

Ukraine Cancer Relief

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Project Impact and Analysis Report

Table of Contents

01

Introduction and
Project Relevance

05

Gaps in
Oncological Care

09

Project
Workflow

11

Results

14

Clinical
Statistics

16

Future Project
Phases

17

Current
Request



Introduction and Project Relevance

31,387 drug doses
1869 patients

Over 14 months, **Mission Kharkiv's (MK) Ukraine Cancer Relief** project assisted 1869 cancer patients across Ukraine by providing free antitumour drugs.

Through its transparent assistance system, MK distributed 31,387 drug doses, and facilitated treatment for 1252 women, 1176 patients with disabilities, 473 internally-displaced patients, and 1049 elderly patients.

The Ukraine Cancer Relief project was further supported by AMGEN, MSF OCP, and Direct Relief, who generously contributed a cumulative \$14 million of medical supplies. Additionally, organisations such as MdM, Americares, CARE, HelpAge, CMA, and HI Atlas Logistique provided financial and logistical support.





MK's Ukraine Cancer Relief project, launched in November 2022, aimed to provide free antitumour drugs and other medications to patients with malignant tumours.

The launch was prompted by, and coincided with, the degeneration of the Ukrainian healthcare system due to the war. Frequent military strikes on Kharkiv, the project's home city, led to severe disruptions in medical supply chains, the destruction of healthcare facilities, and migration of medical personnel to safer regions.

The necessity for free cancer care in Ukraine is driven by:

- Patients' increased inability to purchase antitumour drugs due to widespread unemployment, war, and the financial crisis in Ukraine.
- Periodic absences of certain drugs from the Ukrainian pharmaceutical market, both in medical institutions and pharmacies.¹
- Insufficient supply of drugs to State-run medical institutions due to budget deficits and high morbidity rates.²

¹ Radio Svoboda, "Issues of Cancer Patients: How They Survive in the Conditions of War and Drug Shortages" March 18, 2023, Antonina Andriychuk <https://www.radiosvoboda.org/a/onkokhvoli-defitsyt-likiv-dostup-medychni-posluhy-viyna/32310626.html>

² Ukrainian Medical Journal, January 12, 2023, Ustinov O.V. "Decree on the Medical Guarantees Program for 2023 Published" www.umj.com.ua/uk/novyna-237337-opublikovano-postanovu-pro-programu-medichnih-garantij-na-2023-r

The exigency of providing cancer care specifically lies in the fact that:

- According to the Center for Public Health of Ukraine, malignant tumours rank second as a leading cause of death in Ukraine and in global populations.³
- Morbidity projections indicate that the number of detected malignant tumours amongst Ukrainians will increase.⁴
- Late diagnosis and a financial inability to pursue expensive treatment contribute to elevated mortality rates amongst Ukrainian cancer patients.

Therefore, the demand for the Cancer Relief Project is driven by increasing morbidity in Ukraine, high mortality rates from malignant tumours, and limited access to treatment due to high costs of drugs, diagnostic procedures, therapeutic and surgical interventions, amongst other factors.

³ UNIAN News Agency, "The Ukrainian Ministry of Health Named the Main Causes of Deaths in the World" Victoria Hordiyenko, February 12, 2021 <https://www.unian.ua/health/worldnews/smertnist-u-sviti-v-ukrajinskomu-moz-nazvali-osnovni-prichini-smertey-u-sviti-ostanni-novini-11319377.html>

⁴ Center for Public Health of Ukraine, February 6, 2024, "WHO Predicts an Increase in Cancer Incidence" <https://phc.org.ua/news/vooz-prognozue-zrostannya-zakhvoryuvanosti-na-rak-yak-zniziti-rizik-rozvitku-onkonedugi>

Patient feedback

Woman, 44 years old Breast Cancer

"My battle with cancer coincided with the full-scale invasion. Tests and treatment cost a lot, so I had to ask for help from friends, acquaintances, and kind strangers. Thanks to this support and Mission Kharkiv, I managed to undergo treatment."

Woman, 68 years old Breast Cancer

"I'm a pensioner, hold a State award for long years of labour, and continue to teach at a college. During active fighting in Kharkiv, our family remained home and didn't move anywhere. Probably due to the stress, constant fear, and a sedentary lifestyle, I got this terrible disease. In early spring, I noticed a lump in my chest. Tests confirmed the diagnosis—cancer. On receiving the list of drugs and realising their cost, I got another shock from realising how impossible it would be to buy them at such a price. Only thanks to Mission Kharkiv did treatment and a chance at recovery become possible. Now, the doctors' prognosis is positive, but there are still many courses of treatment ahead with Trastuzumab and radiation therapy. Thank you [MK] for my life, and for the lives of many Kharkiv residents who have faced this disease!"

