

Special Regional Report: Cancer care in Ukraine – A first-hand account

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The start of the Russian invasion of Ukraine on 24 February 2022 caught the Ukrainian oncological service in the middle of its transformation from “Soviet” principles (*Semashko* model) to a more UK NHS-style system. This transformation had started following the Revolution of Dignity in February 2014, after which the Russians annexed the Crimea, Lugansk and Donetsk regions of Ukraine, and was associated with the global change in Ukrainian policy-making towards European principles, including medical reform.

This transition was not smooth due to the existence of long-established principles and rules governing the medical ecosystem, where doctors were expected to work as social workers and received very low salaries. Over the last eight years much work has been done to increase the number of patients going to tertiary oncological centres through their GPs, following basic diagnostic examinations. And many medical centres are already working through centralized copayment agreements established by the National Service of Medical Health in Ukraine, receiving funding not on a per bed basis (as in the *Semashko* system), but on a per case basis. Ukrainian cancer care, on the other hand, is still mainly working in the old-fashioned way and is still very centralized, with more than 24 regional cancer centres and with the National Cancer Institute (NCI) as the flagship for the whole oncology sector within the country.

Oncology and oncosurgery are separate specialties, and even the urologists who work in the cancer centres are required to receive separate specific specializations in “oncology” or “oncosurgery” to deal with urological cancers. The NCI hosts the National Cancer Registry that calculates statistics, creates information and analytical materials on cancer epidemiology in Ukraine and is sending information to the World Health Organization for publication in *Cancer Incidence in Five Continents*.

The day before the start of the invasion of Russian tanks and fighter jets into Ukraine, the work of the NCI was routine: more than 40 operating room cases involving different oncological pathologies, hundreds of patients received their planned chemotherapy cycles, more than 30 received different types of radiation treatment and more than 400 patients were seen in the outpatient clinic.

The Russian intrusion was totally underestimated. Nobody



The first days of war: patients, doctors and children sleeping in the basement

from the Ukrainian side wanted to believe that our close “brother nation” neighbours would ever seriously consider war with Ukraine; that massive attacks and hundreds of civilians would be killed or suffer within the first days of the invasion could be possible in the twenty-first century, in the middle of Europe. That is why awakening at 5 am to the bombing of Kyiv was quite a shock for the majority of Ukrainians living in the capital city.

Then, many doctors faced the dilemma: What to do? Your family is in danger, your patients are at work post-op or in the intensive care unit, or in the middle of a chemotherapy cycle,



City defenders and doctors

and now your country is under attack. What do you do in such a situation? We were not trained for that in medical school; how to properly handle such stress and how to choose the right actions under such conditions. The rationale of ensuring your family was safe was very dominant for many oncologists and it took some time to organize an evacuation from the dangers of Kyiv City to western parts of Ukraine.

Some doctors left the city with their loved ones, some just sent part of their family away, but many male doctors just stayed in the city to continue administering cancer care to those who needed it and to help as a doctor when medical help would be needed for the wounded and injured from the battlefield. In the first days, it was the younger staff or residents without children who took care of the patients, discharging post-operatively and providing medical notes to those who had interrupted their course of treatment and were leaving. Millions of people moved towards the western part of Ukraine, creating huge traffic jams on the major highways. Within the first month of the war approximately 5 million people were displaced from their homes, including those seeking for cancer care.

The NCI paused the majority of its activities and focused on discharging patients, postponing and relocating treatments for those who needed them relatively soon during the first days of the war. There was no official bomb shelter in the NCI, so the basement was used for safety reasons during air attacks on Kyiv. Patients, doctors and nurses were spending sleepless nights together in the shelter and being together helped everyone to deal with the stress and thoughts running through our heads. Lots of newly created *Telegram app* channels reported the

news and within the first three days it became obvious that the Russian troops had failed to take Kyiv with their *blitzkrieg*. The Russians were still very close to Kyiv and numerous fights with the raiding groups within the city borders during the curfew kept many Kyiv defenders ready with their guns.

