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2022 – War in Ukraine: ophthalmology in a state of emergency

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On February 24, 2022, the world woke up to new realities. Russia had launched a large-scale invasion of Ukraine along the entire border. The war, which had already lasted eight years, had entered a new phase. The largest military conflict since the Second World War in the very center of Europe changed the lives not only of Ukrainians, but of all Europeans. No one expected it, but the Ukrainian army and the people of Ukraine rallied in resistance against the aggressor.

Recently, few people knew about Ukraine. However, it is the largest country in Europe, the seventh most populous in the region. It has given the world many scientists and famous personalities. Let us remind readers of only some of them.

The Ukrainian princess Anne of Kiev, daughter of the Grand Duke of Kyiv Yaroslav the Wise, one of the most outstanding women of the Middle Ages, made Ukraine famous throughout Europe. The ideas of Volodymyr Vernadskyi were ahead of their time. The pinnacle of Vernadskyi's scientific research is the doctrine of the biosphere as a complete natural system, as well as the noosphere, the sphere of influence of the human mind on the surrounding world. Golda Meir, Levi Eshkol and Moshe Sharet – as many as three prime ministers of Israel – were Ukrainians. Moshe Sharet is from Kherson, Levi Eshkol is from Oratov, in the Kyiv region, and Golda Meir is from Kyiv.

Solomiya Krushelnyska received the title of outstanding singer of the world during her lifetime. Opera parts in her performance were admired by the audience in a huge number of European cities. Krushelnyska was awarded the title of “Wagnerian prima donna of the 20th century”. The Ukrainian carol by Leontovich “Schedryk”, which is also known as the “Carol of the Bells”, is recognized and sung at Christmas on all continents of the world. This is also about medicine and ophthalmology.

Let us recall Professor Emanuel Mahek, who was born in a town near Lviv, and studied at the University of Vienna, where he received the degree of Doctor of Medicine. His clinic, according to Nagla international statistics (until 1914), ranked fourth in the world in terms of the number and complexity of ophthalmological operations, second only to clinics in Berlin, Amsterdam and New York. Or maybe let us speak about Boriskevich Myhaylo. From 1889, he was

the dean of the medical faculty of the University of Innsbruck (Austria), and from 1892 a professor at the University of Graz.

Ukraine seems to be very far away for us – please keep in mind: it is only about 1700 km between Frankfurt (Germany) and Kyiv (Ukraine), from Berlin (Germany) it is not even 1300 km. With its approximately 3080 ophthalmologists, Ukraine offers a good coverage of 69 ophthalmologists per million inhabitants (compared to Germany (81), Austria (92) and Switzerland (91) [1]. The medical standard and the equipment are comparable to the European standard, as is the scientific quality of the training courses and congresses. It is noteworthy that Ukraine is far ahead of many European countries in terms of technology, internet supply/use and online training, well before COVID.

The war in Ukraine – and ophthalmology

Russia's war against Ukraine began in 2014 with the annexation of the Crimean peninsula. It is impossible to forget the morning of February 24, 2022, when the whole country was rocked simultaneously by sirens, massive explosions, the roar of airplanes and the whistles of rockets. Attacks by Russian forces were reported in major cities across Ukraine, including Berdyansk, Chernihiv, Kharkiv, Odesa, Sumy, and the capital Kyiv. Western officials claimed that in scope, the war could be the largest in Europe since 1945.

Since then, Ukraine has been attacked by a hostile army, bringing death, annihilation and destruction of the principles of humanity and civilization.

The Office of the United Nations High Commissioner for Human Rights (OHCHR) verified over 6.2 thousand deaths of civilians [2] **in Ukraine during the war as of October 2022**. Of them, 396 were children. Furthermore, 9,371 people were reported to have been injured. The names of the cities of Bucha, Irpin, and Mariupol are now known to the whole world. However, OHCHR specified that the real numbers could be higher. **The war resulted in a humanitarian crisis, as thousands of Ukrainians fled to the west of their country and abroad. Neighboring Poland recorded the highest number of border crossings [3] from**

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Ukraine, at over 6.6 million as of October 2022, followed by Russia, Hungary, and Romania [4].

