 (14.9%) –in the radiological/nuclear field of activity. Employees of the Public Health Centre of the Ministry of Health of Ukraine and regional Centres for Disease Control and Prevention who belonged to the main or reserve composition of RRTs and provided written informed consent to participate in the study were included. The exclusion criteria were refusal to participate in the study or incomplete completion of the questionnaire.

The questionnaire included 40 questions grouped into thematic blocks devoted to assessing the conditions of professional activity, health status, readiness to respond to emergencies, psychophysiological characteristics, and needs in professional development. Open, closed, and multiple-choice questions were used to collect information. Closed questions enabled standardised quantitative indicators to be obtained, multiple-choice questions –the range of possible characteristics and influencing factors to be assessed, and open questions –respondents to express their own proposals for improving the system of training and maintaining the competence of RRT personnel. This structure of the questionnaire allowed both quantitative and qualitative data to be obtained for a comprehensive analysis of the problem under study. The questionnaire survey was performed individually using an electronic survey form. The average time for completing the questionnaire was about 15-20 minutes, which supported the collection of complete information without excessive burden on respondents. The questionnaire was developed by the authors of the study in accordance with the purpose and objectives of the work, based on an analysis of regulatory documents, scientific publications, and practical experience of rapid response teams in public health. The content of the questions covered the main components of professional activity, readiness to respond to emergencies, psychophysiological characteristics, and needs in professional development, which ensured the content validity of the instrument.

Nominal and ordinal scales, together with point-based self-assessment scales for individual characteristics, were used to assess most indicators. Closed questions were analysed by calculating absolute and relative indicators. Responses to open questions were subjected to content analysis, followed by grouping into content categories and determining the frequency of mention of individual proposals and problematic aspects. Statistical processing of the results was performed using descriptive statistics. Data analysis used calculation of absolute values, relative indicators (%), synthesis, and comparison of the results obtained between separate groups of respondents. Data processing was performed using Microsoft Excel and IBM SPSS Statistics. The study was conducted in accordance with the ethical principles of the Declaration of Helsinki of the World Medical Association [10]. All respondents participated in the study voluntarily and provided written informed consent. Confidentiality of personal data was ensured

at all stages of the study. The work was approved by the Ethics Committee of the State Institution "Public Health Centre of the Ministry of Health of Ukraine" (IRB2022-80; protocol dated 17.11.2022 No. 241). The opinions expressed in this paper are those of the authors and not the official positions of the institution.

RESULTS AND DISCUSSION

According to the results of the conducted study, regulatory documents, methodological materials, and educational and certificate programmes regulating the activity of RRTs of CDCPs and the formation of their professional competences were analysed. It was established that RRTs are specialised mobile units of the public health system that provide rapid response to biological, chemical, radiological, and other emergencies. Their activity is directed towards performing tasks of epidemiological surveillance, risk assessment, laboratory monitoring, investigation of infectious disease outbreaks, and implementation of anti-epidemic measures directly in the sites where threats arise. Analysis of current regulatory documents allowed the key competences required for effective RRT activity to be identified (Table 1) [11].

Table 1. Key competences of RRTs of CDCPs

Competence	Main content
Rapid response to threats	Immediate response to emergencies related to infectious diseases, mass poisonings, and exposure to hazardous environmental factors
Epidemiological investigation	Identification of sources and routes of transmission of infectious diseases and determination of risk factors
Specialised monitoring	Biological, chemical, and radiological control and localisation of hazard sites
Laboratory diagnostics	Collection, transportation, and testing of samples
Implementation of anti-epidemic measures	Localisation and elimination of infectious disease sites
Interagency interaction	Coordination of activity with the State Emergency Service of Ukraine, healthcare facilities, and authorities
Risk communication and public information	Provision of reliable information and communication during crisis situations

