

My Experience with Orbis International and the Flying Eye Hospital in Ethiopia

Jibat G. Soboka,¹ Omar Salamanca,² Alana Calise.³

The Experience

Approximately 80% of blindness in Ethiopia is avoidable. According to the national blindness, low vision and trachoma survey in Ethiopia, over 1.6% of the Ethiopian population is blind, and 3.7% live with low vision. This is higher than the world averages of 1.2% and 3.4%, respectively. The major causes of blindness and visual impairment are preventable or treatable, including cataract and trachoma.^{1, 2} Despite the huge burden, human resources available for eye health in Ethiopia are alarmingly low. There are approximately 140 ophthalmologists working to serve the millions of people who are blind and visually impaired, and more ophthalmologists are required to meet urgent eye care needs.³ The cataract surgical rate in Ethiopia is 500 surgeries per million people, though the expected target is 2,000 surgeries per million.^{4, 5} This shows that eye care services need to be increased in Ethiopia to meet the burden of untreated eye disease.

Orbis International in Ethiopia

Orbis is a global nonprofit that has been a pioneer in training eye care teams to prevent and treat blindness for nearly 40 years. Orbis began working in Ethiopia in 1998. Over the past 20 years, Orbis has achieved a lot in Ethiopia. One of the ways in which Orbis delivers training is through its Flying Eye Hospital, a state-of-the-art surgical teaching facility with an operating room (Figure 1), classroom, and recovery room, all onboard an airplane (Figure 2).⁶

The Flying Eye Hospital has visited Ethiopia five times, in 2003, 2005, 2006, 2012, and 2018, to provide additional training to address the burden of blindness and reduce the shortage of trained eye care professionals.⁷ The Flying Eye Hospital visits provided opportunities for Ethiopian eye care teams to develop their skills.⁸

My Experience

I took part in a three-week Orbis project in Ethiopia from October 1-18, 2018, which provided ophthalmic training on the Flying Eye Hospital and at Menelik II Hospital (Menelik II), a teaching hospital in Ethiopia's capital city, Addis Ababa. Eye care teams from other teaching hospitals and eye care centers across Ethiopia were trained as well. The project aimed to strengthen the capacity of eye health professionals by delivering subspecialized eye care services and residency training.

Patient Coordination

As a chief resident, a key organizational role I held prior to and during the Flying Eye Hospital project was supporting case communication between Ethiopian ophthalmologists, visiting Orbis Volunteer Faculty (medical experts), and patients. I prepared case summaries and uploaded the data to Orbis's Cybersight telehealth platform, through

Figure 1. Operating Room Within the Flying Eye Hospital



Figure 2. Patient Discharged After Treatment onboard the Flying Eye Hospital



which Volunteer Faculty could review the cases prior to arrival.⁹ Case types included newly diagnosed patients, known patients with complications or previously failed surgeries, and cases of academic importance. Patients were selected for treatment based on factors which included but were not limited to: suitability for teaching, having conditions affecting both eyes, blindness risk, age, and predicted surgical prognosis. However, treatment plans were discussed for all patients, whether or not they were selected for treatment. After online

¹ MD, Haramaya University, College of Health and Medical Science, Harar, Ethiopia.

² MD, MSc, Orbis International New York, USA; Service of Ophthalmology, Grupo de Investigación Visión y Salud Ocular (VISOC), Universidad del Vall, Cali, Colombia.

³ MPH, Orbis International, New York, USA.

About the Author: Jibat Gemida Soboka is a new graduate of Ophthalmology from Addis Ababa University. I received the best resident research abstract of the 6th Congress of College of Ophthalmology for Eastern, Central and Southern Africa. Currently, I am waiting the International Council of Ophthalmology fellowship program.

Correspondence:

Jibat G. Soboka

Address: Bati, Alem Maya, Ethiopia.

Email: jibatgemida@gmail.com

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review by Volunteer Faculty, patients were selected for in-person screening, where the Ethiopian ophthalmologists and Volunteer Faculty worked together to determine a treatment plan. At the in-person patient screening, I was responsible for organizing the patient log books for the Ethiopian ophthalmologists and provided critical communication to patients about their treatment plan, logistics, and scheduling. In addition to patient organization, I was involved in a different training program each week.

Week One: Glaucoma Simulation

Wet lab training included both lectures and simulated surgical training. As a chief resident, it was a great opportunity to simulate glaucoma surgery on high-fidelity model eyes. The wet lab training focused on trabeculectomy, a surgical technique to treat advanced glaucoma. I was able to practice every step of the surgery on the model eyes (Figure 3). The experience I was able to get using model eyes was less stressful as compared to real-time surgical training. At the end of the project, Orbis donated model eyes and wet lab equipment to Menelik II, so I have been able to continue to practice my surgical skills.

Figure 3. Simulated Surgery in the Menelik II Wet Lab



Week Two: Phacoemulsification Simulation

This was my first experience using a virtual reality simulator for phacoemulsification surgery (Figure 4). Using the simulator onboard the Flying Eye Hospital, I was able to receive training and practice the steps required for a successful phacoemulsification case. Live patient surgeries were broadcast from the plane's operating room to its 46-seat classroom. Between simulation cases, I was able to watch live surgical cases, ask questions of the surgeons in real-time, and sit in on lectures. Through the simulation and live surgical case observation, world-renowned ophthalmic surgeons taught me about different surgeries to treat eye diseases.

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Figure 4. VR Magic Eyes Surgical Simulator



Week Three: Hands-on Training in Medical Retina

I was able to participate in a hands-on training, treating patients with retinal pathology. I was exposed to different methods and equipment used to diagnosis retinal disease, including indirect ophthalmoscopy, fundus photography, and optical coherence tomography (OCT). Most patients involved were diabetics with an eye complication called diabetic retinopathy. Diabetic retinopathy is one of the leading causes of blindness worldwide, and it is an emerging cause of blindness in Ethiopia.¹⁰ With guidance from Volunteer Faculty, I provided pan-retinal photocoagulation laser treatment for patients with diabetic retinopathy for the first time. At the three-month follow-up mark, the patients' diabetic retinopathy was still under control.

Conclusion

The opportunity to engage with and learn from world-class doctors was a great experience for me as a resident in Ethiopia. My experience with the Flying Eye Hospital was multi-faceted and fascinating. Orbis brought state-of-the-art services and education to Ethiopia, and the training was inspiring. I organized, observed, and trained both in simulation and with patients. The training improved my skills to provide quality eye care services in Ethiopia.

Through the Orbis training experience, the proverb "Give a man a fish, and you feed him for a day. Teach a man to fish, and you feed him for a lifetime!" will be a source of encouragement to serve and improve the future of eye care services in Ethiopia. The training I received will help me treat blindness now and in the future.

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