As of October 11, 2022, over 14 million border crossings had been recorded from Ukraine to other countries starting from February 24, 2022. The main destination of the refugees was Poland [5].

Since June many Ukrainians have come back. The number of border crossings into Ukraine reached approximately 6.7 million.

The war had a major impact on healthcare and ophthalmology: the first days of the invasion were highly chaotic. Many doctors had to flee to other regions. Some clinics and pharmacies were closed, and their warehouses destroyed. More than **900 hospitals** and ambulatories have been **damaged; 127 were fully destroyed**. There were ophthalmological departments and clinics as well. Many of these institutions also operated ophthalmology departments. Many Ukrainians lost the opportunity to obtain medical care. Patients with glaucoma, AMD, or diabetic retinopathy remained without treatment. In addition, Ukrainian ophthalmology currently has to face war-wounded patients [6-9].

Ophthalmological training and education – in spite of pandemic and war

A beacon of Ukrainian ophthalmology is Prof. Oksana Vitovska, who, with her great commitment and enormous en-

ergy, has advanced scientific training at the highest level for many years. As early as 2014, she organized volunteer projects and arranged screenings and care (including in the eastern part of Ukraine) as well as educational projects for doctors from the regions around Sieverodonetsk, Kramatorsk, Lugansk and Donetsk.

Not only nationally but especially internationally, attention must be paid to ophthalmology and the ophthalmologists in Ukraine. Here, too, Prof. Vitovska is an ambassador for Ukrainian ophthalmology and also presents herself and her country at international (online) congresses, such as the recent Indian online meeting “Pan Ophthalmologica” [10] (at 2 h 36 min) and DOC in Nuremberg, Germany, ASRS in Washington, USA, ESCRS in Milan, Italy, and AAO in Chicago, USA.

Long before the COVID pandemic, she established two series of congresses (Ophthalmic Hub and Ophthalmic Light) associated with the Ukrainian Alliance of Ophthalmologists, founded by her. In her latest project, the Ophthalmic iSchool, she currently offers up-to-date and short-term training for young ophthalmologists.

Oksana Vitovska had already invested heavily in virtual training, and it paid off during the COVID pandemic. This commitment and her technological set-up enabled her to maintain reliable and up-to-date scientific training, even in the current wartime, with its highly unsettled conditions.



Figure 1. American Academy of Ophthalmology's Secretariat Award 2022 for the Ukrainian Alliance of Ophthalmologists

This year the Ukrainian Alliance of Ophthalmologists has been recognized by the Secretary for Global Alliances. The Secretariat AAO Award recognizes special contributions to the Academy and to ophthalmology.

Ukrainian Alliance of Ophthalmologists

As early as 2016, Prof. Oksana Vitovska founded the Ukrainian Alliance of Ophthalmologists, a non-profit association of ophthalmologists devoted to medical and ophthalmological training and education. The association regularly organizes congresses and training events with the aim of integrating all professional groups in ophthalmology. The Alliance sees its central task as founding an association for everyone interested in ophthalmology, including ophthalmologists as well as nursing staff, technicians, optometrists and opticians.

More than 4300 people currently follow the activities of the Alliance on Facebook [11], and the society's YouTube channel currently has more than 4800 subscribers [12]. More information about the Alliance can be found here: <http://ophthalmolog.kiev.ua/> [13].

Ophthalmic Hub

In 2018, Oksana Vitovska established the annual congress, Ophthalmic Hub, considered the largest Ukrainian ophthalmologists' conference and which takes place regularly in Spring. The first congress, which took place in Kyiv, was highly successful and included over 750 participants and over 80 international speakers. With this congress, Vitovska set scientific standards comparable to international standards. In the following year, the Ophthalmic Hub already had over 1200 participants with about 100 international speakers taking part in stimulating programs. It was supported by ESCRS Academy in 2019. Due to COVID, the Ophthalmic Hub took place online in 2020 and as a hybrid event in 2021.