Source: compiled by the authors

The analysis performed indicated that the regulatory framework sufficiently regulates the functions and tasks of RRTs, but gives much less attention to mechanisms for maintaining the competences already formed. Specifically, regulatory documents describe in detail the issues of epidemiological surveillance, laboratory diagnostics, and anti-epidemic measures, whereas regular practising of practical skills, psychological training of personnel, interagency interaction, and assessment of readiness level are covered less systematically. It was established that the modern RRT competence model should include not only professional knowledge but also practical skills required for work directly in emergency sites. Based on the analysis of educational programmes and international approaches, five main components of competence were determined: cognitive, operational-technological, communicative, digital, and personal-motivational. The operational-technological component requires particular attention, as it includes practical practising of response algorithms, use of personal protective equipment, field sample collection, and work under increased risk. This component is the most difficult to maintain through theoretical learning alone and requires regular training and simulation exercises. Thus, the results of the analysis point to a certain gap between the regulatory requirements for RRT activity and the practical mechanisms for maintaining their readiness. This determines the need for further development of the system of continuous professional training, expansion of practice-oriented forms of preparation, and introduction of mechanisms for regular monitoring of the level of formed professional competences.

An anonymous questionnaire survey of employees of the Public Health Centre of the Ministry of Health of Ukraine and regional CDCPs who were members of the main or reserve composition of RRTs was conducted to clarify current problems in developing and maintaining professional competence. The survey results provided for the strengths of the existing training system to be assessed and directions for its further improvement to be determined. One of the most notable results was that 47.0% of respondents indicated the need to strengthen the practical component of learning. Moreover, 48.5% of the respondents reported having personal experience of participating in response to public health emergencies. This highlights that practical training is relevant both for employees without response experience and for those who have already participated in eliminating the consequences of emergencies. Analysis of respondents' open answers showed that most respondents understood "strengthening practical training" not as an increase in the amount of theoretical knowledge but as expansion of the number of practical exercises, simulation-based learning sessions, and interagency drills. The need to practise algorithms for response to biological, chemical, and radiological threats, use of personal protective equipment, organisation of mobile team work, and interaction with other services during emergencies was mentioned most often [12-13]. This tendency is also confirmed by the results of the

analysis of readiness to work in field conditions. Although more than 80% of respondents assessed their general readiness to respond to emergencies as sufficient, the share of those who were fully ready to work directly in field conditions was substantially lower. This suggests that practical readiness for work under real emergency conditions is the most vulnerable component of professional training. Since the study was descriptive, the results identify the main tendencies and needs of RRT personnel, but further confirmation is needed in studies using comparative statistical analysis. Comparison of indicators of general readiness to respond to emergencies and readiness to work directly in field conditions showed certain differences. While the level of general readiness in most groups exceeded 80%, readiness to work in field conditions was lower and was accompanied by an increase in the proportion of respondents who assessed their training as insufficient. The obtained results indicate the presence of a gap between theoretical training and confidence in performing practical tasks under real emergency conditions, which additionally substantiates the need to expand practice-oriented forms of learning. Analysis of respondents' answers showed that the greatest interest was caused by practical classes aimed at practising algorithms for response to biological, chemical, and radiological threats, use of personal protective equipment, organisation of mobile team work, sample collection and transportation, and interagency interaction during emergencies. Respondents paid separate attention to psychological training. The answers obtained indicate awareness of the importance of skills for working under conditions of increased psycho-emotional strain, time pressure, and the need to make decisions under uncertainty. This confirms the appropriateness of including elements of psychological resilience, crisis communication, and team interaction in training programmes.

Alongside practical training, respondents noted the need for regular familiarisation with updated regulatory documents, modern epidemiological surveillance technologies, digital monitoring tools, and new approaches to emergency response. The obtained results stress the need for continuous professional development as an integral component of maintaining the competence of RRT personnel. Given the survey results, the introduction of a system of regular practical training for RRT personnel is appropriate. The optimal approach may be functional exercises at least once per quarter and comprehensive interagency drills at least once a year. Priority scenarios for practising should include outbreaks of particularly dangerous infectious diseases, mass food poisoning, accidents involving the release of hazardous chemical substances, radiological incidents, and response to emergencies under martial law. Thus, the questionnaire results indicated that further improvement of the RRT training system should be directed primarily towards strengthening practice-oriented learning, developing psychological readiness, improving interagency interaction, and ensuring continuous professional development of personnel. Maintenance of the professional competence of RRT personnel is not limited to initial training and requires the functioning of a system of continuous professional development. The results of the analysis of regulatory documents, international recommendations, and the practice of RRT functioning indicate that the effectiveness of emergency response largely depends on regular readiness monitoring, algorithmisation of actions, resource provision, and international cooperation. The main mechanisms for maintaining RRT competence are presented in Table 2.

