

Flying hospital helps blind patients see

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Most people who board this blue-and-white MD-10 cargo plane will never leave the ground—instead, they'll take a different type of journey.

When they step inside the aircraft, they are blind or have vision impairments that keep them from living productive lives.

When they disembark, they can see.

It's the high-tech facility inside the airplane, which was on display at Moffett Field over the weekend, that allows for that transformation. Behind the cockpit, the plane, known as the "Flying Eye Hospital," is equipped with exam equipment, an operating room and a recovery room that fits up to three patients. With support from local doctors and universities, and donations from California tech companies, the flying [hospital](#) lands in developing countries around the world, treats patients suffering from eye diseases that are considered curable in the U.S., trains the region's local doctors, and then flies off to the next location. It's a unique approach to bringing sight to the world, both because of the physical shape of the hospital itself and because of the program's emphasis on training.

"There's no way that an individual doctor or an individual organization can take care of all of the blindness and vision impairment themselves," said Dr. Doug Fredrick, a pediatric ophthalmologist at Stanford Children's Hospital who volunteers aboard the plane. "However, if you are able to train the local physicians to care for these patients, that's something that will be sustainable."

The flying hospital, run by global nonprofit Orbis, was in the Bay Area to restock its supplies, check its equipment and hobnob with potential donors in cash-flush, tech-savvy Silicon Valley. It's the plane's second trip here—it was last at Moffett Field in the summer of 2016. From here, the flying hospital will head to Arizona for maintenance and then to Florida to visit Orbis supporters before jetting off to Peru early next year.

Why build a hospital on a plane?

"You can go wherever there's a runway," said Orbis president and CEO Bob Ranck. "We can go into the mountains of Peru. We can go into the inner countries of Africa."

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Fredrick, who traveled to China and India with Orbis this year, says those trips give him an adrenaline boost that keeps him going during his day-to-day life. He's been doing at least one mission a year since 1998, when he and a nurse went to Burma (now Myanmar). During that trip, they treated a 3-month-old baby who was blind due to cataracts in both eyes. They operated on the child, who they took to calling "baby green pants" because his parents always dressed him in green pants. The

surgeries went well, and the child was sent home.

A year later, Fredrick returned to Burma. There was "baby green pants—still wearing green pants—but now he was running around and playing just like any other sighted toddler.

To show his gratitude for his son's vision, the child's father presented Fredrick with a wood carving of a baby cradled by a hand, topped with an eye.

"I've got that statue sitting in my office, and I look at it frequently," Fredrick said. "It was very emotional."

The Orbis team sees a range of eye problems including cataracts, retinopathy (an eye disease caused by diabetes) and glaucoma, and trains a region's local doctors to treat these conditions themselves, so patients can continue to receive care long after Orbis has packed up and left. The plane is equipped with high-tech teaching simulators where trainees can poke and prod fake eyeballs inside a mannequin head, watching their work through a microscope. To upgrade its equipment, Orbis soon will receive a new simulator from UC Davis.

Every surgery that doctors perform aboard the plane is broadcast to a television in the front of the aircraft, where trainees can sit and watch the procedure, and ask the surgeon questions in real-time. The surgeries also are live-streamed for training doctors to watch around the world.

The operating room and recovery room look more like they're inside a hospital than on board a plane. But performing surgery inside an aircraft has its challenges. Windy days, for example, can be difficult.

"When we were in Mongolia, the entire plane would shift and you felt a bit seasick," said Dr. Hunter Cherwek, Orbis' deputy chief of clinical

services.

Another detail you won't find in a typical hospital—all the nurses are trained flight attendants and know how to evacuate the aircraft in case of an emergency.

The team sees a lot of children—as evidenced by the many teddy bears, some of which wear eye patches, on board the plane.

Monelle Ross, an Orbis staff nurse from Canada, remembers a teenage boy who boarded the [plane](#) in Cameroon this past fall. He'd been blinded in an accident and needed retina surgeries on both eyes. After the first surgery, Ross asked him "can you see me?" He said yes, and with that simple answer, reminded Ross of why she does this work.

"To be able to see the eyes focus on you because they're seeing you," she said, "it's such a great feeling."

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