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ПРОБЛЕМИ МЕДИЧНОЇ ЕКСПЕРТИЗИ ЗАХВОРЮВАНЬ, ЩО ПРИЗВЕЛИ ДО ВТРАТИ ПРАЦЕЗДАТНОСТІ ТА СМЕРТІ ВНАСЛІДОК ВПЛИВУ ІОНІЗУЮЧОГО ОПРОМІНЕННЯ В УМОВАХ ЧОРНОБИЛЬСЬКОЇ КАТАСТРОФИ У ВІДДАЛЕНОМУ ПІСЛЯАВАРІЙНОМУ ПЕРІОДІ

Передумови. Чорнобильська катастрофа (ЧКТ) призвела до радіаційного опромінення великої кількості людей. Серед них – персонал Чорнобильської АЕС та працівники супровідних організацій, спеціалісти з питань ядерної безпеки, учасники робіт з ліквідації наслідків аварії різних спеціальностей, у тому числі військово-службовці, мешканці міста Прип'ять та 30 км зона відчуження ЧАЕС (включаючи дітей), які були евакуйовані в перші дні після аварії та населення радіоактивних забруднених територій. Втрата здоров'я та працездатності, а також випадки смерті внаслідок впливу радіаційного опромінення в умовах ЧКТ при виконанні професійних, військових або службових обов'язків та / або проживанні на радіоактивно забруднених територіях, отримуючи додаткову дозу опромінення не з власної провини, вимагають розробки спеціальної форми медичної експертизи як частини системи медичного соціального захисту для цих контингентів.

Метою дослідження було проаналізувати стан медичної та соціальної експертизи для встановлення зв'язку захворювань, що призводять до інвалідності та смерті з впливом наслідків аварії на Чорнобильській АЕС для дорослого населення, та визначити основні напрямки удосконалення цієї системи.

Матеріал і методи. Проведений аналіз стану медичної експертизи зв'язку захворювань, інвалідності та причин смерті постраждалих внаслідок аварії на Чорнобильській АЕС у віддаленому післяаварійному періоді впродовж 2013–2017 років (26142 медичні експертні справи).

Результати та висновки. Визначено, що загальна кількість постраждалого населення за період 2007–2018 рр. скоротилася на 26,05 % або на 657 988 осіб. Має місце стрімке зростання кількості постраждалих категорії 1 – з 40106 у 1995 році до 107115 у 2018 році. Впродовж 2013–2017 рр. встановлена висока частота розгляду медичних експертних справ щодо випадків раку (51,49 %) та смертей (34,99 %). Первинна медична експертиза у 35,12% випадків була проведена для учасників ліквідації наслідків аварії на ЧАЕС (категорії 2А, 3А) та у 41,99 % випадків для потерпілих, які проживають у зоні підвищеного радіологічного контролю (категорія 4 В). При первинній медичній експертизі частота розгляду випадків смерті для учасників ліквідації наслідків аварії на ЧАЕС категорії 2А становила 30,65 %, категорія 3А – 15,97 %, категорія 4-В – 23,75 % випадків. Частка медичної експертизи випадків смерті була найвищою для 1 категорії – 79,14 % випадків. Визначені невирішені питання проведення експертизи зв'язку захворювань деяких категорій постраждалих (рак щитовидної залози у осіб, які втратили статус потерпілих після досягнення повноліття, визначення чинності статусу постраждалого категорії 4-В), що вимагає змін та доповнень до законодавчої бази.

Ключові слова: іонізуюче випромінювання, постраждалі внаслідок аварії на Чорнобильській АЕС, медична експертиза зв'язку захворювань, інвалідності і причин смерті з впливом наслідків аварії на Чорнобильській АЕС.

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PROBLEMS OF MEDICAL EXPERTISE FOR DISEASES THAT BRING TO DISABILITY AND DEATH AS A RESULT OF RADIATION EXPOSURE INFLUENCE IN CONDITIONS OF THE CHERNOBYL CATASTROPHE IN REMOTE POSTACCIDENTAL PERIOD

Background. The Chornobyl catastrophe (ChCt) resulted in radiation exposure of great quantity of people. Among them there were personnel of Chernobyl NPP (ChNPP) and workers of supporting enterprises, radiation protection professionals, clean-up workers of different specialties including military personnel that were send for liquidation of its consequences, inhabitants of the Prypyat city and Chernobyl 30km exclusive zone (including children) that were evacuated during first days after accident and population of radioactive contaminated territories. Loss of health, disability and death as a result of radiation exposure influence in conditions of the ChCt under discharge of professional, military or official duties and/or living on radiation contaminated territories not by his own fault call for developing of special form of medical expertise as part of medical social protective system for this contingents. The **objective** of the study was to analyze the state of medical and social expertise for the interdependence of the diseases that bring to the disability and death with the impact of the Chornobyl accident consequences for the adult population and to determine the main directions for improvement of this system.