Woman, 46 years old Breast Cancer:

"At the beginning of the war, I was left without a job, couldn't afford medical tests, and already had a breast tumour. After a year and a half, I found a job, was able to afford the tests, and was diagnosed with stage 3 cancer but lacked funds for treatment. If not for Mission Kharkiv, I wouldn't have even been able to start the treatment. Mission Kharkiv gave me medication and a better chance at fighting the cancer."

Man, 75 years old B-Cell Non-Hodgkin's Lymphoma

"In August of this year, I was diagnosed with aggressive non-Hodgkin's lymphoma. Considering my age and general health, I was prescribed Rituximab and Acalabrutinib. These drugs are very expensive. We were advised to contact Mission Kharkiv, who were able to help us get Rituximab, for which we are extremely grateful. Mission Kharkiv staff quickly responded to our request and promptly helped us obtain the drugs. Thank you for your work! At the moment, treatment is ongoing with positive outlooks, but the cancer requires constant care and significant financial contributions that are beyond my means, even with family support. If help with purchasing Acalabrutinib was made available, we would be very grateful."



Gaps in Oncologic Patient Care

According to current Ukrainian legislation, cancer patients are entitled to free medical care at specialised State institutions. The system is designed so that, for every patient diagnosed with a certain condition and receiving care, the hospital receives financial compensation from the National Health Service of Ukraine.

In 2023, for each adult patient diagnosed with cancer, medical institutions allocated 36,000 hryvnias (approx. \$950) for chemotherapy, while for oncohematology patients, the compensation amounted to 74,000 hryvnias (approx. \$1945). Despite rising costs of drugs and consumable medical supplies, the NHSU budgeted similar compensatory amounts for 2024.¹

¹ National Health Service of Ukraine, January 1, 2024, "The Medical Guarantees Program for 2024 Comes into Effect" <https://www.kmu.gov.ua/news/yak-realizovuvatymetsia-prohrama-medychnykh-harantii-u-2023-rotsi>

This critical funding shortage for treatment can be understood through a simple example:

For targeted breast cancer therapy, the drug Trastuzumab is prescribed. The average dose for this drug, for intravenous administration at 21-day intervals, is approximately 450 mg of active substance. The minimum cost of Trastuzumab in a dosage of 440 mg is 38,000 hryvnias (approx. \$1000), which exceeds the entire annual compensation provided by the NHSU per cancer patient.

In addition to the shortage of State-allocated funds, there are other urgent problems in the systems that provide cancer care to Ukrainian patients. Due to the high workload of oncology centres in Ukraine, patients are forced to either wait for months for the opportunity to undergo tests and treatment, or seek help from private clinics and research institutions, which sadly do not receive State funding.





Data collection

Against the backdrop of major events such as the COVID-19 pandemic and the current war, the process of registering and collecting statistical data on non-communicable diseases has been significantly affected. Gaps in the data on cancer in Ukraine significantly affect the distribution of the State budget, the recruitment of medical personnel, and the procurement of medical supplies for facilities providing cancer care.

According to available statistical data provided by the Kharkiv Regional Oncology Centre, the incidence of cancers in Kharkiv for 2021 is 338 new cases per 1000 population. In 2023, only 225 cases per 1000 population were diagnosed. This does not indicate a decrease in cancer incidents but rather a catastrophic rise in undiagnosed illness due to low access to medical care, a decrease in the number of visits to medical specialists, and insufficient oncological vigilance among primary care physicians. The cancer mortality rate in 2021 was 5.44% of all patients. Unfortunately, there is no reliable data on mortality for 2023 due to a lack of up-to-date information.

According to the EFPIA (European Federation of Pharmaceutical Industries and Associations), Ukraine has one of the lowest levels of access to specialised oncological care compared to other European countries, in terms of the number of specialised medical institutions relative to the population—1.2 medical facilities and 39 oncologists per 1 million population. Ukraine also allocates the smallest budget for cancer care compared to other European countries—128 times less than other Central and Eastern European countries, and 80 times less than Germany. The mortality rates amongst cancer patients in Ukraine is one of the highest in Europe, possibly even the highest, considering the lack of adequate diagnostics and statistical data.

