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Results of the «Comprehensive Cancer Control Plan in the Republic of Kazakhstan for 2018-2022» realization in 2019

Relevance: Cancer control is among the key social policy priorities in the Republic of Kazakhstan. 14,000 people die from cancer every year. As a result, our country faces an epidemiologic crisis caused by the increasing malignancy-related incidence and mortality, plus the increasing number of people living with cancer. In 2019, 186 326 patients with malignant neoplasms were under dynamic supervision in Kazakhstan; 52.5% lived for five years or more [1].

WHO prognosis a 1.5-2 times growth of annual malignancy-related incidence and mortality worldwide by 2022. The Republic of Kazakhstan follows the same trend, taking into account the growing welfare and life expectancy of the population and an increase in the detection of malignant neoplasms due to the introduction of early detection programs [2].

This study aimed to assess the implementation in 2019 of the Comprehensive Cancer Control Plan in the Republic of Kazakhstan for 2018-2022.

Results: Intermediate Comprehensive Plan implementation results showed the efficacy of the conducted measures as reflected by major cancer service indicators. Thus, the early detection has improved: stage 0-I detection amounted to 27.1% of all new cases (2019 target – 25.2%). This had a positive impact on cancer survival: in 2019, the proportion of 5-year or more survival was 54.7% for breast cancer (2019 target – 54.5%), 56.8% for cervical cancer (2019 target – 55.8%), 46.6% for colorectal cancer (2019 target – 45.8%) [1].

Conclusion: The Comprehensive Cancer Control Plan implementation results evidence cancer service improvement in the Republic of Kazakhstan as of 2019 (increased 5-year survival and decreased mortality). However, a high share of detection of visually accessible malignant neoplasms at generalized and advanced stages should be addressed in the coming years.

Keywords: Comprehensive Plan, oncological diseases, Roadmap.

Introduction: The fight against cancer is one of the key priority areas of the social policy in the Republic of Kazakhstan. Cancer claims 14,000 lives annually. As a result, our country is faced with an epidemiological crisis caused by an increase in the incidence of malignant neoplasms (MN) and mortality, in addition to the growing number of oncology patients. In 2019, dynamic observation revealed 186,326 patients with malignant neoplasms in the Republic of Kazakhstan, of which 52.5% have suffered for five years or more [1].

Under the WHO forecasts, the morbidity and mortality from malignant neoplasms throughout the world will increase by 1.5-2 times by 2022. A similar upward trend in the incidence of cancer is characteristic of the Republic of Kazakhstan, taking into account the growth in well-being and life expectancy of the population, as well as the increase in the detection of malignant neoplasms as a result of the introduction of early diagnosis programs [2].

From 2012 to 2016, the state Program for Cancer service Development (hereinafter – the Program) was being implemented in the country and showed certain positive results:

A national screening oncological program was developed, screenings for early detection of breast cancer (BC), cervical cancer (CC), esophagus and stomach, liver, colorectal cancer (CRC), and prostate cancer were introduced, which made it possible to increase the rate of detection of malignant neoplasms (MN) at I-II stages from 49.5% in 2011 to 58.9% in 2016 [3, 4];

Additional examination rooms for men and women were organized – by 2016, their number increased from 539 to 1252;

Five highly specialized radiation oncology centers were established and equipped with linear accelerators;

Within the framework of the Program, the list of chemotherapy-targeted drugs was expanded to 87, including 15 targeted drugs (as of 2011, 64 drugs were available, including six targeted drugs), and was introduced at both inpatient and outpatient levels;

Financing of drug treatment was increased – from KZT 2.5 billion to 20.1 billion; Laboratories of immuno-histochemistry were established in 8 oncological centers;

Oncological organizations were re-equipped with diagnostic equipment such as 6 CT devices, 3 MRI devices, 16 ultrasound devices, 16 devices endoscopic [3, 4]; Bed capacity for palliative care was organized and expanded from 215 to 408 beds;

Oncology centers instituted positions of psychologists and social workers to provide psychological and social assistance to cancer patients;

The complex of anti-cancer measures financed by the Government of the Republic of Kazakhstan showed a persistent trend towards a decrease in mortality rates due to cancer. The implementation of the Program has led to the following indicators: mortality due to malignant neoplasms has been reduced from 101.5 per 100 thousand in 2011 to 85.0 in 2016 [3, 4].

In 2016, the Ministry of Healthcare of the Republic of Kazakhstan adopted a "Roadmap to implement an integrated cancer management model in the Republic of Kazakhstan for 2016-2019." The Roadmap has created coordination councils in each region, approved regional roadmaps, developed new indicators, and began reforming cancer service according to its division levels [5].