Materials and methods. The analysis of the medical expertise state for the interdependence of the diseases that bring to the disability and death by the effect of the Chornobyl accident consequences for the adult population in a remote post-accidental period during 2013–2017 years (26,142 personal medical expert investigations) was performed.

Results and conclusions. It was determined that the total number of population suffered from ChCt during 2007–2018 years reduced for 26.05 % or by 657,988 persons. At the same time, there has been rapid increase in the number of victims with disability who received positive medical expertise certificate about interdependence of disease with effect of ChCt (the 1st category according Ukrainian legislation) – from 40,106 in 1995 to 107,115 in 2018. The increase in the frequency of medical expertise cases of oncological diseases – 51.49 %, as well as cases concerning the interdependence of diseases that caused the deaths of the victims – 34.99 % were shown. The outstanding issues of the medical expertise of diseases interdependence with ChCt effects for certain categories of victims (thyroid cancer in persons who have lost their status after reaching adulthood, the definition of the legitimacy of the status of victims for inhabitants of territories that undergone radiation ecological control (the 4th-V category) that require changes and additions to the legislative framework are discussed.

Key words: radiation exposure, victims of the accident at the Chornobyl Nuclear Power Plant, medical expertise of interdependence of diseases bring to disability and death with the effect of the consequences of the Chornobyl accident.

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INTRODUCTION AND HISTORY OF THE ISSUE

The accident at the Chornobyl nuclear power plant (ChNPP) – a global ecological disaster of our time, affecting the fate of millions of people. This largest anthropogenic disaster in the history of humankind also has the second definition – the nuclear tragedy of the planet [1, 2].

About 5 million citizens of the former USSR, including almost 3 million people, and 2,293 settlements in Ukraine suffered because of the Chornobyl accident, [1, 2].

One of the key problems of minimization of accident consequences became medical-social expertise for interdependence of health loss and disability of victims with the effects of ChCt [1, 2]. Legally first participants work in the aftermath of the Chornobyl accident (clean-up workers from the ChNPP personnel) had the status of persons that undergone industrial trauma, in specific case – radiation exposure. According to existing laws during 1986–1987 years,

more than 1,040 employees (primarily personnel ChNPP) received the so-called N-1 form (Report of accident at work). Taking into the account that in the liquidation of the Chernobyl accident consequences participated several hundred of different enterprises and organizations of the former USSR in various subordination – from the Ministry of Internal Affairs and the Ministry of Defense to local utilities, in order to streamline this issue, maintaining a common register of persons who are granted for social benefits due to health loss and disability under radiation exposure, in accordance with the Decision of Government Commission № 539 dated August 13 1988, with the consent of the All-Union Trade Unions Federation and the State Committee of Labor of the USSR, the Order of the Ministry of Health (MOH) of the USSR № 731 dated September 28 1988 «Organization of the Central Interagency Expert Council for certification interdependence of health loss and disability with work for liquidation of the Chernobyl NPP accident consequences and their professional nature» was issued [3]. The Central Interagency Expert Council was created on the base of All-Union Research Center for Radiation Medicine of The Academy of Medical Sciences of The USSR. The Order approved the Regulations and members of The Central Interagency Expert Council. The Chairman of the Council was appointed Academician of the Academy of Medical Sciences of Ukraine A. Yu. Romanenko, who performed these duties until October 2007.

The Ukrainian Parliament (Verkhovna Rada) approved the basis of the social protection of the victims of the Chernobyl accident on April 1, 1991. This is The Law of Ukraine «On the Status and Social Protection of Citizens suffered by the Chernobyl Catastrophe» [4], which 12th Article is devoted to «Certification of interdependence between the diseases bring partial or total disability for Citizens suffered by the Chernobyl Catastrophe and the Chernobyl Catastrophe». Articles 2, 14, 27 of this document also have a significant influence on the decision-making on this issue.

