

File Form 0659

OCT-angiography machine for IMPACT Bangladesh's community hospital in Chuadanga District Final Report for the Eagle Foundation – January 2024

Donor name: Fondation Eagle

Fondation Eagle reference: FF 0659

Name of Charity: IMPACT UK

Introduction: Your generous grant has enabled IMPACT Bangladesh to purchase an OCT-angiography (OCTA) machine for their new community hospital in Chuadanga, which opened in October 2022. This machine enables advanced imaging techniques to be used in ophthalmological assessments by visualising the blood vessels in the retina and choroid of the eye without the need for more invasive techniques (such as injected dyes). The OCTA techniques are particularly useful in the diagnosis and management of vascular eye diseases, including diabetic retinopathy, macular degeneration and vascular occlusions. The new machine was installed in March 2023 and as you may see from the testimonials below, is enabling IMPACT's ophthalmologists to make more timely and accurate decisions about the diagnosis, treatment and ongoing management of their patients' eye conditions.

Date of grant accepted: 21/12/2022

Amount: GBP 47,365

Conversion rate, date & amount in local currency: Exchange rate based on GBP = 121.92 BDT 21/12/22

Expenditure: GBP 47,464

Overspend: GBP 99

Name and exact location of the project: IMPACT Bangladesh's Hospital and Diagnostic Centre, Chuadanga, Chuadanga District, Bangladesh

Period of Project: December 2022 – November 2023

Project beneficiaries: 413 patients benefited in the first three months of installation. 18,000 people are expected to benefit over the equipment's lifespan of 10 years



The Topcon machine in situ. It has a scan speed of 50,000 per seconds and comes with full two-year warranty.



IMPACT Bangladesh's new Hospital and Diagnostic Centre in Chuadanga District

Background and details of the project:

IMPACT Bangladesh (IFB) started their programme to prevent and treat needless disability in Chuadanga District with a small hospital set-up in 2002, which expanded over the years into a 50-bed facility to meet growing demand from the local community. However, by 2016 the site had reached peak capacity, and work started on a new – larger – hospital opposite the existing site. This opened in October 2022, the inauguration of which was attended by representatives from IMPACT UK, including the then CEO, Judi Stagg. The new site houses five operating theatres; a maternity unit; A&E department; cardiac care clinic; and enhanced pathology and radiology facilities.



Representatives of IMPACT UK, including then CEO Judi Stagg, attended the inauguration of the new hospital in October 2022

IMPACT Bangladesh's Chuadanga programme seeks to address the burden of ill-health faced by the District's lower-income, rural communities; *'Seeking healthcare for people in rural areas of Chuadanga is considered a luxury. Indeed, socio-economic and geographical inequities in access to curative and rehabilitative services are stark. Doctors and health resources continue to be concentrated in urban areas, focusing their attention on the needs of wealthier individuals'* – **IMPACT Bangladesh.**

IFB's Ophthalmic services were the first to be transferred to the new hospital and we are so grateful to Fondation Eagle for being one of the first funders to help equip it by donating a Topcon OCT-Angiography Machine.

IFB is highly experienced in operating in low-resource settings and it is against this backdrop that they had initially requested support to purchase a Fundus camera to enhance their eye care services. However, peers in the field of ophthalmology [including Dr Sanjiv Desai (Shreemati Tarabai Desai hospital in Jodhpur) and IMPACT UK trustees, Nick Astbury (past President of the UK Royal College of Ophthalmologists) and Sal Rassam (Consultant Ophthalmic Surgeon)] encouraged them to upgrade their request to an OCT-Angiography machine, which although costlier in the short-term has many important additional features. This instrument is used for generating cross-sectional, three-dimensional, color-coded high resolution images of the layers of retina and optic nerve of the eye and used to detect and monitor such conditions as glaucoma; age-related macular degeneration; and diabetic eye disease.

Diabetic retinopathy in particular is of growing concern in the region, as Bangladesh has one of the highest burdens of diabetes in the Southeast Asian region, with around 30% of the adult population affected. A recent healthcare facility based study in Bangladesh examined 49,264 diabetic patients, finding a diabetes retinopathy prevalence of 33%, with adult women disproportionately affected [Muqit et al: 2019].

The Topcon machine was installed by engineers from Evolution Medical Technologies in March 2023. In the first three months of use, the equipment has been used to diagnose eye conditions in 413 patients and now that staff are fully trained in its use, it is on course to meet the target of assisting 1,800 patients per year.