Table 2. Main mechanisms for maintaining the competence of RRTs of CDCPs

Direction	Practical significance
Regular readiness monitoring	Assessment of the staffing, technical, and organisational capacity of RRTs
Algorithmisation of actions in response to CBRN threats	Standardisation of response and minimisation of the risk of errors
Educational and certificate programmes	Maintenance of continuous professional development of personnel
International cooperation	Access to modern technologies, educational resources, and best practices
External quality assessment of laboratories	Control of correspondence to international standards
Material and technical support	Maintenance of practical readiness for response

Note: CBRN – chemical, biological, radiological, and nuclear threatss
Source: compiled by the authors

One of the main instruments for ensuring readiness is regular monitoring of RRT activity. Analysis of national reports indicated that the overall assessment of the quality of work of units receiving state support (subvention) averaged 4.3 points, compared with 4.0 points in units without such funding. A similar tendency was observed for technical capacity: the corresponding indicators were 6.8 and 5.2 points, respectively. The obtained results present a positive effect of state support on the level of technical equipment and organisational readiness of RRTs and confirm the importance of stable resource provision for maintaining an appropriate level of readiness to respond to emergencies. The differences indicate that the level of readiness of units depends not

only on the professional training of personnel but also on resource provision. Higher indicators of technical capacity in units receiving state support may contribute to more regular practical training, keeping equipment in proper condition, and increasing the overall effectiveness of response. Algorithmisation of actions in the event of biological, chemical, radiological, and nuclear threats is an important component of competence maintenance. The use of standardised algorithms minimises the risk of errors and ensures consistency of personnel actions regardless of the type of emergency [14]. This acquires particular importance under martial law, when decisions have to be made under time pressure and incomplete information.

The most effective training systems are those based on a competence-based approach and continuous professional development. In the USA, RRT training is provided through programmes of the Centres for Disease Control and Prevention (CDC), which combine distance learning, field training, and simulation exercises. In European Union countries, programmes of the European Centre for Disease Prevention and Control (ECDC), directed towards developing competences in epidemiological surveillance and response to cross-border threats, play an important role [15-16]. The OpenWHO educational platform is an additional instrument of professional development, as it provides open access to training courses on emergency preparedness and response, biosafety, risk communication, and management of infectious disease outbreaks. A common feature of most international programmes is the priority of practice-oriented learning over exclusively theoretical training. Specifically, CDC programmes provide regular field training and participation in investigations of real events, while ECDC training modules widely use case methods, simulation exercises, and scenario modelling. This confirms the relevance of strengthening the practical component of training Ukrainian RRTs in accordance with international approaches. International cooperation makes a substantial contribution to maintaining the professional competence of RRT personnel. It provides access to modern educational resources, external laboratory quality assessment programmes, international training, and professional development programmes. Specifically, participation of CDCP laboratories in international external quality assessment (EQA) programmes, including Quality Control for Molecular Diagnostics programmes [17], supports maintenance of the appropriate level of professional competence among laboratory personnel and ensures that testing corresponds to international standards. Participation in international support and modernisation programmes, including EU4Health and other initiatives of the European Union and the World Health Organization, is also an important direction in the development of the public health system of Ukraine [18]. Such programmes support workforce development, improvement of epidemiological surveillance systems, greater readiness for crisis situations, and harmonisation of national approaches with international standards. Thus, maintenance of RRT competence should be viewed as a continuous process combining regular readiness monitoring, practical training, algorithmisation of actions, resource provision, and active involvement in international professional development programmes. Implementation of these approaches will help improve the readiness of the public health system of Ukraine to respond to current emergencies and challenges to population safety.