The main document that regulate certification of interdependence between the diseases bring health loss and disability with the Chernobyl accident influence during 1997–2011 years was MOH of Ukraine Order № 150 dated 17 May 1997 «On approval of normative documents on diseases for which an interdependence with the radiation exposure and other harmful factors as a result of the Chernobyl accident can be certifi-

ed» [5] and the joint Order of the MOH and the Ministry of Emergencies of Ukraine № 166/129 dated May 30 1997 «On the improvement of the expertise system for certification interdependence between the diseases bring to health loss, disability and death with the radiation exposure and other harmful factors as a result of the Chernobyl accident» [6]. These documents determined the structure and procedure of medical expertise and certification of interdependence between the diseases bring health loss and disability with the Chernobyl accident as influence of radiation exposure and other harmful factors. System of Regional Specialized Interagency Expert Commissions (Kyiv, Donetsk, Kharkiv, Dnipropetrovsk, Vinnytsia, Lviv) and regional medical consultative expert commissions were additionally founded and begin to provide their activity under scientific and methodological support by Central Interagency Expert Commission (CIEC).

On the November 23th 2011, by the 3rd paragraph of the Cabinet of Ministers of Ukraine governmental regulation № 1210 «On improvement of the level of social protection of citizens who suffered as a result of the Chernobyl catastrophe» [7] the stopped the activity and eliminated Regional Specialized Interagency Expert Commissions (Kyiv, Kharkiv, Dnipropetrovsk, Vinnytsia) and regional medical consultative expert commissions except the Central, Donetsk and Lviv regional Interagency Expert Commissions. This state was strengthening by the following jointly Order of the MOH and Ministry of Emergencies of Ukraine № 789,1248 dated 10 October 2012 «On Amendments to the Order of the MOH of Ukraine and the Ministry of Emergencies of Ukraine on May 30, 1997 № 166/129» [8]. Today, the certification of interdependence between the diseases bring to health loss, disability and death with the Chernobyl accident as result of radiation exposure and other harmful factors is regulated by the Order of the MOH of Ukraine № 441 dated 14 July 2012 «On Amendments to the Order of the MOH of Ukraine № dated 17 May 1997» [9], that containing the list of diseases for which this interdependence can be certified and instructions for its application.

OBJECTIVE

The objective of the work was to analyze the state of medical and social expertise for the interdependence of the diseases that bring to the disability and death with the impact of the Chernobyl accident consequences for the adult population and to determine the main directions for improvement of this system.

MATERIALS AND METHODS

A retrospective analysis of materials of 26,142 medical expert cases, of persons suffered from the accident at the ChNPP, which were considered by CIEC during 2013–2017 years, was performed. In accordance with the requirements of regulatory and regulatory documents [8, 9], case materials include documents that legally confirm the status of the victim (clean-up worker (category 2A, 3A), evacuate persons (category 2B, 3B), inhabitant of radiation contaminated territory (category 2B, 3B, 4V), passport data, medical information on health status before and after the accident, detailed medical records on the outcomes of the outpatient and inpatient screening and treatment (including as needed, the results of morphological studies and autopsies in the case of death), documents on temporary and stable disability. Data on the absorbed radiation dose have only 20 % of clean-up workers, doses for the thyroid gland – 5 % of the victims. According to Article 12 of the Law of Ukraine «On the Status and Social Protection of Citizens suffered by the Chernobyl Catastrophe» [4] the presence of «dosimetric indicators» is not a prerequisite for providing a medical expertise for the certification of interdependence of the diseases that bring to the disability and death with the impact of the Chernobyl accident consequences. Due to the limited amount of purely dosimetric data, the most informative objective radiation and hygienic indicator for decision making about interdependence of the diseases is information about the exact date, time, place and nature of the activity involved in the work to liquidation of the consequences of the ChNPP accident, or residence, work and education at contaminated areas [10–13]. In difficult, conflict or uncertain medical expert cases the absorbed radiation dose can be reconstructed by the Department of Dozymetry of NRCRM and additional data can be received from the Ukrainian State Register of persons, suffered as a result of the ChCt. All individuals sign informed consent before providing medical expertise for the certification.

RESULTS AND DISCUSSION

On the 1st of January 2018, the status of victims of the Chernobyl disaster in Ukraine have 1,868,228 persons. This number including 199 006 clean-up workers and 1,669,222 victims of the ChCt. The last one also including 377,589 children who have undergone radiation exposure not by his own fault and are now experiencing a negative impact of Chernobyl. Under remote effect of radiation exposure, which took place

at the liquidation of nuclear accidents and participating in the testing of nuclear weapons in the former Soviet Union suffered 2,835 NonChNPP clean-up workers. Status of Widows of persons suffered from the ChNPP accident have 36,525 women.