Following the recommendations of WHO experts and the international experience of OECD countries, the National Screening Program was improved (Order of the Minister of Health No. 995 of 25 December 2017 "On amendments and additions to order of the Acting Minister of Health of the Republic of Kazakhstan No. 685 of 10 November 2009 "On Approval of the Rules for Preventive Medical Examinations in Target Populations").

The Republic of Kazakhstan Government has approved the Comprehensive Cancer Control Plan for 2018-2022 (hereinafter – the Comprehensive Plan) by Decree No. 395 of 29 June 2018. The Comprehensive Plan aims to reduce the burden of malignant neoplasms. The Comprehensive Plan includes four areas: prevention and management of risk factors; development of highly effective early diagnosis; introduction of an integrated cancer service model; and development of human resources and science.

The Comprehensive Plan provides strengthening of the interagency and intersectoral cooperation in the fight against cancer. As part of the Comprehensive Plan implementation, the European Code of Control recommendations against Cancer is introduced into educational programs for children and adolescents, teachers and educators, and coverage of target groups during screening studies from 70% and more is ensured [6].

Highly effective early diagnosis is provided through the opening of PET centers, the introduction of nuclear medicine, personalized molecular genetic testing, the development of a telepathology system, and teleconsultations.

An integrated cancer service model is being implemented by improving the regulatory framework and financing mechanisms focusing on the treated case as an endpoint. The radiotherapy park is being updated to increase the availability of radiotherapy in general. Clinical protocols for cancer diagnosis and treatment are being improved and updated on an ongoing basis following the recommendations of international expert oncological and radiological organizations: ASCO, ESMO, IAEA, etc. Their full integration with medical information systems is planned. The widespread introduction of uniform standards will allow for leveling the provision of cancer services in all regions and increasing their availability for each patient.

Within the fourth direction framework, planned training of personnel to provide the cancer service is being performed in all regions. It is also planned to create a National Scientific Cancer Center (NSCC) following international standards by 2021. The goal of the NSCC project is to create a modern oncological center to provide access to the latest high-tech personalized methods of cancer prevention, diagnostics, and treatment, as well as to ensure the continuity of scientific research and medical practice.

Besides, international cooperation with the world's leading oncological organizations continues to develop, and molecular biological diagnostics of tumors, high-tech methods of highly specialized treatment are being introduced [6].

This study aimed to assess the implementation in 2019 of the Comprehensive Cancer Control Plan in the Republic of Kazakhstan for 2018-2022.

Results and discussion: Since 2013, the National Screening Program has been gradually expanding, and at present, BC, CC, and CRC are screened throughout the country. The annual coverage of screening studies for early detection of cancer is about 3 million men and women from the target groups aged 30 to 70. In total, 2,821,577 men and women were examined in the course of oncological screenings in 2019 (in 2018 – 2,544,542 people) [1].

In 2019, 89% of the target population (the target population number was determined according to the Attached Population Register) was covered with early CC detection screening. Coverage for BC and CRC early detection amounted to 60%.

The results of the screening are presented in Table 1.

Table 1 – Screening results for CC, BC, and CRC in the Republic of Kazakhstan, 2018-2019

Cancer site	Total number of ex-aminated women aged 30-70		Plan cover-age (%)		Detected precancerous pathologies (cytological precancer) out of those covered (%)		Detected c-r		Detected c-r (%)		% Stage 0-I	
	2018	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018	2019
ПШМ	929 465	965 626	96.0	95.5	0.43	0.51	334	360	0.04	0.04	58.4	62.8
PMЖ	754 465	870 202	98.6	93.5	22.7	23.4	1625	1 752	0.2	0.22	45.4	45.4
KPP	860 612	985 747	100.1	96.9	17.8*	25.7*	309	337	0.04	0.03	23.6	26.7

* – the percentage of those who passed colonoscopy

Cancer service for the adult population is provided by republican organizations such as Kazakh Research Institute of Oncology and Radiology JSC (hereinafter - KazIOR), National Scientific Center of Oncology and Transplantology JSC, 16 oncological organizations, four oncological departments (Department of Oncology at West Kazakhstan State Medical University named after Marat Ospanov, Aktobe, oncology department at the Central Hospital of Zhezkazgan. Following the Perspective Plan for the Development of Medical Organizations, the Akmola Regional Oncological Dispensary in 2018 became part of the regional multidisciplinary hospital of the Akmola region. Moreover, at the end of 2018, due to the separation of the Turkestan region and the city of Shymkent, the oncology department was organized as part of the Turkestan regional multidisciplinary hospital. From 2018 to 2019, oncological organizations of the East Kazakhstan region, Almaty region, and the city of Nur-Sultan have reorganized into multidisciplinary centers and 425 (410 and 391 in 2018 and 2017, respectively) oncology offices in primary health care (PHC) organizations.