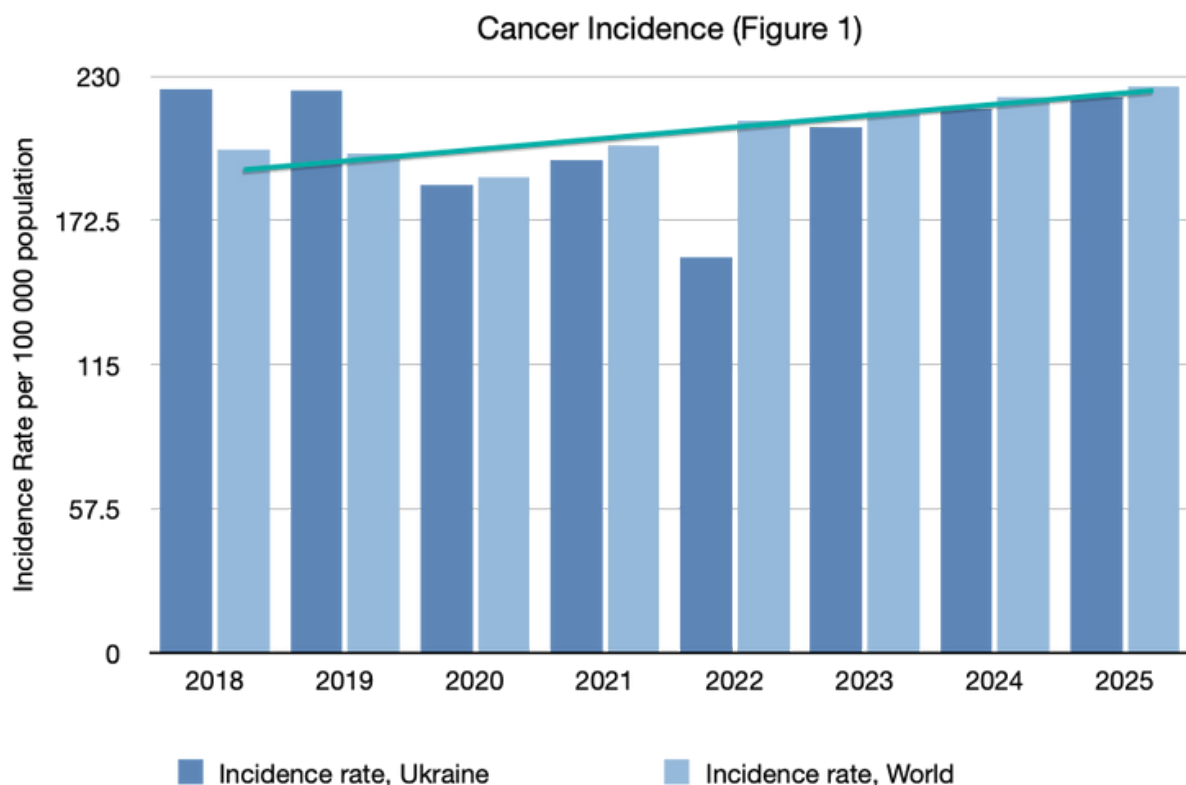
Another significant factor reducing treatment access for cancer patients is that most modern, high-efficacy antitumour drugs used to treat malignant neoplasms in developed countries are excluded from Ukrainian State programs and not procured for medical institutions in Ukraine. This is due to the high cost of these drugs, as well as the complex and lengthy process of including drugs in the register of medicinal products purchased with State funds. Such drugs are often too expensive for the majority of Ukrainian patients, or completely unavailable on the Ukrainian pharmaceutical market.

When evaluating and comparing oncological indicators in Ukraine and the world (Fig. 1) from 2018 onwards, certain trends and disparities in the data and in the forecast for the coming years become apparent. In 2020, cancer rates significantly declined, aligning with global trends. This was attributed to reduced levels of diagnosis and case registration amid the COVID-19 pandemic, rather than an improvement to the overall situation regarding the incidence of malignant tumours.

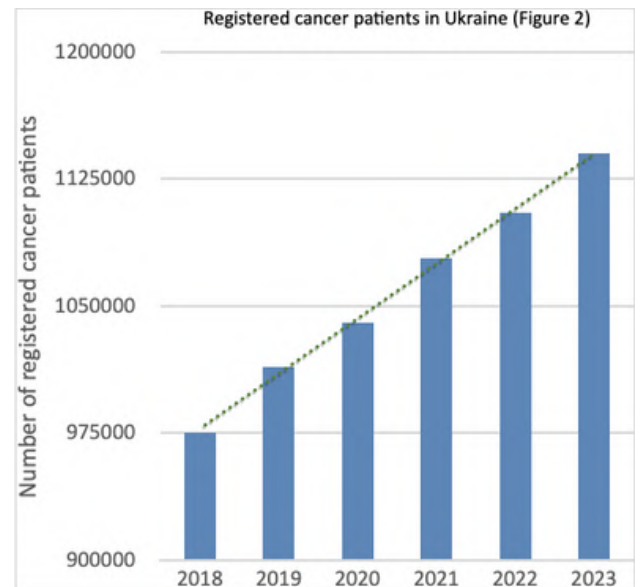
The second period of declining oncological indicators in Ukraine, which does not align with global trends, is associated with the beginning of full-scale military aggression in early 2022. This significantly impacted demographic stability, the process of providing medical care, the registration of illnesses, and the collection of statistical data in Ukraine. It can be argued that the data on cancer rates in Ukraine over the past few years, considering external circumstances, is irrelevant, and the incident of malignant tumours in Ukraine is substantially higher than the existing data suggests.