The detailed regional distribution of the population suffered because of the ChNPP accident on 01 January 2018 presented in Table 1.

The main part of the suffered population is concentrated in Kyiv (609,395 persons), Rivne (334,667 persons) and Zhytomyr (251,611 persons) regions. A significant number of the suffered population (more than 100,000 persons per region) also resides in Volyn (131,915 persons) and Cherkasy (102,820 people) regions, slightly less in Vinnytsia (82,067 persons) and in Chernihiv (71,143 persons) regions. The distribution of residence of the clean-up workers is as follows: the largest number lives in Kyiv City (42,176 persons) and the Kyiv region (35,979 persons), then Dnipropetrovsk, Kharkiv and Poltava regions (more than 10,000 participants in each), Chernihiv and Cherkasy regions (more 8,000 in each).

It should be noted that the total number of people suffered as a result of the ChCt in the period 2007–2018 years (Fig. 1) decreased by 26.05 % or by 657,988 persons.

At the same time, there has been rapid increase in the number of suffered persons with disability who receive positive medical expertise certificate about interdependence of disease with effect of ChCt (the 1st category according Ukrainian legislation) – from 40,106 in 1995 to 107,115 in 2018 (including 1,784 disabled children – invalids in 2018) (Fig. 2). Maximum number of suffered persons category the 1st was observed on the 1st of January 2014 – 118,108 persons.

The main reasons leading to these changes are the increase in the incidence of chronic diseases, which lead to rapid disability and the corresponding increase in mortality of the suffered population.

Medical expert assessment of the state of health the suffered person, who is undergone examination about the possibility of developing existing disease and disability due to radiation exposure (including open sources of ionizing radiation) and other harmful conditions in terms of the ChNPP accident is not only a medical but also a social procedure, because the background of expertise includes not only clinical and diagnostic criteria, but also social, such as the age of the patient, profession, working conditions, the presence of the disability certificate, the terms of the dis-

Table 1
Regional distribution of the persons who have a status of suffered as a result of the ChNPP accident (01 January 2018 year)

Region (R./)City	Total		Clean-up workers		Victims		Children		NonChNPP clean-up workers		p
	Total	1 st categ. incl.	Total	1 st categ. incl.	Total	1 st categ. incl.	Total	1 st categ. incl.	Total	1 st categ. incl.	
Ukraine	1868228	199006	1666387	58075	48430	377589	1784	2835	610	38525	
Kyiv R.	609395	35979	573350	10931	15328	94766	165	66	17	9151	
Rivne R.	334667	3922	330682	914	7175	102350	736	63	17	2901	
Zhytomyr R.	251611	7510	244084	1430	7833	55822	331	17	13	3669	
Volyn R.	131915	2057	129840	522	3176	41673	310	18	6	1922	
Cherkasy R.	102820	8115	94627	2746	3970	15312	44	78	9	2359	
Vinnitsia R.	82067	4473	77514	1580	1621	12734	20	80	49	1055	
Kyiv City	75253	42176	32742	12740	2616	11020	64	335	127	5171	
Chernihiv R.	71143	8950	62127	2429	2009	11522	24	66	24	1741	
Ternopil R.	42384	2333	40019	448	497	6276	5	32	3	529	
Poltava R.	20108	10191	9770	3213	340	3326	23	147	29	1358	
Kharkiv R.	19445	10916	8325	5434	941	2930	12	204	57	1789	
Dnipropetrovsk R.	19345	12617	6041	2331	246	2387	11	687	77	1747	
Chernivtsi R.	17517	2138	15350	302	118	3781	1	29	2	215	
Sumy R.	13075	6881	6143	1559	299	1872	8	51	15	708	
Ivano-Frankivsk R.	9900	2651	7202	681	292	1799	4	47	6	316	
Kirovograd R.	9681	6311	3230	1155	104	1230	3	140	17	672	
Donetsk R.*	8693	6334	2169	2703	239	725	1	190	50	721	
Lviv R.	7940	4237	3654	1259	310	1562	5	49	13	501	
Khmelnytsky R.	7573	3982	3443	1109	220	894	9	148	19	433	
Zaporozhye R.	7448	3928	3439	744	148	1185	1	81	7	313	
Odessa R.	6674	3611	3003	1484	538	998	2	60	20	380	
Mykolaiv R.	6375	2514	3799	239	94	1303	0	62	6	181	
Kherson R.	5755	1951	3734	425	181	1173	0	70	13	148	
Lugansk R.*	3881	3172	676	1462	96	254	3	33	6	352	
Transcarpathian R.	3563	2057	1424	235	39	695	2	82	8	193	

Note. * – without taking into account subregions of Donetsk and Lugansk regions that are not under control of Ukraine.