Under the results of 2019, it should be noted that the shortage of personnel providing cancer service and the improvement of equipment at the PHC level was reduced. Thus, the deficit of specialists decreased by 9%. In 2019, the level of equipping with diagnostic equipment at the PHC level (in the context of screenings) increased by 5%. The equipment of oncological dispensaries has improved by 18%; various equipment was purchased at the expense of the local budget or on a lease, e.g., expert-class ultrasound equipment, anesthesia machines, endoscopic equipment, etc.

By the end of the residency in oncology and radiation therapy, 85.6% of resident graduates have been employed in the regions.

Active work on training personnel and attracting young specialists continues to improve the situation in the regions.

In 2019, the number of oncologists working in oncological organizations in the Republic was 434 doctors (470 in 2017), 89 radiologists (101 in 2017). The shortage of personnel in organizations providing cancer service dropped to 111.4.

The provision of cancer service in the Republic has been divided into three levels within an integrated model framework to improve patient staging and routing.

In 2019, 42 measures were envisaged (paragraphs 1-12, 15-20, 22-26, 28-33, 36-42, 44-46, 48-50). All planned activities have been completed.

As part of the implementation of the Comprehensive Plan, the Ministry of Healthcare developed a Plan to Increase the Population's Commitment to a Healthy Lifestyle for 2019-2022 approved by Order of the Minister of Health of the Republic of Kazakhstan No. 541 of 17 September 2018 (hereinafter - the Plan).

The Plan provides the implementation of measures to influence risk factors (including an increase in the cessation of smoking and alcohol consumption, a decrease in the overall level of overweight or obesity, an increase in physical activity, and a refusal to unhealthy diet) and screening for all early cancers (BC, CC, including caused by human papillomavirus (HPV)).

The main direction of the Plan is to raise the level of awareness of the population about measures to prevent cancer by promoting a healthy lifestyle, excluding the impact of harmful environmental factors (through social networks, online communities, the media, etc.), about risk factors (use of tobacco products and alcohol, malnutrition and low physical activity), as well as the implementation of measures aimed at early detection of BC and CC, including those caused by HPV.

Within the Plan, more than 1.3 million events were held in the Republic in 2019, covering more than 1.7 million people. Of them, 295,958 events to prevent tobacco smoking covered 522,301 people; 249,695 events to prevent alcohol consumption covered 450,710 people; 598 046 events to prevent obesity covered 631,311 people; 526,284 events to promote physical activity covered 950,678 people, and 97,286 events were devoted to early detection of breast and cervical cancer.

In places of mass presence of the population (public service centers, banks, railway stations, airports, banks, public transport, large retail outlets), 692,576 video clips have been shown. 813 publications have been posted

on the Internet and news portals (zakon.kz, nur.kz, Tengri news). More than 17 thousand information materials have been broadcast on television and radio stations and took part in 284 television programs (interviews, stories, speeches, announcements, etc.). More than 290 thousand videos, infographics, and information materials were demonstrated through outdoor advertising (billboards, prismavision displays, banners, and led-screens). 2,162 articles were published in periodicals (newspapers, magazines) with duplication on health departments' websites.

More than 138 thousand informational publications (text messages, photo and video materials, infographics) were posted on popular social networks (Instagram, Facebook, etc.). More than 107 thousand organizational events were held, covering 2,002,894 persons (promotional events, round tables, seminars, conferences, meetings, master classes).

Under the Ministry of Information and Social Development of the Republic of Kazakhstan, information support of state initiatives and programs is performed within the framework of the Media Plan "Youth is the future of the country!" (hereinafter – the Media Plan), approved at the Republic of Kazakhstan Government meeting of 12 February 2019.

The Media Plan for informational support of cancer diseases has the direction of "Human Capital." This direction implementation provides for conducting press tours, press maslikhats, round tables, seminars, and other events.

In 2019, the following stories on the topic of cancer were filmed on republican and regional TV channels: "A new cancer center in the capital and new methods of treatment," "In Kazakhstan, vaccination against cervical cancer will become mandatory for girls aged 9 to 14 years old" (Khabar 24), "The issues of medical screening were explained to the population" (Kaz.) ("Qazaqstan"), "6 additional centers for early detection of cancer will be opened in the country" (Kaz.) ("Khabar"), "50% of oncological diseases can be prevented - E. Birtanov" (Kaz.) ("Astana TV"), "A Doors Open Day has been announced today in Kazakhstan to prevent cancer" (Kaz.) ("Айғақ"), etc.