The OCT-Angiography machine being installed in March 2023



An older patient arrives for investigations related to macular degeneration



The new female eye ward at the new hospital

IFB is very pleased with the model they have chosen (3D OCT Maestro-2), which has a scan speed of 50,000 per second. The machine also came with other accessories, including :

- Compatible online UPS
- Compatible Photo Printer
- Computer Table

The OCT machine has a two-year warranty period and spare parts will be replaced free of cost within the warranty period.

Table showing the breakdown of patients who have benefited from the new equipment since it was installed:

Sl	Eye Conditions	No. of Patients
1	CFP (Color Fundus Photo) <ul style="list-style-type: none"> • Normal (53) • Pathological (113) 	165
2	OCT-Glaucoma Evaluation <ul style="list-style-type: none"> • Normal (23) • Borderline (09) • Glaucoma Confirmation (147) 	179
3	OCT Macula <ul style="list-style-type: none"> • Normal (06) • Pathological (49) 	55
4	OCT Angiogram <ul style="list-style-type: none"> • Normal (00) • Pathological (06) 	06
5	ASP (Anterior Segment Photo) <ul style="list-style-type: none"> • Normal (00) • Pathological (08) 	08

“Previously, it was not possible to confirm diagnosis of glaucoma, age related macular degeneration, diabetic retinopathy, intra-retinal hemorrhage, different types of macular edema, macular hole without extensive and sometimes invasive tests. This new equipment has eased the diagnosis of the diseases, and has contributed in making the correct diagnosis and subsequent treatment plan for the eye patients, who were usually referred to Dhaka or other cities before. Many could not afford to go. The installation of the equipment now plays a vital role in treating complicated eye conditions at the IMPACT Hospital and Diagnostic Centre.”
IMPACT Bangladesh



Dr Mohammed Shaheen is IFB's lead eye surgeon

Report from Dr Mohammed Shaheen, IFB's lead eye surgeon:

“The eye patients at Chuadanga are extremely benefited by the new OCT equipment. Most of the people in this district live below the poverty line, which prevents them seeking advanced eye care services. In addition, I have noticed that women are greatly benefited, as they cannot travel to distant districts alone without male support. Due to the existing sociocultural and economic reality, the majority of men are expected to support their families which keeps them fully occupied with their works. However, any delay in seeking eye-care can sadly deteriorate eye-conditions further. Since we have had the OCT equipment, we can now diagnose a variety of conditions more easily and quickly. For example, macular edema, age-related macular degeneration, glaucoma and diabetic retinopathy. This is helping us take action promptly to restore eyesight and prevent loss of vision. The Equipment includes:

- CFP (Color Fundus Photograph): Retinal photograph for disease identification and future reference
- OCT for glaucoma evaluation: After Glaucoma confirmation, measures are taken to prevent further optic nerve damage.
- OCT for macular disease evaluation: CSR, CME, Macular degeneration confirmation
- OCT for ocular angiogram: CSR, Diabetic retinopathy

The availability of OCT over Color Fundus with fluorescein angiography has improved patient satisfaction in the region. There has been an increased influx of patients from the surrounding districts to our hospital in Chuadanga.”



Ms. Shahnaz Bintaz, Medical Assistant (Optometrist) has been working with IMPACT in Chuadanga since 2011. She also shared her experiences with the newly installed OCT machine;

“We are trying to provide the best services in eye care to our patients, the majority of whom come from lower socio-economic backgrounds. This kind of high-quality equipment was not available in the region previously, which was one of the main reasons either patients did not seek treatment at all, or had to travel to distant places, like Dhaka, to get their eye treatment. I feel so happy when I see the smiling, delightful faces of the patients. We at IMPACT in Chuadanga are grateful to be able to expand our eye services and being a place that is highly regarded by patients and our medical peers.”



Above – Shahnaz using the new machine.