“It can be argued that [recent] data on cancer rates in Ukraine [...] is irrelevant, and the incident of malignant tumours in Ukraine is substantially higher than the existing data suggests.”

Evaluating the WHO forecast for cancer rates worldwide reveals a persistent trend of increasing cases of malignant tumours amongst the global population. Considering the adverse living conditions in Ukraine due to reduced access to medical care, deteriorating environmental conditions, persistent stress, and other factors associated with active military operations, it can be assumed that the trend of increasing cancer cases in Ukraine will be more pronounced than the average global trend.



According to data from the National Cancer Registry of Ukraine from the past 5 years (Fig. 2), the average increase in registered cases of malignant tumours amounts to approximately 33,000 per year across Ukraine, representing roughly 3.15% of all registered cases. Over the past 5 years, despite gaps in available data, the number of registered cancer patients in Ukraine increased by nearly 17%, indicating a more rapid growth compared to global and European cancer trends.





Project Workflow

Throughout the Cancer Relief project's function, we established and refined a program of work characterised by the following features:

Universal Access: Assistance under the Cancer Relief project is provided to cancer patients in Ukraine solely upon confirmation of a diagnosis by a specialist physician, supported by medical documentary. Patients' eligibility for assistance is independent of their place of residence (within territories controlled by Ukraine), social status, age, gender, disability status, veteran status, or other factors.

Two-Stage Verification of Medical Needs: Each patient's need for specific medication under the Cancer Relief project is confirmed by the treating oncologist/hematologist through a special form bearing the physician's signature and stamp. The second stage of confirmation occurs upon the patient's registration in the program, through the provision of medical documents confirming the diagnosis and the current need for medications.

Unified Electronic Data Storage System: All processes within the project are managed through a system based on the Airtable information platform, encompassing electronic registration forms, patient databases, medication inventory management, physician databases, information on the distribution of charitable aid, and more. Patient data is accessible only to MK staff directly involved in the project, and the Airtable platform servers feature modern data protection systems.

Transparent Reporting System: Information on all activities within the Cancer Relief project is retained both in paper form (original donation certificates, transportation documents, signed acceptance-transfer acts for charitable aid, physician-signed and stamped prescription letters, etc.) and in electronic databases for convenient access and preservation. MK donors have real-time access to project activity tracking via a direct link to the information system, with patient personal data encrypted and hidden. Thus, donors can track the distribution of specific drugs to specific patients online and verify the documents confirming this.

Individual Reservation of Drugs: Each patient registered with the project who has provided the necessary personal and medical documents has all the drugs needed for their entire course of treatment reserved in full and in advance, as per the prescribing physician's instructions. Drugs are then dispensed to the patient throughout the course, aligned with the number of procedures prescribed by the physician, in the necessary volume required per procedure. This approach allows for the safe storage of medication in the temperature and condition-controlled MK warehouse, the ability to adjust dosage to changing prescriptions throughout treatment, and the complete tracking of the therapeutic cycle for each patient.

The full operative system of the program, represented below, involved a medical coordinator, pharmacist, hotline operator, driver, logistics specialist, pharmaceutical warehouse manager, communication manager, and accountant. Additionally, medical professionals from various regions of Ukraine provide up-to-date information to the MK team.





Results

Notable results achieved by MK throughout its Cancer Relief program include:

- Provision of life-saving drugs to 1870 cancer patients in Ukraine by December 31, 2023.
- Expansion of the program from Kharkiv City and the Kharkiv region to other key cities such as Kyiv, Dnipro, and Lviv, covering nearly all regions of Ukraine.
- Establishment of an underground storage facility equipped with refrigerated chambers to safely store medications within the temperature range of +2°C to +8°C, supported by autonomous power sources.
- Receipt of \$7 million in donations from partners such as AMGEN, MSF OCP, and Direct Relief.
- Distribution of 31,487 units of various drugs indicated for patients with malignant tumours during the project's operation as of December 31, 2023.
- Engagement of financial and logistical support from organisations including MdM, Americares, CARE, HelpAge, CMA, and HI Atlas Logistique.