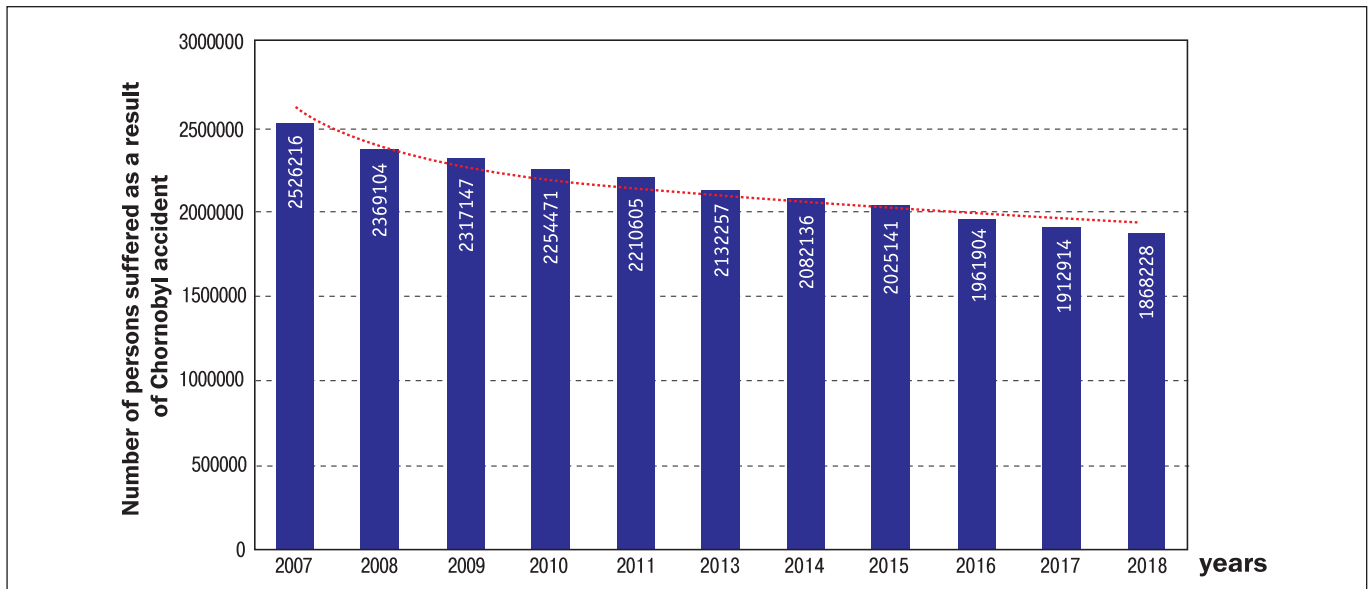


Figure 1. Reduction of the number of people suffered as a result of the Chernobyl NPP accident for the period 2007–2018 years