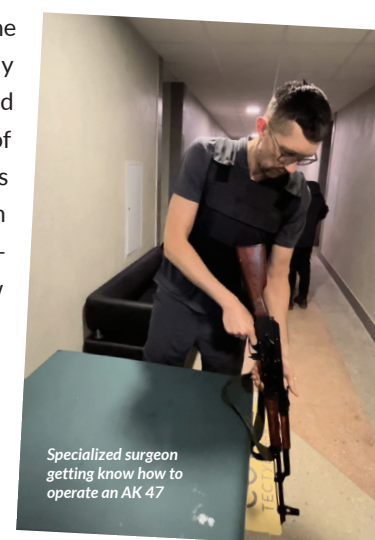
The most complex problem was to arrange the evacuation of the paediatric oncology department with its patients and their families. This evacuation mission was completed with the close collaboration of doctors from the NCI. The Ministry of Health arranged a special train to transport them to Lviv (a large city in western Ukraine) and the nongovernmental organization *Tabletochki* took care of evaluating and translating patients' notes, organized a hub for children with cancer in Lviv and managed the logistics of sending patients to European cancer centres and to centres in North America.

Some of the NCI doctors joined the Territorial Defence Military Units ready to provide first medical and specialized help for the injured if needed. Lots of training in battlefield trauma for medics and paramedics was organized in these temporary military units. Super-specialized surgeons were taught how to use AK 47 rifles or a gun, just in case it would be needed.

One month after the invasion, when Russian troops were still terrorizing civilians in Irpin and Bucha (10 km from Kyiv), it became obvious that there were a lot of cancer patients who had decided to stay in Kyiv and to continue their treatment close to their homes. In the NCI, we restarted chemotherapy treatments first, but due to a lack of staff, doctors were working as nurses, mixing agents for IV and taking care of patients. Mostly, safe places were used for such treatment sessions, and taking into account that the NCI remained the only oncological centre that was helping cancer patients at the beginning of the invasion, doctors were working 24/7.

When it became clear that patients did not want to go to western centres for surgery and preferred to choose a surgeon based in Kyiv, even it was relatively dangerous, the NCI restarted its surgical activity. In the beginning, we took only urgent cases of bleeding tumours or tumour intestinal obstructions, but with growing demand, three months after the invasion started, we returned to the oncological surgery that we usually undertook. Many surgeons returned from the western centres, but some are still working in different hospitals in western Ukraine.

From the point of view of the radiation oncologists from the NCI, their service restarted treatments for patients after two



Specialized surgeon getting know how to operate an AK 47



Kharkiv Cancer Centre
after rocket attacks

months, when the Ministry of Health evaluated the pros and cons of granting permission to use linear accelerators for patient treatment. Such a step was mainly due to the overflow of patients in the western part of Ukraine and the long

waiting times for those patients to receive treatment in European countries.

The whole sector of cancer care was hugely affected by the war. Since 2014, regional cancer centres in Crimea, Kerch, Sevastopol, Donetsk, Gorlovka, Enakievo and Lugansk have been under Russian occupation. From 2014 to 2022, 7 million people moved from occupied territories to Ukraine and other countries. From February 2022, centres in Rubizhne, Kramatorsk, Kherson, Mariupol, Chernigiv and Sumi were occupied (Chernigiv and Sumi remained under occupation until the end of April 2022).

Since the beginning of the full-scale war against Ukraine, the cancer network has lost the Cancer Centre in Kharkiv. It was under rocket attack from 24 February, and the patients and all of the staff were relocated to other cities or hospitals. Mykolaiv regional cancer centre is still working, but has been hit by rockets twice since February. Hundreds of oncologists were forced to change their place of work and relocate their families away from the frontline. With their expertise, they were perfectly able to help with the overflow of patients in the western cancer centres of Ukraine.

Many are still fighting along with the Ukrainian Armed Forces on the frontline; some left the country to seek a better life. The NCI is slowly returning to routine work with 85% of its staff since the last wave of invasion. We believe that we are here to help our patients and our brave soldiers if our medical help is needed. Our President Zelensky's words in the beginning were: "This war was not our choice – it was imposed on us". And we will stay here, on our land and we will prevail.

Postscript: The missile attack on Kyiv on 10 October 2022 killed Dr Oksana Leontieva. She was raising her five-year old son on her own, since her husband passed away a year ago, and she was working as a haematologist in the Bone Marrow Transplant Department of Kyiv Ohmadyt Hospital. The rocket hit her car on the way to work in the middle of the city on Monday morning and this story was another shock for the Ukrainian oncological community. According to official data there have been six medics killed and 14 injured since 24 February 2022. ■

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