Patient case stories:

Kulsum (62) is supported by her only son, who runs a local tea stall. Kulsum had been suffering from blurred vision in her left eye and was recommended to visit IMPACT’s hospital by her daughter-in-law, who is a member of a local IMPACT Mothers’ Club. Kulsum was one of the first patients to undergo an OCT macular examination using the new machine. The results showed Cystoid Macular Edema (CME) in her left eye, a leading cause of central vision loss in lower-income settings. Treatment for this condition can vary according to the cause and Kulsum is now undergoing other medical investigations, including for diabetes and inflammatory conditions, to establish next steps. *“Before IMPACT new hospital, we did not have any modern facilities in Chuadanga. We either had to travel to Dhaka or Khulna to seek advanced eye care. I heard about IMPACT Hospital from my daughter in law, as we have an IMPACT Mother’s Club in our village. There, she discussed the matter with IMPACT’s Field Organisers who suggested we visit their hospital. I am extremely happy with the services I am receiving. I did not have to travel to far away distant places. It has become convenient for aged people like me, and prevents delay in seeking help”*





Nazera Khatun Shilpi (42) was one of the first patients to benefit: *‘Shilpi, whose husband is a day labourer, arrived at our hospital after someone in her village told her about our services. She was complaining of red, watery eyes as well as pain in both eyes and severe headaches. The OT scan helped our ophthalmologist to diagnose the problem and diagnose treatment and medicines. After the follow up appointment, Shilpi said “I am so happy that my eyes are feeling better now. I no longer feel the constant headache. I am much relieved now. My eye condition has improved. I am thankful to IMPACT for my treatment. I wish you success.”- IMPACT Bangladesh*

Abdul (67) attended IMPACT’s hospital with his son, an agricultural worker. The vision in both his eyes had deteriorated significantly. *“At first I thought I would have to go to Khulna that is very far away. I cannot travel alone at this age and my son is very busy as he earns a daily wage. It was becoming quite difficult for us and my vision was deteriorating more. I talked to some locals, and one of my neighbors told me about the IMPACT hospital. He told me this hospital has new modern eye equipment to help people who have low incomes. After all the formalities and procedures, I was examined by an Eye Consultant and learned I was suffering from glaucoma in both eyes.”* Abdul was scheduled for surgery and following a successful procedure, his intraocular pressure was measured and found to be in normal range. He has been advised to continue anti-glaucoma medications and seek regular check-ups.



Munni (52) is a widow from Damurhuda Upazila who runs a local tea stall with the help of her daughter. For the past six months, the vision in her right eye had deteriorated and she had been suffering from high blood pressure. *“I knew I had to see an eye doctor, but my everyday work was not permitting me. My daughter is so busy and my son-in-law is a day labourer. Our family expenses depend on the earnings we receive at the end of each day but visiting a doctor became an emerging necessity and we booked to go to the IMPACT hospital.”* Munni was advised to have OCT angiography and OCT macula tests in her right eye. The results from the tests showed macular edema

(CSR) – a condition that happens when blood vessels leak into a part of the retina called the macula - and she was scheduled for six follow-up tests to devise a treatment plan. *“I am feeling better now. My vision has been improving. The doctor told me that I had to continue my medications for a while. I have not seen such modern facilities elsewhere in Chuadanga. I am satisfied with the treatment I received from the hospital. I could never have visited Dhaka or Khulna to seek such an eye care service. I am thankful to IFB for bringing the modern treatment to our doorsteps.”*

Conclusion

We are so grateful to Fondation Eagle for supporting IFB with its aims to develop a ‘Centre of Excellence for Eye Care’ to serve people from across Chuadanga District. We expect that 18,000 patients will benefit many for the specialist diagnostics that the OCT-Angiography Machine affords in the next decade. Early detection and treatment of eye disease is so essential for protecting against sight loss and this new equipment is a vital new addition to the hospital’s armoury in the prevention and treatment of disabling sight loss. Thank you.

Expenditure statement:

Item	Budget BDT	Budget GBP	Expenditure BDT	Expenditure GBP
Topcon OCT Angiography Machine - Maestro 2 (including taxes)	5,500,000 <i>(5,000,000 equipment 250,000 Tax 250,000 Vat)</i>	45,110	5,511,905 <i>(5,000,000 equipment 261,905 Vat 250,000 Tax)</i>	45,209
Project Management @5%	275,000	2,255	275,000	2,255
Grand total	5,775,000	47,365	5,786,905	47,464

Budget note: There was a overspend of 11,905 BDT / GBP 99 as the tax due on the machine was charged slightly higher than anticipated. This amount has been forfeited from the project management fee. Please find attached the invoice to Evolution Medical Technologies for the supply and fit of the Topcon model, plus documentation showing the two amounts of tax paid.

Exchange rate based on 1 GBP = 121.92 BDT 21/12/22