Besides, the following articles were published in the republican and regional media in this area: "Kazakh-Korean oncologists met" (Kaz.) ("Egemen Qazaqstan"), "Unite efforts in the fight against cancer" (Rus.) ("Kazakhstani truth"), "Financing of medical care with a priority on preventive measures" (Rus.) ("Human and Law"), "Screening: prevention of a big trouble" ("Caspian commune") (Rus.), etc.

Various materials on cancer prevention are constantly posted on the Internet resources (zakon.kz, newtimes.kz, today.kz, baq.kz, kapital.kz).

In 2019, 3,461 materials were published on this topic, including 90 stories on republican TV channels, 120 stories on regional TV channels, 84 materials in republican print media, 225 materials in regional media, 2,942 posts on the Internet (bnews.kz, zakon.kz, tengrinews.kz, kapital.kz, informburo.kz).

Following the Plan, the Kazakh Research Institute of Oncology and Radiology developed and sent to the regions a questionnaire for the population "The first signs of cancer" and an instructional letter on monitoring for cancer alertness based on the data of a sample survey of the population visiting outpatient clinics and oncological institutions.

In 2019, the attached population was surveyed, where 122 PHC organizations from all regions participated, and 114,806 persons were covered according to the level of public awareness of the first signs of cancer and modern cancer diagnostics and treatment methods. Total surveyed: under the age of 30 – 21,282 persons (18.5%), 30-49 years old – 47,689 persons (41.5%), 50-64 years old – 35,383 persons (30.8%), over 65 years old – 10,452 persons (9.1%). Among the respondents, men and women accounted for 35.4% (40,618) and 64.6% (74,188), respectively.

Public awareness of the first signs of cancer and modern cancer diagnostics and treatment methods ranged 47 to 49.5% in East Kazakhstan, Mangistau, North Kazakhstan regions, and 19.5 to 25.2% in Zhambyl, Turkestan, Atyrau regions, and Almaty. A low level of awareness was noted in the West Kazakhstan, Turkestan regions, and the city of Almaty. By age, a low level of awareness was noted among people aged 65+ years (8% lower than in other age groups).

Public awareness activities are planned in the coming years, considering the lack of public awareness of the first signs of cancer and modern cancer diagnostics and treatment methods.

Vaccination against viral hepatitis B has ensured coverage at the level of 97.7% of the target group. In 2019, 356,378 children were routinely vaccinated against viral hepatitis B, 5,295 persons were vaccinated for epidemiological indications (contacts in the foci of infection, migrants, blood recipients, health workers).

Awareness-raising activities on the benefits of immunization, including vaccination against HPV, are being performed among the population, including adolescents (girls) aged 10 to 13 years, with 62% coverage of the target group.

In general, there were distributed 382,435 visual aids including leaflets, brochures, 24,213 video broadcasts on the benefits of immunization, 318 television addresses, 2,040 radio speeches; 12,102 community meetings, 2,398 meetings with representatives of religious communities, 56,999 conversations in schools for young mothers were

organized; 693 articles in the media were published; 6,743 materials were posted on websites, 23,879 health bulletins were issued, 24,922 lectures were read.

The European Code Against Cancer recommendations has been introduced into the educational process of secondary education institutions.

The Public Health Committee of the Ministry of Healthcare of the Republic of Kazakhstan has compiled a list of facilities by hazard classes from among those controlled by industrial enterprises (16,462 facilities). The formation of the list of facilities and their distribution by epidemic significance was performed, taking into account the degree of their impact on the health of the population and workers, the existing emissions of harmful substances into the air, and working air pollution.

The facilities with the greatest risks (1,536 facilities) have been included in the inspection schedules in a special order with a frequency of 1 time per year (hazard class I-II). According to the sanitary classification, only unscheduled inspections are performed concerning the remaining 14,926 facilities referring to the hazard classes III-V.

The territorial subdivisions of the Committee perform laboratory air control in the working area of industrial facilities of hazard classes I-II and monitoring of environmental facilities (air, water, soil, food). In particular, measures are being taken to prevent carcinogenic hazards for the population.

The Ministry of Healthcare analyzed joint responsibility proposals to undergo and conduct the oncological screening examinations of citizens and medical organizations (10th item of the Plan), presented by akimats, oncological organizations, and KazIOR. Some proposals regarding employers' responsibility to create the screening conditions are included in the new RK Code, "On public health and health care system."

2019 witnessed the continuing development of cooperation with non-governmental organizations (NGOs) on cancer early diagnostics and prevention.