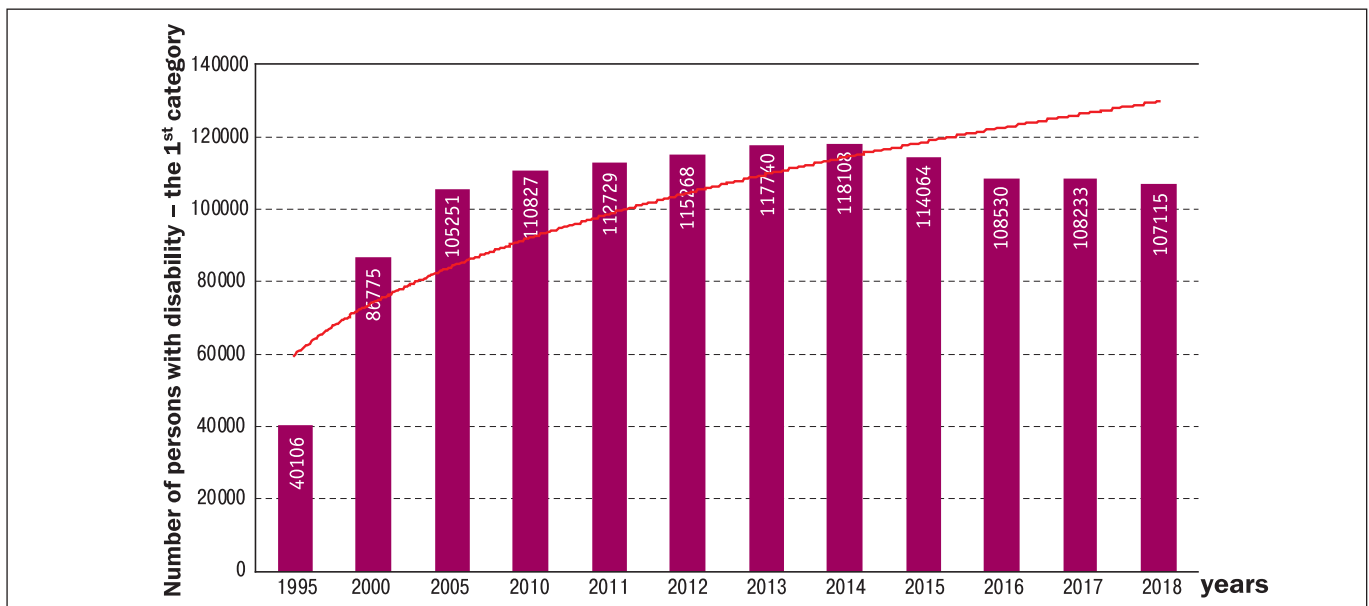


Figure 2. The number of persons with disability that receive positive medical expertise certificate about interdependence of disease with effect of the ChNPP accident – the 1st category

ease, the terms of participation in liquidation of the consequences of the accident [13]. Such expertise is aimed for the social protection of suffered from the ChCt and for their medical rehabilitation.

Today, in operation are the following expert commissions Central Interagency Expert Commission (CIEC), that works on the basis of the NRCRM and Lviv Regional Interagency Expert Commission (LvRIEC), which has the status of a communal enterprise [8, 9]. CIEC provides medical expertise of for all citizens of Ukraine who have the status of suffered from the ChNPP accident and also works as a conflict Commission. LvRIEC may provide medical expertise for residents of Vinnytsia, Volyn, Trans-

carpathian, Ivano-Frankivsk, Lviv, Rivne, Ternopil, Khmelnytsky and Chernivtsi regions [8, 9].

From the the medical and social assessment point of view for the radiobiological effects of the ChNPP accident consequences deals with the development of the diseases that may be related to the effect of radiation exposure and harmful conditions according to the Order of the MOH of Ukraine dated May 17 1997 № 150 (in the wording of Order of the MOH of Ukraine № 441 dated 14 July 2012 «On Amendments to the Order of the MOH of Ukraine № dated 17 May 1997») [9] this diseases are distributed into next groups: 1) those

whose development is directly related to the action of ionizing radiation; 2) the development of which corresponds to the non-threshold concept of the damaging effect of the radiation exposure – neoplasms; 3) radiation induced thyroid gland disease; 4) diseases which development may be related to the effect of ionizing radiation and a complex of harmful factors as a result of the ChNPP accident, including the remote post-accident period. Certificate of disability is not a prerequisite for the first three groups for initiation and providing procedure of medical expertise, but for the fourth (4) group of diseases that has significant portion between reasons of positive decision about interdependence of disease with effect of the ChNPP accident consequences this document is required. This requirement is stipulated by the provision that the impact of the consequences of the ChNPP accident as a non-stochastic effect (ordinary somatic diseases with certain radiation-induced pathomorphosis) has during 25–30 years after the radiation influence achieved to the decompensation level, while stochastic effects (cancer and radiation-dependent diseases) as part of the medical expertise have no limitation terms [8, 9].

The volume and structure of providing CIEC medical expertise for the interdependence of the diseases that bring to the disability and death with the impact of the Chernobyl accident consequences for the adult population during 2013–2017 years are shown in Table 2.

These results demonstrate that for the specified term, initial medical expertise (total 20,642; 78.96 %) were provided by CIEC for clean-up workers (categories 2A, 3A) – 7,249 (35.12 %) and victims living in the zone of enhanced radiological control (category 4 V) – 8,668 (41.99%), evacuees and residents in the zone of obligatory resettlement (category 2B) – 704 (3.41 %), residents living in an area of guaranteed free-will resettlement (category 3B) – 3,248 (15.73%), victims of category D – 773 (3.74 %). Medical expertise for the 1st category (that formed from all categories of suffered contingents) in dominated number of cases is postmortem – 4,353 (79.14 %), oncological cases of expertise make up in this group – 49.27 % (2,710).