The results confirm that developing and maintaining the competence of RRTs of CDCPs should be considered as a continuous process that combines regulatory requirements, practical training, psychological readiness, resource provision, and regular updating of professional skills. The analysis performed indicated that the current regulatory framework sufficiently outlines the functions of RRTs, but the mechanisms for maintaining practical readiness, assessing the formation of competences, and providing psychological support for personnel remain less detailed. The obtained data are consistent with modern international approaches to RRT training. M.A. Stoto *et al.* [19] and S. Elnosserry *et al.* [20] emphasised the need for comprehensive training of rapid response team specialists. It should include not only competencies in epidemiological surveillance and laboratory diagnostics but also skills in risk communication, logistical support, team interaction, psychosocial support, and work under conditions of uncertainty. This corresponds to the results of the present study, in which the importance of operational-technological, communicative, digital, and personal-motivational components of competence was determined alongside professional knowledge. Materials of the World Health Organization [21], regarding workforce development for response to public health emergencies, emphasise that traditional theoretical training is insufficient for ensuring personnel readiness for real crisis events. A similar conclusion was reached in the present study: 47.0% of respondents indicated the need to strengthen the practical component of learning, while comparison of general readiness to respond with readiness to work in field conditions showed a gap between declared readiness and confidence in performing practical tasks directly in emergency sites.

The results of the study are also consistent with ECDC approaches, according to which the training of public health specialists for emergencies should be based on clearly defined competences, scenario-based learning, intersectoral interaction, and practising actions in the event of cross-border threats [22]. In this context, the respondents' identified need to practise algorithms for response to biological, chemical, and radiological threats, use of PPE, organisation of mobile team work, and interaction with other services is

entirely logical. The psychological component of training deserves separate attention. M. Puticiu *et al.* [23] and A. Ben Hamida *et al.* [24] noted that personnel involved in emergency response work under conditions of high responsibility, time pressure, information uncertainty, and psycho-emotional strain. This is consistent with the results of this study, in which respondents indicated the importance of psychological readiness, crisis communication, team interaction, and the ability to make decisions under conditions of uncertainty. Thus, psychological training should not be an additional but a mandatory component of professional development programmes for RRTs. International experience also confirms the appropriateness of using blended learning formats. The OpenWHO platform is considered an instrument for rapid dissemination of knowledge among healthcare workers and public health specialists during crisis situations [19]. However, experience of its use demonstrates that online courses are effective for updating knowledge, but they cannot fully replace practical training, field exercises, and simulation exercises. This is in line with the results of the present study, where the key need identified by respondents was precisely the strengthening of the practice-oriented component of training. Resource provision is also important. The study is also consistent with current approaches to public health system preparedness, where logistics, equipment availability, laboratory capacity, and availability of personal protective equipment are considered integral components of effective response [18]. The obtained data on higher assessment of work quality and technical capacity of units receiving state support indicate that RRT readiness depends both on the level of professional training of personnel and stable material-technical support.

CONCLUSIONS

The following is necessary for developing and maintaining the competencies of specialists from RRTs of CDCPs in public health emergencies:

1. The analysis of regulatory support, educational programmes, and organisational approaches to the activity of rapid response teams of CDCPs allowed the key components of personnel professional competence to be determined. These include cognitive, operational-technological, communicative, digital, and personal-motivational components. It was determined that the current training system sufficiently regulates the professional functions of RRTs, but requires further development of mechanisms for maintaining practical readiness, psychological training, and regular monitoring of the formation of competences.

2. According to the results of the questionnaire survey of 381 specialists from the Public Health Centre of the Ministry of Health of Ukraine and regional CDCPs, it was established that 47.0% of respondents considered it necessary to strengthen the practical component of learning, while 48.5% already had experience of responding to public health emergencies. The results obtained highlight the relevance of developing practice-oriented forms of training regardless of the previous professional experience of personnel.

3. It was determined that the most promising directions for improving RRT training are regular functional exercises, interagency drills, practising algorithms for response to biological, chemical, radiological, and nuclear threats, development of crisis communication, psychological resilience, and skills for working in field conditions.