In the Akmola region, with the support of the PF "Together Against Cancer," a promotional event, "Consultative assistance of an oncologist," was held in February 2019 based on a specialized public service center in the city of Kokshetau.

In the Aktobe region, NGO "Senim-Tirek" published explanatory booklets on the topic "What is cancer?" and distributed them in secondary educational institutions of Aktobe in the state and Russian languages (1,000 pcs).

In the Almaty region, 28 joint events were held by non-governmental organizations (PF "Together Against Cancer," Avon campaign for the prevention and early diagnosis of cancer).

In the Atyrau region, the regional health department signed an agreement with the NGO PNI "Coordination

Center for Demeu Problems" in terms of joint activities for the prevention and early diagnosis of cancer. 4 promotional events (flash mob, training seminars on promoting a healthy lifestyle) were held with coverage of 700 persons.

In the East Kazakhstan region, with the assistance of the public association "VK youth information and analytical agency" and with the participation of the regional Healthy Lifestyle Center, the medical college and shopping center "ADK," a flash mob "For a world without cancer" was held on 8 February 2019, in the ADK shopping center to increase the population's cancer alertness and the population's appealability to screen the examinations.

In the Zhambyl region, Amazonka NJSC held classes with seven volunteers, trained 32 students and 561 relatives of patients, identified 210 persons with suspected cancer, trained 30 volunteers in the provision of psychological assistance, held a lecture at the medical college on the topic "Involvement of youth in the volunteer movement," reaching 79 students.

In the West Kazakhstan region, a state-social order to prevent non-communicable diseases, including cancers, was implemented. Information and explanatory work on cancer prevention (118 appearances in the media) were performed, and three training seminars were held (34 participants) under public social order.

In the Kyzylorda region, a promotional event held by "Abzal and K" on 5 February 2020 on the topics of "We welcome good health!", "Smoking-induced esophageal and lung cancer" involved 75 people.

In Almaty, the Public Health Department, in cooperation with PF "Together Against Cancer," NGO "Kazakhstan Association for Palliative Care," PF "Healthy Asia," held 21 events (including training seminars, flash mobs, conferences, interactive conferences, etc. in various shopping centers and public places), reaching over 4,000 residents.

On 23 November 2019, oncologists from Almaty participated in the International Forum on Practical Psychosomatics and Oncopsychology "Take care of yourself and your loved ones!" also supported by NGOs.

On 24 May 2019, the Association of Oncologists and Radiologists of Nur-Sultan, supported by the Public Health Department of Nur-Sultan, held an international conference, "Topical issues of perioperative tactics of managing cancer patients," at the Kazzhol hotel with 150 participants. On 15-26 October 2019, the PF "Together Against Cancer" and Avon supported the events of the Month of awareness about BC, which included 19 seminars, 14 days of open doors (426 persons were consulted, eight cancer patients and 41 persons with precancerous diseases were identified).

On November 28-29, 2019, the Alliance of Oncologists and Radiologists of the city of Nur-Sultan held the International Scientific and Practical Conference "Clinical and Organizational and Methodological Aspects of Modern Oncology," which was attended by 613 persons.

In the Kostanay region, the public association "Akkogershin" held a set of events (round tables, a social survey, seminars, training, a campaign, a press conference) under the public social order to prevent strokes, cardiovascular and cancers in 3 districts, covering 3,102 persons.

In the Karaganda region, 73 events (seminars, training, campaigns, flash mobs) were held under the public social order by the Union of Youth and Children's Organizations of the Karaganda Region to prevent non-infectious diseases (diseases of the circulatory system, cancers, diabetes mellitus, chronic lung diseases). They involved 37,400 people; 50,000 copies of information and educational materials were distributed.

According to the Order of the Minister of Health of the Republic of Kazakhstan No. 128 of 6 March 2013, "On the approval of forms for the collection of health institutions' administrative data," in Table 2300, "Information about the treatment of MN patients subject to special treatment (clinical group II)," drug and radiation treatment were divided into "progression" and "relapse"; the column "patients treated abroad" was added to assess the effectiveness of drug and radiation treatment of cancer patients and register cancer patients treated abroad. The Order was approved by the Committee on Statistics of the Ministry of National Economy of the Republic of Kazakhstan on 13 May 2019 under No. KP DSM-74 and registered with the Ministry of Justice of the Republic of Kazakhstan on 14 May 2019 under No. 18666.

In December 2018, the KazIOR staff developed guidelines on the methodology to plan services and drugs in oncology and hematology for radiation therapy, chemotherapy, and sophisticated medical services. The guidelines were approved by the KazIOR Academic Council on 25 January 2019 (Minutes No. 1 of 25 January 2019) and the Expert Council of the Republican Health Promotion Center on 29 March 2019 (Minutes No. 24).