At the beginning of 2022, plans for the scientific program of this year's congress, scheduled for April 1, 2022, were in full swing [14].

On February 24, 2022, everything was rendered obsolete.

Despite the screaming sirens, rocket fire and power failures, very successfully, the "OphthalmicHUB" took place as an hybrid congress with international participation on November 25–26 2022 in the capital of Ukraine, Kyiv. Those two days were filled with highly sophisticated knowledge transfer and, at the same time, with great human warmth and support. About 200 ophthalmologists attended the congress in Kyiv in person, about 1000 online.

Ophthalmic Light

The Ophthalmic Light training series is designed as a quarterly regional event, attended by an average of 200–400 doctors [15].

Ophthalmic iSchool

The Ophthalmic iSchool was started in March 2020 in order to continue to make available scientific training and



Figure 2. Logo of the Ukrainian Alliance of Ophthalmologists



Figure 3. Logo of the congress Ophthalmic Hub

education. Here, clinical cases are presented and discussed in detail by young ophthalmologists in webinars.

This online series was particularly popular during COVID times, and especially now in the current war situation. A webinar on ophthalmology in wartime took place in June. A new cycle of webinars started in October.

These Ophthalmic iSchool webinars have been viewed by from 3000 to more than 9000 people. The webinars can be accessed internationally via the YouTube channel of the Alliance: <https://www.youtube.com/channel/UCK-gl48EJHQ0U6VLIUWr6bvA> [16].

International Cooperation

An essential aspect which reflects the high quality of the science is the international character of the cooperation with ophthalmological societies: the Ophthalmic Hub is supported by ESCRS, ASRS, AAO and ICO with workshops and symposia.

Prof. Oksana Vitovska maintains close ties with German universities: in 2004 she spent time as a scholarship holder at the University Eye Clinic Heidelberg with Prof. Gerd Auffarth, who became her long-standing mentor and with whom she still has a close friendship and scientific cooperation. The Institute for Experimental Ophthalmology at Saarland University is also working with Oksana Vitovska on scientific projects.

Particularly important for Vitovska, in the current war situation, is the support from international ophthalmologists



Figure 4. International speakers at ESCRS Symposiums in 2019, from left to right: Prof. David Spalton (UK), Dr. Volodymyr Melnyk (Ukraine), Chairwoman Prof. Oksana Vitovska (Ukraine), Dr. Vladimir Pfeifer (Slovenia), Dr. Miguel Teus (Spain), Dr. Christina Grupcheva (Bulgaria), Dr. Paul Rosen (UK)

and ophthalmological societies, having extensive experience in the special treatment of war-related eye injuries and blindness. Support is also urgently needed in the rehabilitation of these patients, since structures and facilities within Ukraine have been completely destroyed by the war.

Telemedicine

Using the technologies already available in Ukraine, the international ophthalmological community is now asked to offer Ukrainian colleagues and patients the best possible support within the framework of telemedicine. This is particularly true for patients in parts of the country that are currently cut off from conventional infrastructure due to the war and who have no access to direct medical care.

Ophthalmology and the world can learn from Ukraine

More or less unnoticed, excellent ophthalmological training at the highest level has developed in Ukraine in recent years. Defying COVID and the war, Prof. Vitovska organizes regular and up-to-date training.

From Frankfurt (Germany) you can reach Kyiv by plane in about 2 hours. Whenever it takes place again, participation in the next Ophthalmic Hub is definitely worth it! Not only to take part in an excellent ophthalmic training event, but also to get to know a city and a country with its cosmopolitan people, deserving of our friendship and support – each of us can support Ukraine in our own way!



Prof. Oksana Vitovska

Professor of Ophthalmology at the National Medical University O.O. Bogomolec in Kyiv (Ukraine), from 2014 to 2019 chief physician of the university eye clinic there. Head of the Ukrainian Alliance of Ophthalmologists.

She is strongly committed to modern, intensive further training for young ophthalmologists, currently through webinars. Her scientific focus is on glaucoma, uveitis and biometrics of the eye. In addition, she provides assistance in the care of war-related eye injuries.

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