

# 75th Anniversary year of the first intraocular lens implant

BY ALISTAIR WOOD



Sir Harold Ridley, FRS, inventor of the first IOL.

The 29th of November 2024 marks the 75th anniversary of the first intraocular lens implant by our Founder, Sir Harold Ridley FRS. The United Kingdom & Ireland Society of Cataract & Refractive Surgeons (UKISCRS) is marking the event with a full day on cataracts on Friday (29th) as part of their November Congress in London. The European Society of Cataract and Refractive Surgeons (ESCRS), too, will be marking the anniversary at their Congress in September in Barcelona.

Sir Harold's innovation of the intraocular lens is well known and well documented. His invention, so well crafted by John Pike of Rayner, was a truly British development, but it was not without controversy. As a result his relationships with many eminent colleagues suffered, as did his professional reputation. Nevertheless, his invention has been refined and improved as have the surgical procedures to implant it. It is estimated that over the last 75 years, over one billion implants have been performed, and over one billion people have had their sight restored, many in the developing world. In line with his humanitarian instincts, he deliberately never patented his invention. So, his legacy endures, and his charity endeavours to continue his service to humanity.

His innovation was not confined to the cure of aphakia. He also contributed to the body of research into, and diagnosis of, onchocerciasis – so called 'River Blindness', predominant in parts of West Africa. He also developed the use of vitamins in the relief of macular degeneration suffered by British prisoners of war in the Far East at the end of the Second World War.

Sir Harold's achievement started to be recognised, both professionally and publicly, towards the end of his career with prestigious academic awards in Sweden, the US, and Great Britain, where he was appointed as a Fellow of the Royal Society in 1986 and knighted by Queen Elizabeth II in 2000. He was described by *The Guardian* in its obituary as "a modest giant of science, who established one of the greatest milestones in medical history."

An often-forgotten consequence of his invention and surgical procedure was the technological development in medical equipment which was necessary to scale the procedure and make it accessible to the general ophthalmic surgical community. These developments made wider medical microsurgery possible. While these innovations would have happened over time, their need for cataract and refractive surgery probably accelerated this innovation.

The parallel aspect of his legacy is his charitable foundation, the Ridley Eye Foundation. Founded in 1967, the charity is focused on funding cataract surgery in the impoverished regions of the world, and

also funding training to directly support this surgical fieldwork. The charity has worked in Ghana, India, the Occupied Palestinian Territories, Yemen, Egypt, and currently Nepal. In addition, funding has been provided for research into Behcet's disease and age-related macular degeneration.

We have been working in Nepal since 2019. Whilst the Covid-19 pandemic inhibited fieldwork, it did allow us to develop partnerships with three hospitals. We have recently expanded these relationships to five hospitals, and we now have particular responsibility for the Karnali Province in Nepal's remote northwest, funding a forward operating base in Jumla.

Our mission is to provide free small incision cataract surgery to the remote communities along the Himalayan Range above 2000m. We achieve this through three parallel programmes:

- 'Seeing at the Top of the World' is our surgical camp delivery programme about which there is more detail below.
- 'Seeing Beyond Tomorrow' is our capacity building programme in conjunction with Heidelberg University Medical School. The aim being through exchange internships to meet our secondary objective of capacity building within our partner hospitals.
- 'As Far as the Eye Can See' is our challenge events programme in the UK and Nepal with the aim of increasing the profile of the charity both to ophthalmic professionals and the public, as well as for fundraising.



Surgery in action at our camp in Gaunpalika, Gandaki Province.



A typical camp location at altitude. Langtang Village in Bagmati Province (3500m).



A post-op briefing for patients on eyecare at Kakani (2030m).

## “Our services are free. Our camps provide good value for money”

Since January 2023, the nine camps funded by the foundation have triaged 6929 patients and provided free surgery in the field for 988 patients. In addition, we have operated on 154 patients who were referred to a base hospital for inpatient treatment.

Our services are free. Our camps provide good value for money. On average our costs are GBP £15.00 for each patient triaged. The average direct cost of a cataract operation in the field is GBP £65–100 depending on the deployment distance to the camp from the base hospital. Each camp costs on average £15,000 to deliver. This covers three phases: (1) triage / prescreening, (2) surgery, (3) and post-op follow-up, as well as the logistic costs including surgical costs, transport, subsistence, portage, accommodation.

We also run a Fellowship Scheme for donors who sponsor a surgical camp (GBP £15,000) whether on an individual or corporate basis. In return we will take a donor (or a representative) on one of our camps to experience the world in which our patients live, and to validate our work. This can be any programmed camp or visit to their own sponsored camp. We can also arrange activities for corporate team building or personal development within our Fellowship Scheme. These expeditions can be tailored to specific environmental tasks such as rubbish removal, water security, general healthcare, or education. For further details contact us via our website: <https://ridleyeyefoundation.org>

There are five key performance indicators by which we measure the success of a camp:

- The level of community engagement with a camp through the number of patients screened.

- The success of the public information campaign by the distances travelled by our patients to the camp.
- The quality and safety of the surgery and follow up through monitoring the number of operations and the elapsed time and subsequent regularity of post-surgery follow-up.
- Direct surgical team feedback on the levels of local support in logistic provision and administrative assistance.
- Direct patient feedback – we collate the number of patients with predispositions that keep hospital appointments for surgery.

We measure the strategic impact of our work as follows:

- Cost per patient treated (value for money) currently on average £15.00 per patient.
- Elimination or significant reduction in the financial and physical burden for most cataract patients.
- Social impact of restored sight on the patient and family. We aim to see an increase in the quality of life and the family economic productivity.
- Feedback from village leaders on better social and cultural cohesion within the community as a result of the camp, and the scale of requests from the community for further camps.
- Feedback from our partner hospitals on any increasing patient demand at subsequent camps.
- Feedback from local health authorities on epidemiological data on presenting or reported cases of preventable blindness.
- The geographic coverage we can achieve year on year.
- The number of patients treated is in proportion to the community population.

In this anniversary year, we are launching our Volunteer Scheme for surgeons and OT staff with strong expertise in the delivery of manual small incision cataract surgery, and the ability to self-fund their work with us. The rewards are the knowledge that in these remote locations in the Himalayas, sight restored is literally life changing in terms of survival, quality of life, economic productivity, and social inclusion. We have a range of five hospitals to work with across three Himalayan Provinces. If you would like to support Sir Harold’s mission, please contact us via our website.

So, as we approach the 75th anniversary on 29 November it is an appropriate moment to reflect on the fact that an invention and procedure that is now the most common surgical operation in the world, was initiated by one man, but that the poorest and most remote communities for whom Sir Harold hoped would benefit most from his invention, still struggle to access this life changing procedure.

**Our fundraising target for this 75th anniversary year is a minimum of GBP £75,000, sufficient to run five camps in 2025. If you feel able to help us expand the number of camps or increase our geographic reach to the remote and poorest mountain communities, please visit our website.**



<https://ridleyeyefoundation.org>

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