Nearly 2,000 beneficiaries.

During more than a year of operation, MK provided antineoplastic drugs to 1869 patients through its Cancer Relief program (data as of December 31, 2023).

70% are women.

According to patient data collected throughout the project's run, 7 out of 10 aid recipients under the Cancer Relief program were women, making women the target demographic for this project. Based on the morbidity data we have collected from aid recipients, it is evident that there is a high prevalence of malignancies affecting purely female anatomical sites, such as breast, ovarian, uterine, and cervical cancers, which collectively account for 43% of the overall disease burden.

Persons with disabilities.

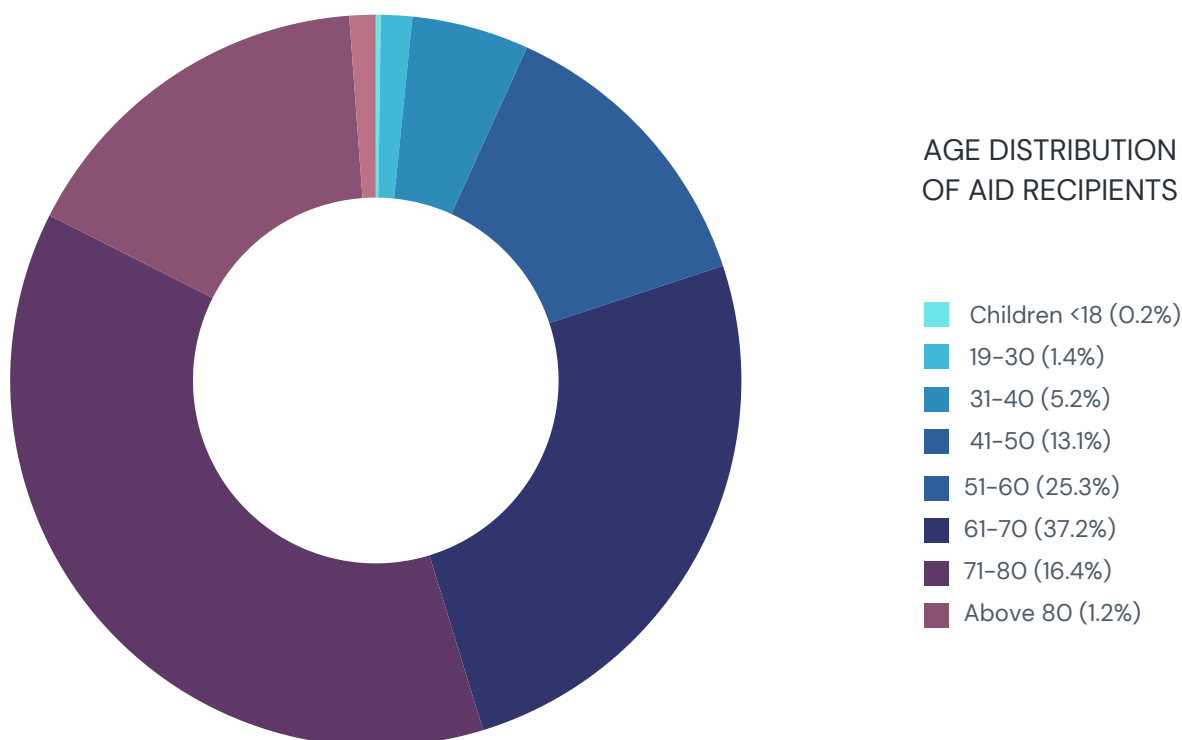
Individuals with a confirmed disability status make up 63% of the total aid recipients. Considering that cancers are disabling conditions, and thus provide ground for obtaining disability status, and patients newly diagnosed with cancer undergo the process of obtaining disability status during treatment, the actual number of beneficiaries with disabilities is likely higher.

Internally displaced persons.

IDPs account for approximately 25% of aid recipients under this project. The relatively low figures in this category are due to the fact that MK's main activities are mainly carried out in Kharkiv City and the Kharkiv region. Aid recipients in this region either did not leave their homes during active military operations, or have already returned from safer regions and have therefore lost their IDP status.

Age structure (see Fig. overleaf)

Elderly individuals (aged 60 and above) comprise 56% of the total number of aid recipients. Among the age structure of aid recipients under this project, the target demographic consists of individuals aged 61–70 years, constituting 37% of the total.