In general, the structure of the medical expertise of sufferers corresponds to the general structure of the distribution of categories of these groups. Totally, 26,144 medical expert cases for were considered by CIEC during 2013–2017, and 63,601 cases – from 1988 to 2017.

The proportions (disabled / cancer patients / deceased) between the characteristics of the reviewed expert medical cases, that were formed in 2013, when implementing updated regulatory and regulatory documents for providing medical expertise in the remote post-accident period,

remains within the relevant indexes for suffered categories of the entire analyzed period.

At the same time, the high frequency level of consideration of medical expert cases of cancer patients is alarming – a total 14,212 cases (54.36 %). First of all, this applies to victims of living in the zone of guaranteed voluntary resettlement (category 3B) – 75.99 % (2,468 cases) and victims of living in the zone of enhanced radiological control (category 4B) – 67.92 % (5,887 cases), as well as evacuees and residents in the zone of compulsory resettlement (category 2B) – 52.41 % (369 cases) and the 1st category (49.27 %) as stated above. Also, the high level of this index for clean-up workers category 2A – 33.57 % (2,100 cases), like for victims of category D – 33.12% (256 cases) have to take special attention. It should be noted that in the latter case we are talking about persons of a relatively young age – up to 40 years.

The proportion of medical expertise of the cases of death was highest for the of the 1st category 79.14 % (4,353). At the initial medical expertise of the cases of death index for clean-up workers category 2A was 30.65 % (1 917 cases), category 3A 15.97 % (159 cases). For the victims of categories 2B and 3B, these figures are 12.64 % (89 cases) and 17.55 % (570 cases), respectively. For category D only one case – 0.13 %.

In accordance with the current legislation, the families of the deceased included to categories 1, 2A, 2B, 3A, 3B for whom were made positive conclusion about interdependence of disease bring to death as a result of the ChNPP accident consequences impact have certain social privileges, but at the same time for the families of category 4V victims, if during the lifetime there was not positive conclusion about interdependence of disease – the victim did not receive the status of category and, correspondingly, do not receive social support. But despite of social motivation lack for the post-mortem medical expertise about interdependence of disease bring to death as a result of the ChNPP accident addressed 2,059 alliances of deceased victims category 4V (23.75 % cases of this category).

In analyzing the state of medical and social expertise of interdependence of disease bring to disability and death causes as a result of the ChNPP accident consequences, it is necessary to note that the legal and regulatory framework for certain issues still not finalized and requires clari-

Table 2
Volume and structure of providing CIEC medical expertise for the interdependence of the diseases that bring to the disability and death with the impact of the Chernobyl accident consequences for the adult population during 2013–2017 years

Years	Categories of victims Characteristics of the cases under consideration	Medical expert cases are considered							Total
		1st category (formed from all categories)	Clean-up workers		Evacuated and residing in the zone of compulsory resettlement (category 2B)	Victims living in an area of guaranteed free-will resettlement (category 3B)	Victims living in the zone of enhanced radiological control (category 4V)	Victims category «D»	
			2A category	3A category					
2013	Total incl.	877	1168	193	117	596	2340	221	5512
	> Patients with Disability	865	717	171	86	308	2101	157	4405
	> Oncological patients	776	311	59	47	487	1418	90	3188
	> <i>Cases of death</i>	662	281	17	15	103	514	0	1592
2014	Total incl.	1008	1212	182	128	619	2422	181	5752
	> Patients with Disability	958	728	139	90	330	1945	140	4330
	> Oncological patients	544	348	64	74	428	1586	46	3090
	> <i>Cases of death</i>	825	373	23	16	100	524	1	1862
2015	Total incl.	1245	1199	194	154	736	1622	139	5289
	> Patients with Disability	1135	656	129	119	345	1274	99	3757
	> Oncological patients	493	485	104	87	579	1045	42	2835
	> <i>Cases of death</i>	990	431	45	20	165	433	0	2084
2016	Total incl.	1215	1433	202	162	624	1271	125	5032
	> Patients with Disability	1058	742	150	120	279	920	92	3361
	> Oncological patients	474	505	89	90	495	1010	42	2705
	> <i>Cases of death</i>	921	481	34	18	90	303	0	1847
2017	Total incl.	1155	1242	224	143	673	1013	107	4557
	> Patients with Disability	1065	718	140	108	346	794	93	3264
	> Oncological patients	423	451	106	71	479	828	36	2394
	> <i>Cases of death</i>	955	351	40	20	112	285	0	1763
Total		5500	6254	995	704	3248	8668	773	26142