The staff of KazIOR revised the clinical protocols for diagnosis and treatment (hereinafter – CP), taking into account the best international practices. All CPs passed the Republican Health Promotion Center examination, were submitted to the Joint Commission on the Quality of Medical Services (hereinafter – JCQ), and approved. The CP "Melanoma" was approved on 11 January 2019, seven other CPs ("Remote beam therapy using a fan beam of photons on a linear accelerator (tomotherapy)", "Radiofrequency ablation of malignant and benign neoplasms of bone tissue in adults and children", "Breast cancer", "Lung cancer", "Renal cell carcinoma", "Cervical cancer", "Stomach cancer", 11 CPs on 7 March: "Hepatocellular carcinoma", "Prostate cancer", "Ma-

lignant neoplasm of colon", "Malignant neoplasm of rectum", "Esophageal cancer", "Pancreatic cancer", "Malignant neoplasm of oral cavity", "Malignant oropharyngeal neoplasm", "Malignant nasopharyngeal neoplasm", "ZN of the larynx", "Malignant neoplasm of laryngopharynx") were approved on 1 March 2019, twelve other CPs ("Mediastinal tumors", "Malignant tumors of the nasal cavity and paranasal sinuses, ethmoid cells", "Malignant neoplasm of the salivary glands", "Thyroid cancer", "Bone sarcoma", "Skin cancer", "Lip cancer", "Soft tissue sarcoma", "Cancer of the vulva", "Malignant neoplasia of the uterine body", "Cancer of the bladder", "Benign and malignant neoplasms of central nervous system") – on 14 March 2019 [7].

In the Pavlodar region, an X-ray mammographic device Mammoskan was purchased from the local budget in 2019. A linear accelerator and a CT machine with a virtual simulation function were installed in a newly completed oncological center building.

In the North Kazakhstan region, digital mammography was purchased within a PPP framework.

In the Mangistau region, an endovideoscopic rack with a colonoscope and a washing machine were additionally installed according to the Comprehensive Plan schedule to carry out in-depth diagnostics during early CRC detection screening. In the first half of 2020, the construction of a new modern cancer center was completed.

Starting from 2019, the Republic of Kazakhstan has started molecular genetic studies of patients with lung cancer, skin melanoma, and CRC to prescribe personalized therapy (in 2019, there were more than 3,000 patients examined and 4,019 cases; people with positive results were prescribed a personalized targeted and immuno-oncological therapy).

Currently, histological and immunohistochemical diagnostics are performed following the approved clinical protocols of MN diagnosis and treatment. Funds for research are provided in the comprehensive "oncological" tariff. Immunohistochemical diagnostics is routinely performed for BC, lymphomas, and cancers of other localizations.

In 2019, 44,000 immunohistochemical studies were performed in the Republic among primary patients and patients with cancer relapses and progression (2018 – 38,568 studies).

Under the information system "Electronic register of cancer patients" (hereinafter – the Register), in 2019, histological morphological verification for newly diagnosed malignant neoplasms amounted to 92.9%, 32,299 cases (91.2%, 31,593 cases in 2018). At the same time, diagnoses of CC, BC, skin melanoma were histologically verified.

There are diagnoses established according to the results of instrumental diagnostic methods through the conclusion of a multidisciplinary group: 7.1%, 2,469 cases

(8.8%, 3,048 cases in 2018) without the possibility of histological assessment of the tumor in hard-to-reach sites (pancreatic cancer, brain tumors, lung cancer, etc.).

Patients with suspected cancer undergo CT and MRI examinations (56,600 examinations in 2019). These examinations were previously performed within the guaranteed free medical care scope only for patients with a confirmed cancer diagnosis. At the examination stage, free access to CT and MRI diagnostics was limited.

Cancer patients' coverage with PET studies has increased (14,081 and 6,600 patients in 2019 and 2018, respectively) to determine the stage and assess the disease course for timely treatment adjustment.

For the first time, teleconsultations with international experts using the telepathology system were introduced in diagnostically difficult cases (2,126 consultations were held in 2019).

Negotiations were held with leading foreign institutions and associations: International Gynecologic Cancer Society (IGCS), European Asian Society of Breast Diseases (EURAMA), Madrid Cancer Center, Italian National Cancer Institute (CRO Aviano). The number of consultations within the signed memorandums was agreed upon, the schedule of consultations was approved.