Survey data

Between November and December 2023, we conducted a brief voluntary survey among MK's Cancer Relief aid recipients. The survey a list of questions regarding the overall attitudes to the MK team's work, patients' assessment of their physical and psychological state, living conditions, and additional assistance needs. Additionally, aid recipients were invited to share their stories and talk about the difficulties they encountered during their treatment, the military actions, the financial crisis, etc.

Based on received responses, patients' main additional assistance needs include help with expenses relating to surgical and radiological treatment, diagnostic procedures, psychological support, and the provision of other medications for supportive therapy.

The main problems faced by cancer patients in Ukraine, as identified by the survey, include financial difficulties due to insufficient State support with expensive treatment, inability to work, low psychological states due to the illness and the war, and limited access to medical assistance outside of their home regions.

When evaluating the work of MK's team, 97% of responders said it was "Very Good", and 3% said it was "Satisfactory". No feedback rating the work as unsatisfactory was received.

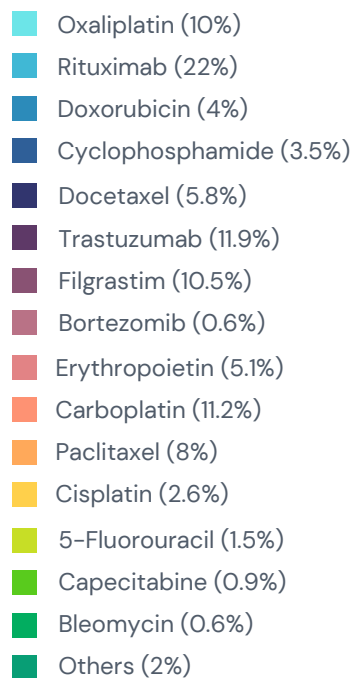
Drugs dispensed — 31,387

Groups of medications received as donations and distributed within the scope of this project:

- Taxanes: Docetaxel Accord, Paclitaxel Accord, Paclitaxel Ebewe
- Platinum-based drugs: Oxaliplatin Kabi, Oxaliplatin Accord, Carboplatin Mylan, Carboplatin Accord, Cisplatin Accord
- Monoclonal antibodies: Rituximab "Riabni" Amgen, Trastuzumab "Kanjinti" Amgen, Trastuzumab "Ontruzant" Samsung
- Colony-stimulating factors: Filgrastim "Accofil" Accord, Filgrastim "Neupogen" Amgen
- Antineoplastic antibiotics: Doxorubicin Arrow, Bleomycin Kabi, Bleomycin Sanofi
- Antimetabolites: 5-Fluorouracil Ebewe, Capecitabine KRKA

When evaluating the work of MK's team, 97% of responders said it was "Very Good",

- Hematopoietic stimulants: Erythropoietin "Epogen" Amgen
- Hormone antagonists: Anastrozole Accord, Tamoxifen Mylan, Exemestane Biogaran
- Alkylating agents: Cyclophosphamide "Endoxan" Baxter
- Other antineoplastic agents: Bortezomib "Velcade" Millennium.



DRUG DISTRIBUTION WITHIN THE PROGRAM

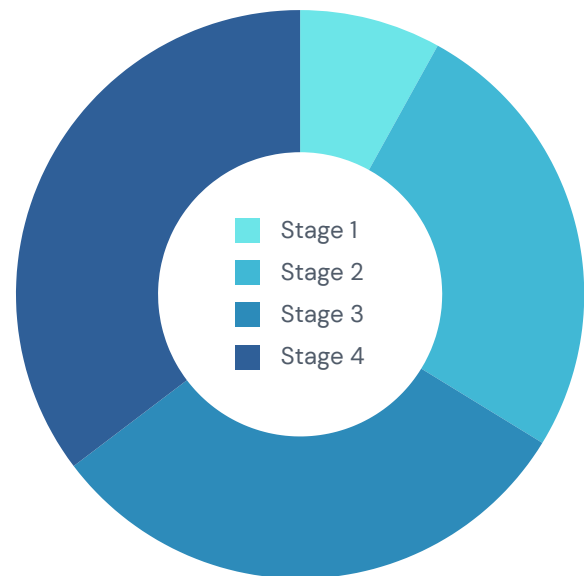
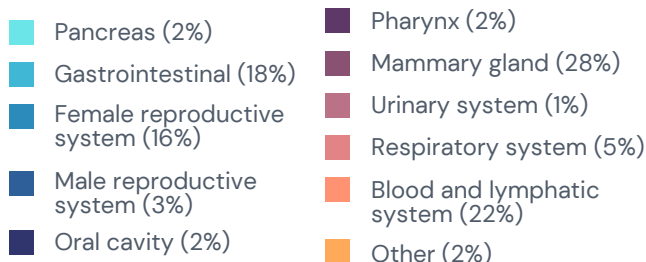
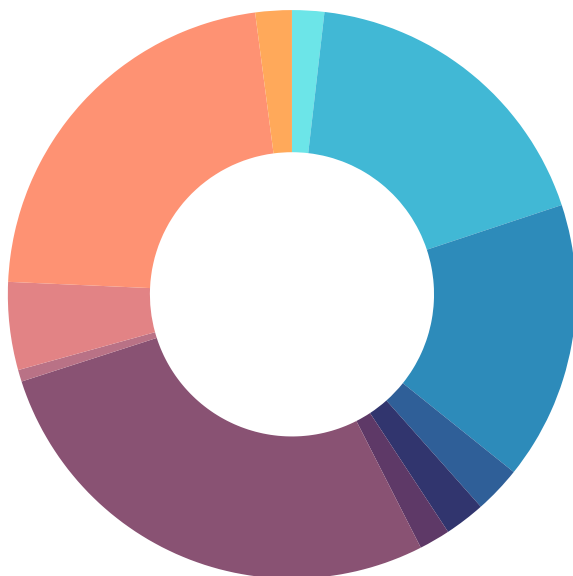