fication and improvement. For the first, it is a question about persons of category «D», which after attainment of majority lost their status as suffered from ChNPP accident, but after a certain time became ill for a thyroid cancer (as adult). The 12th Article of the Law of Ukraine «On the Status and Social Protection of Citizens suffered by the Chornobyl Catastrophe» [4] shows that «*The persons for whom, after reaching adulthood, will not be provided the status of victims of the Chornobyl catastrophe according to the first part of Article 11 of this Law, if became ill for thyroid cancer received right for medical expertise of interdependence of disease bring to disability and death causes as a result of the ChNPP accident consequences*». But the interpretation of this point both by social workers and by lawyers is ambiguous. Therefore, the first part of Article 11 section 7 it is necessary to add by the following wording: «*persons born in the period from 26.06.68 to 26.06.86 and from 26.04.86 to 26.06.86 permanently lived in settlements where the doses of irradiation of the thyroid gland exceeded the thresholds established by the MOH and the NCRP and who, after reaching adulthood and became ill for thyroid cancer, receive status suffered from the Chornobyl catastrophe after receiving positive consideration about interdependence of disease bring to disability and death causes as a result of the ChNPP accident consequence*».

Separate, but very important issue became the question of the status of victims of the Chornobyl accident on victims living in the zone of enhanced radiological control (category 4-V). In accordance with Part 4 of the Law of Ukraine dated December 28, 2014 [14], 837,111 citizens of Ukraine (as of January 1, 2015), who were undergon influenced by ionizing radiation not by their own fault, lost their medical and social protection due to the loss of the status of the victims as a result of the Chornobyl accident. As of January 1, 2018, this number dropped to 796,934 persons. Despite the decision of Constitutional Court of Ukraine dated July 17, 2018, about restoring social guarantees to the victims of the Chornobyl catastrophe [15] (including victims of categories 4-V), this issue remains unresolved and will undoubtedly lead to an increase in social tension in society. Moreover, the Cabinet of Ministers of Ukraine governmental regulation dated 11 July 2018 concerning the issuance of the new certificates identifying status of person like suffered from the Chornobyl accident [16] does not provide such updates of document for victims category 4-V. That is a real threat of losing the status of victims of the Chornobyl accident for eight hundreds of thousands of Ukrainian citizens with all administrative, social and medical consequences. Without recourse to the details of the legal and administrative discussions regarding the

status of victims of category 4-V, we understand that, in accordance with the current level of knowledge in the field of radiobiology and radiation medicine [10–13], these persons should retain the right to of interdependence of disease bring to disability and death causes as a result of the ChNPP accident consequences documented by the expert CIEC certificate, with the corresponding state guarantees on social protection and medical care – today in the form of providing for this victim status of the 1st category 1.

In all cases, the issuance of medical expertise decisions should be based on the thorough compliance with the requirements of the regulation of interdependence of disease bring to disability and death causes as a result of the ChNPP accident consequences [13].

The practice of CIEC shows that a periodic scientifically substantiated updating of the system for decision making about interdependence of disease bring to disability and death causes as a result of the ChNPP accident consequences is necessary. Many years of own experience in minimization of the medical consequences of the Chornobyl accident [9, 10], the latest knowledge in the field of general and clinical radiobiology, radiation medicine, oncology and medical and social expertise [10–13] have to be taking into account.

CONCLUSIONS

It has been determined that the total number of the suffered population for the period of 2007–2018 has decreased by 26.05 % or by 657,988 persons. There is a rapid increase in the number of category 1 victims – from 40,106 in 1995 to 107,115 in 2018.

During 2013–2017, an increase in the frequency of consideration of medical expert cases concerning cancer (51.49 %) and deaths (34.99 %) taken place.

The initial medical expertise in 35.12 % of case swere provided for clean-up workers (categories 2A, 3A), and in 41.99 % of cases for victims living in the zone of enhanced radiological control (category 4-V).

At the initial medical expertise of the cases of death index for clean-up workers category 2A was 30.65 %, category 3A – 15.97 %, category 4-V – 23.75 % of cases. The proportion of medical expertise of the cases of death was highest for the of the 1st category – 79.14 %.

There are unresolved issues proceedings diseases examination for certain categories of victims (cancer of the thyroid gland in persons that lost the status of victims

after reaching adulthood, determination of the legitimacy of the victims of category 4-V status) that requires amendments and additions to the legislative base.

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