A Ukrainian Startup Rolls Out Mobile AI-Powered Screening Solution for Diabetic Retinopathy For Internally Displaced People

The company together with its key strategic partners, the Ukrainian Diabetes Federation and The Filatov Institute for Eye Diseases and Tissue Therapy, plan to offer free eye screening to at least 20,000 people with diabetes in Ukraine's 3 regions hosting most of IDPs

KYIV-LISBON: 05 December, 2022: The latest data from the International Organisation for Migration (IOM) suggests that 6.5mln people are displaced across Ukraine as the result of Russian military aggression. Over half of all internally displaced people (IDPs) had been displaced for more than 6 months. Nation-wide, compared to the general population, around 29% of IDP respondents reported a lack of medicines and health services.

At the same time, according to the International Diabetes Federation Atlas, there were about 2 325 000 patients with type 2 diabetes in Ukraine in 2021, representing a prevalence of 7.1%. For type 1 diabetes, around 6,700 children and adolescents had the diagnosis in the past year.

The Russian invasion of Ukraine has had multiple effects on diabetes care in the country. An article published in the Lancet, the world-leading general medical journal, in March 2022 looked at the immediate negative consequences of the war which had started to come through. Deliveries and pharmacy services have been disrupted, resulting in shortages of insulin and other medication. Resources had to be reallocated to support the victims of the war overloading the health system. There is the associated adverse effect on the mental health of people living with diabetes exacerbated by the forced displacement.

While hospitals in and around cities under assault are flooded with patients with extensive traumatic injuries, primary healthcare in regions hosting IDPs increasingly strains under the enormous pressure of mass migration. IDPs face substantial barriers to accessing essential healthcare in Ukraine's over-stretched and under-reform primary health system (in Ukraine it is officially state-funded yet considerably supplemented by out-of-pocket payments). Without proper access to primary healthcare providers people across Ukraine are increasingly not being able to access secondary healthcare services.

For patients with diabetes, this disruption not only means shortages in essential medication to control blood sugar levels but also undiagnosed and untreated conditions usually associated with diabetes such as diabetic retinopathy (DR).

CheckEye, a Ukraine-based healthtech startup which is developing an AI-powered cloud-based technology to detect diabetic retinopathy, has rolled out a mobile solution to organise DR screening for patients with diabetes and their relatives. The screening was rolled out with the help and support of the Ukrainian Diabetes Federation and The Filatov Institute for Eye Diseases.

'We are on a mission to create patient-centric care for eye conditions. Diabetic retinopathy is the leading preventable cause of severe vision impairment and vision loss in the world. When the war started we knew that it would cause a massive disruption to the secondary health services including referrals to eye health professionals. With ongoing disruptions to health services, this is a time bomb for the public health, social services and economy of Ukraine. The potential negative

*economic impact of untreated conditions, including eye diseases, is immeasurable. In case of DR, detected at progressive stages when obvious vision changes take place, it is more difficult and more expensive to treat which means the country may end up with tens of thousan*ds *of disabled people among the working population if measures are not taken immediately,'* says Kyrylo Goncharuk, CEO at CheckEye.

CheckEye mobilised its partner network and with the support of local authorities, launched a screening programme in the Chernivtsi region which is one of the most remote from the front lines and is hosting a significant percentage of IPDs. The screening is available to everyone at no charge but the information campaigns targets people who are aware of their diabetes, first and foremost.

'Our early data from the fields is showing that 60% of all people who were screened had not been aware of their eye condition before while receiving a screen-positive result,' says Kyrylo.

The screening takes place in popup points across the hospitals in the Chernivtsi region. There is also a screening bus which is equipped with cameras and connected to CheckEye's proprietary system which processes the images of eye fundus to detect changes on retina. Those who receive a screen-positive result are referred to eye health professionals for treatment. CheckEye plans to roll out the AI-powered eye screening for over 20,000 patients in towns and cities of at least 3 regions of Ukraine to make the screening accessible to as many IDPs as possible. The screening programme is supported by the Ukrainian Diabetes Federation and The Filatov Institute for Eye Diseases and Tissue Therapy.

CheckEye's AI-powered technology is currently demonstrating 92% sensitivity and 84% specificity in detecting diabetic retinopathy. The waiting time for results is 10 minutes.

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About CheckEye

CheckEye was founded in 2021 by Kyrylo Goncharuk, a senior IT leader in Ukraine. The company is developing a proprietary cloud-based solution to detect diabetic retinopathy and 7 other eye conditions using photographic images of eye fundus through the ML\AI algorithm. It has achieved sensitivity of 92%, and specificity of 84% in detecting diabetic retinopathy and its stage. CheckEye is working closely with the Ukrainian Diabetes Federation and The Filatov Institute for Eye Diseases and Tissue Therapy in Odessa as its R&D partner. The partnership aims to create a patient-centric environment for eye care in Ukraine and beyond.