Clinical Statistics

By collecting and analysing data on the diagnosed conditions of patients receiving help through our Cancer Relief program, we have been able to assess the overall disease profile amongst our aid recipients.

In assessing data regarding localisation of malignant neoplasms, we have determined that the most prevalent cancers amongst our patients include breast cancer, hematopoietic and lymphatic system malignancies, gastrointestinal tract cancers, and malignancies of the female reproductive organs.

In analysis data regarding the stages of the cancers, we have identified a clear issue regarding late diagnosis, as 35% of our aid recipients were diagnosed at stage 4. A more detailed analysis reveals that gastrointestinal tract malignancies are most commonly diagnosed at advanced stages, and this group of pathologies is more prevalent among men. Conversely, despite its high incidence, breast cancer is more frequently diagnosed at early stages of oncological progression.

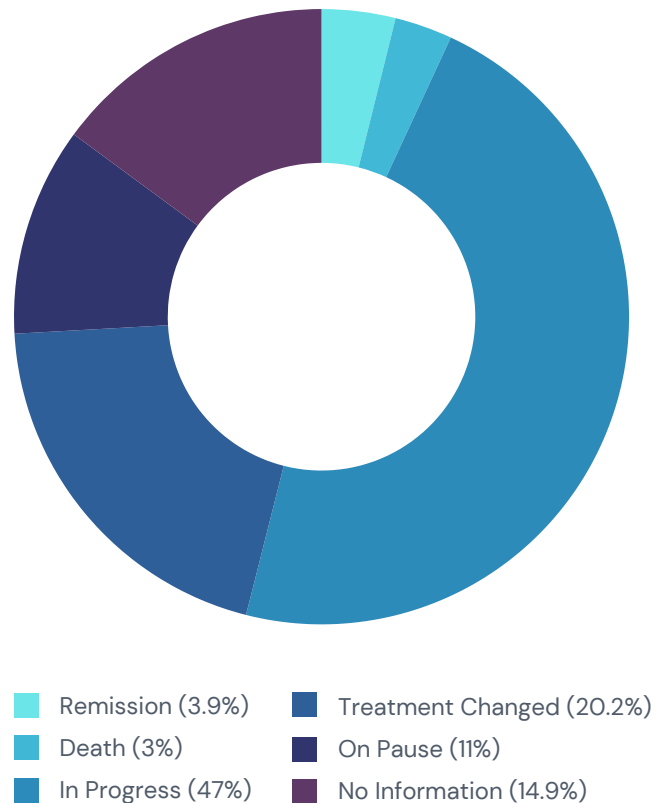


Based on our data analysis, we can conclude that there is an urgent need to not only provide assistance to individuals already diagnosed with cancer, but also implement preventative measures and screening tests for early detection of cancerous growths.

Data on prescribed treatments according to each diagnosed condition is presented in a table (see *Appendix 1*). Overall, the prescription of each medication provided by MK to patients within the Cancer Relief project aligns with clinical recommendations and approved protocols for the treatment of oncological patients in Ukraine. By evaluating the specifics of each prescribed course of medication, including dosage and the length of intervals between procedures, we show that they also adhere to approved treatment regimens and pharmaceutical manufacturer recommendations.