4. Competence of RRT personnel should be maintained by combining continuous professional development, regular readiness monitoring, algorithmisation of actions in response to CBRN threats, appropriate resource provision, and active involvement in international educational and professional programmes. The appropriateness of using certificate programmes, including the programme "Emergency Preparedness, Response and Management", as an instrument for developing and maintaining the professional competences of public health specialists was established.

The limitation of the study is its descriptive nature, which does not allow statistical links between individual indicators to be fully assessed, particularly between the presence of response experience and the assessment of the need for practical training. This determines the perspective of further research, which should include comparative and correlation analysis, together with an assessment of the effectiveness of different training formats for RRT personnel.

The prospects for further research include the development and validation of a system for evaluating the level of formed professional competences among personnel of rapid response teams of CDCPs, in addition to the examination of the relationship between professional experience, level of training, and effectiveness of emergency response. Comparative studies between different categories of RRT specialists, analysis of the influence of practical training and simulation-based learning on the level of personnel readiness, and assessment of the effectiveness of modern digital educational technologies and international professional development programmes are appropriate. Separate attention should be paid to psychophysiological and psychological factors of professional reliability of RRT personnel under prolonged exposure to stress factors and martial law.

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Система формування та підтримки компетентності груп оперативного реагування центрів контролю та профілактики хвороб Міністерства охорони здоров'я України

Анотація

Актуальність. В умовах сучасних біологічних, хімічних, радіаційних та інших загроз громадському здоров'ю особливого значення набуває удосконалення системи формування та підтримки компетентності груп оперативного реагування Центрів контролю та профілактики хвороб.

Мета. Визначити основні проблеми формування і підтримки професійної компетентності та обґрунтувати напрями її удосконалення на основі аналізу нормативно-правового забезпечення та результатів опитування фахівців груп оперативного реагування Центрів контролю та профілактики хвороб.

Матеріали та методи. У роботі застосовано бібліосемантичний, інформаційно-аналітичний, соціологічний методи та методи описової статистики. Соціологічний етап дослідження передбачав анонімне анкетування фахівців груп оперативного реагування (ГОР) Центрів контролю та профілактики захворювань (ЦКПХ) щодо оцінки чинної системи підготовки, досвіду участі в реагуванні на надзвичайні ситуації та напрямів її вдосконалення. Проведено аналіз нормативно-правових документів, освітніх і сертифікатних програм, електронних ресурсів та результатів соціологічних досліджень щодо підготовки і діяльності ГОР ЦКПХ.

Результати. Встановлено, що система компетентності ГОР ЦКПХ повинна включати когнітивний, операційно-технологічний, комунікативний, цифровий та особистісно-мотиваційний компоненти. До ключових компетентностей належать оперативне реагування, епідеміологічне розслідування, оцінка ризиків, лабораторна діагностика, міжвідомча взаємодія та інформування населення. Підтримка компетентності забезпечується через безперервне навчання, тренінги, оновлення нормативної бази, ресурсне забезпечення, моніторинг готовності та міжнародну співпрацю. За результатами анкетування 47 % респондентів вказали на необхідність посилення практичної підготовки, а 48,5 % мали досвід реагування на надзвичайні ситуації у сфері громадського здоров'я. Також визначено потребу в розвитку психологічної підготовки, удосконаленні комплексного компетентнісного підходу та навчанні роботі із сучасним матеріально-технічним забезпеченням.
Висновки. Отримані результати свідчать про необхідність посилення практичної та психологічної складових підготовки персоналу ГОР ЦКПХ, розвитку практикоорієнтованих форм навчання та регулярного відпрацювання алгоритмів реагування на надзвичайні ситуації. Підтримка професійної компетентності має здійснюватися шляхом поєднання безперервного професійного розвитку, моніторингу готовності, міжвідомчих тренувань і міжнародної співпраці. Сертифікатна програма «Готовність, реагування та управління надзвичайними ситуаціями» може розглядатися як ефективний інструмент професійного розвитку завдяки поєднанню компетентнісного підходу, практичної підготовки, навчання реагуванню на хімічні, біологічні, радіаційні та ядерні загрози та розвитку навичок міжвідомчої взаємодії.
Ключові слова: надзвичайні ситуації; професійні стандарти; умови невизначеності; епідеміологічний нагляд; воєнний стан.