The coverage of cancer patients with radiation therapy has increased. Thus, at the end of 2019, 10,876 patients (34.9% of the subjects) received radiation therapy, compared to 9,245 patients (33.8% of the subjects) in 2018¹. The increase in radiation treatment coverage was due to a new linear accelerator commissioned in Almaty and a tomotherapy center that opened in Nur-Sultan in 2019.

Nineteen mobile teams were organized in the regions. In 2019, they paid 91,237 visits to improve the access of cancer patients to palliative care.

Work on human resources development is in progress: 8 masterclasses were held (920 participants), 49 specialists underwent advanced training, 19 specialists were trained abroad, 483 PHC specialists were trained in early diagnosis, cancer alertness, palliative care, 230 residents were trained and graduated in oncology, radiation diagnostics and therapy (217 in 2018), 85% of them are employed in the regions.

As part of oncological science development, a center for molecular genetic research was opened, new treatment technologies are being introduced, and a map of identified driver mutations of malignant neoplasms in lung cancer, CRC, and skin melanoma has been compiled.

Conclusion: In the previous five years, cancer incidence was slightly decreasing by 1.0% a year (207.7 per 100 thousand in 2015, 206.9 in 2016, 199.2 in 2017, 195.8 in 2018).

By the end of 2019, cancer incidence in the Republic amounted to 196.4 per 100 thousand population or 36,345 cases vs. 195.8 per 100 thousand population or 35,758 cases in 2018, with an increase in incidence by 1.6%.

The contingent of cancer patients in 2019 amounted to 186,436 patients (181,344 patients in 2018).

In the structure of oncological morbidity, BC is in the first place (12.9%); lung cancer is the second (10.1%), stomach cancer is the third (7.8%).

59.6% of patients are of working age.

Under the Register, mortality from malignant neoplasms was 76.0 per 100 thousand of the population, or 14,060 cases (2018 – 78.7 per 100 thousand of the population, 14,363 cases). In the structure of mortality, lung cancer is in the first place (16.2%), stomach cancer is in the second place (12.1%), and BC is in the third place (8.1%).

High morbidity and mortality rates persist in the North Kazakhstan, Akmola, East Kazakhstan, and Karaganda regions. This situation is explained by the characteristics of the population living in these regions: the population aged over 60 years, which is more at risk of developing malignant neoplasms, prevails [1].

Thus, the Comprehensive Plan's interim results demonstrated the effectiveness of the planned measures as reflected by main oncological indicators. In particular, the early diagnosis of cancers has improved: stage 0-I MN accounted for 27.1% in the total structure of new cases (target for 2019 – 25.5%). That had a positive effect on cancer survival. For example, in 2019, the share of cancer patients living for 5 years or more was: BC – 54.7% (target for 2019 – 54.5%), CC – 56.8% (target for 2019 – 55.8%), CRC – 46.6% (target for 2019 – 45.8%) [1, 6].

By the end of 2019, the Comprehensive Cancer Control Plan implementation contributed to an increase in screening efficiency. Thus, early cancer detection at stage 0-I has increased: in CC – by 4.8%, in BC – by 6.5%, in CRC – by 2.8%. Cancer mortality has decreased by 3.4% up to 76.0 per 100 thousand. Five-year survival with cancer was 52.5% (target for 2019 – 52.5%) [1, 6].

The research results make it possible to determine further directions to develop cancer service in the Republic of Kazakhstan until 2022 as part of the implementation of the Comprehensive Cancer Control Plan, taking into account the activities in 2019, where it is necessary to continue the development of prevention, diagnosis, and treatment of cancer in the Republic of Kazakhstan.

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ТҰЖЫРЫМ

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Қазақстан Республикасында онкологиялық аурулармен күрес жөніндегі 2018-2022 жылдарға арналған кешенді жоспарды іске асырудың 2019 жылғы қорытындылары

Өзектілігі: Онкологиялық аурулармен күрес Қазақстан Республикасының әлеуметтік саясатының негізгі басым бағыттарының бірі болып табылады. Жыл сайын қатерлі ісік 14000 адамның өмірін алады. Нәтижесінде, біздің еліміз қатерлі ісіктердің пайда болу жиілігі мен өлім-жітімнің өсуіне байланысты эпидемиологиялық дағдарысқа тап болды, бұл онкологиялық аурулармен ауыратын науқастардың көбеюіне қосымша болды. 2019 жылы Қазақстан Республикасында қатерлі ісіктері бар 186 326 пациент динамикалық бақылауда болды, олардың 52,5%-ы 5 жыл және одан да көп өмір сүрді [1].