By determining the clinical status of aid recipients within the project, we obtained the following general data: 78 individuals are in complete remission, 61 individuals have passed away, 406 individuals have had their therapeutic course altered and have therefore ceased their participation in the project, 221 individuals have paused their treatment, and 947 individuals are currently active participants in the program. More detailed data regarding the clinical status of aid recipients is provided in *Appendix 2*.

DISTRIBUTION OF PATIENTS ACCORDING TO TREATMENT STATUS





Future Project Phases

Continuing this project remains highly relevant.

Considering the increasing incidence rate of cancers, the ongoing military actions in Ukraine, the financial crisis, and the insufficient accessibility of medical care in some regions, there is a pressing need to not only extend the activities of the Cancer Relief project but to expand its scope.

It is necessary to expand the project's ability to provide patients with anticancer drugs to all regions of Ukraine. Drug shortages exist in all healthcare facilities providing cancer care. Delivering medication to patients remotely through postal shipments is not always feasible due to the need to store and ship certain drug groups at temperatures between +2 and +8 Celsius.

It is also necessary to expand the list of available drug groups, including drugs for supportive therapy as well as antitumour drugs, to ensure patients with diverse diagnoses can undergo comprehensive treatment and raise their chances of going into remission.

"There is a pressing need to not only extend the activities of [the project] but to expand its scope."

Based on data provided by aid recipients through the survey, it is further necessary to establish free psychological support groups for cancer patients and their families. Many studies indicate a direct correlation between the psychological state of the patient and the success of their treatment. Therefore, to achieve high treatment efficacy, it is not enough to just provide medication.

Finally, it is crucial to continue collecting data on cancer and patient needs in Ukraine to create an up-to-date, comprehensive picture of oncological incidence rates, highlight current issues at national and international levels, and further improve healthcare systems in this area.



Current Request

Despite the collective efforts of charitable organisations and government programs, the need of cancer patients for antineoplastic drugs is not met across any drug group.

According to data from professionals providing cancer care in medical facilities across Ukraine, drugs from the State Procurement Program list (provided free of charge) cover only 60–75% of patient needs. There is further a demand for targeted therapy drugs, which are unfortunately not procured by the State due to their high cost. These drugs are the most modern, safe, and effective in the treatment of malignant tumours, thus making the need for these medications the most pressing.

Currently, the MK database holds 307 individuals on a waiting list for specific antineoplastic drugs not provided by the Cancer Relief program.

However, this number is not final, as a significant number of cancer patients decline registration for the program upon learning that their needed medications are so far unavailable.

Mission Kharkiv holds 307 individuals on a waiting list for vital medication.

State-funded antitumour drug programs cover only 60–75% of patients' needs.¹

¹ https://uploads.strikinglycdn.com/files/c0467a0a-7799-4a0e-a349-655db0f73b15/NacPerelic_Dodatok_web.pdf

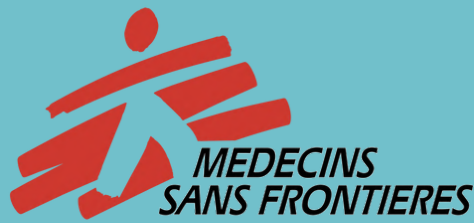
Among the first-line drugs prescribed to a majority of cancer patients in Ukraine, in accordance with approved treatment protocols, the most demanded include: **Cisplatin, Carboplatin, Oxaliplatin, Paclitaxel, Docetaxel, Doxorubicin, Epirubicin, Calcium folinate, 5-Fluorouracil, Cyclophosphamide, Methotrexate.**

Modern monoclonal antibody drugs are currently the most relevant for oncology patients. The most commonly prescribed drugs include: **Pembrolizumab, Trastuzumab, Rituximab, Bevacizumab, Pertuzumab, Cetuximab.**

Hormonal therapy drugs, prescribed for long-term oral intake, are also highly relevant. Such demanded drugs include: **Exemestane, Abiraterone, Letrozole, Enzalutamide, Bicalutamide.**

There is also a need for drugs from other groups, such as **Irinotecan, Olaparib, Capecitabine, Palbociclib**, and some other drugs that are prescribed less frequently. Furthermore, supportive therapy drugs that affect blood composition, such as **Filgrastim, Erythropoietin, and Eltrombopag**, are essential for cancer patients..

We thank our donors for the ongoing support of MK's Ukraine Cancer Relief program.



Acknowledgements

This achievement was made possible by outstanding individuals working and volunteering for MK, who are mentioned here:

Diana Kocheharova, Francois Pailier, Stan Polozov, Charles McBryde, Liliya Averkova, Sergiy Artyukh, Caroline Boulliat, Ross Skowronski, Ivan Savin, Olga Tkachenko, Ashling Sugrue, Susanna Ametova,

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