ДДҰ болжамдары бойынша 2022 жылға қарай бүкіл әлемде қатерлі ісіктермен сырқаттанушылық пен өлім-жітім 1,5-2 есе өседі. Халықтың әл-ауқатының және өмір сүру ұзақтығының өсуін, сондай-ақ ерте диагностика бағдарламаларын енгізу нәтижесінде қатерлі ісіктерді анықтаудың ұлғаюын ескере отырып, қатерлі ісікпен сырқаттанушылықтың өсуінің ұқсас үрдісі Қазақстан Республикасы үшін де тән [2].

Нәтижелері: Кешенді жоспар іс-шараларын іске асырудың аралық қорытындылары жоспарланған шаралардың тиімділігін көрсетті, бұл негізгі онкологиялық индикаторларға әсер етті. Атап айтқанда, онкологиялық ауруларды ерте диагностикалау жақсарды: жаңа жағдайлардың жалпы құрылымында 0-I сатыдағы қатерлі ісіктер 27,1%-ды құрады (2019 жылғы индикаторлық көрсеткіш - 25,5%). Бұл онкологиялық науқастардың өмір сүруіне оң әсер етті: 2019 жылы 5 жыл және одан да көп өмір сүретін онкологиялық науқастардың үлес салмағы іс жүзінде: сүт безі қатерлі ісігімен – 54,7% (2019 жылғы индикаторлық көрсеткіш – 54,5%), жатыр мойны қатерлі ісігімен – 56,8% (2019 жылғы индикаторлық көрсеткіш – 55,8%), тоқ ішек қатерлі ісігімен – 46,6% (2019 жылғы индикаторлық көрсеткіш – 45,8%) [1] құрады.

Қорытынды: Онкологиялық аурулармен күрес жөніндегі Кешенді жоспардың іс-шараларын іске асыру 2019 жылдың қорытындысы бойынша Қазақстан Республикасында онкологиялық жағдайдың жақсаруымен қатар (5 жылдық өмір сүрудің өсуі және өлім-жітімнің төмендеуі) келесі жылдары шешілуі қажет жайылған және асқынған жай-күйлерде көзбен шолып оқшаулауы бар пациенттерді уақтылы анықтауда проблемалар бар екенін көрсетеді.

Түйінді сөздер: Кешенді жоспар, онкологиялық аурулар, жол картасы.

АННОТАЦИЯ

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Итоги реализации Комплексного плана по борьбе с онкологическими заболеваниями на 2018-2022 годы в Республике Казахстан за 2019 год

Актуальность: Борьба с онкологическими заболеваниями является одним из ключевых приоритетных направлений социальной политики Республики Казахстан. Ежегодно рак уносит 14 000 жизней. Как результат, наша страна столкнулась с эпидемиологическим кризисом, вызванным ростом частоты возникновения злокачественных новообразований (ЗН) и смертности, в добавление к растущему числу пациентов, живущих с онкологическими заболеваниями. В 2019 году под динамическим наблюдением в Республике Казахстан находилось 186 326 пациентов с ЗН, из них 52,5% жили 5 лет и более [1].

По прогнозам ВОЗ, заболеваемость и смертность от ЗН во всем мире к 2022 году возрастут в 1,5-2 раза. Аналогичная тенденция роста заболеваемости раком характерна и для Республики Казахстан, учитывая рост благосостояния и продолжительности жизни населения, а также увеличение выявляемости ЗН в результате внедрения программ ранней диагностики [2].

Цель исследования: является оценка реализации мероприятий Комплексного плана по борьбе с онкологическими заболеваниями на 2018-2022 годы в РК за 2019 год.

Результаты: Промежуточные итоги реализации мероприятий Комплексного плана продемонстрировали эффективность запланированных мер, что отразилось на основных онкологических индикаторах. В частности, улучшилась ранняя диагностика онкологических заболеваний: ЗН 0-I стадий составили 27,1% в общей структуре новых случаев (индикаторный показатель 2019 года – 25,5%). Это положительно отразилось на выживаемости онкологических больных: в 2019 году удельный вес онкологических больных, живущих 5 лет и более фактически составил: с РМЖ – 54,7% (индикаторный показатель 2019 года – 54,5%), с РШМ – 56,8% (индикаторный показатель 2019 года – 55,8%), с КРР – 46,6% (индикаторный показатель 2019 года – 45,8%) [1].

Заключение: Реализация мероприятий Комплексного плана по борьбе с онкологическими заболеваниями демонстрирует, что, наравне с улучшением онкологической ситуации в Республике Казахстан по итогам 2019 года (рост 5 летней выживаемости и снижение смертности), имеются проблемы со своевременной выявляемостью пациентов с визуальными локализациями в генерализованных и запущенных состояниях, которые необходимо решить в последующие годы.

Ключевые слова: комплексный план, онкологические заболевания, дорожная карта.