

AROUND NYU LANGONE HEALTH

Model Developed in India Offers Lessons on How to Make Healthcare More Sustainable

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Healthcare is not commonly a focus in the national conversation about environmental sustainability. Yet its contribution to greenhouse gas emissions and other air pollutants is bigger than many realize—nearly 10 percent in the United States and 3 percent in the United Kingdom.

As a researcher in the fledgling field of healthcare sustainability, engineer Cassandra Thiel, PhD, aims to change that. An assistant professor in the Department of Population Health and the Department of Ophthalmology, Dr. Thiel recently [published a study](#) reporting on a “green cataract surgery” developed at Aravind Eye Care System in southern India.

Cataract surgery is one of the world’s most commonly performed operations. The United States spends \$6.8 billion on the procedure alone, and as the world’s population ages, the number of procedures will increase.

“Making a small change to cataract surgery, if implemented across the country, can make a big difference in the cost and the environmental footprint,” said Dr. Thiel.

Evaluating the procedure’s environmental impact, she and her colleagues found that Aravind’s emissions per surgery amounted to six kilograms of carbon dioxide equivalent, compared to 160 kilograms of carbon dioxide equivalent in the UK—like driving 14 miles compared to driving 391 miles. Proportions would be similar if not greater in the U.S., according to the study.

Aravind has increased the surgery’s energy efficiency, decreased the time it takes to perform the surgery, and reduced waste by allowing for reuse of items that are commonly disposed of after one U.S. surgery, such as surgical gowns, booties, blankets, and medication, and sterilizing stainless steel instruments, so they can be reused the same day.

“Aravind’s model for surgery—its use of reusable instruments, energy-efficient appliances and air handling systems, and investment in low-carbon energy sources—serves as an example of more sustainable, efficient cataract surgery,” said the study’s senior author Joel S. Schuman, MD, chair of the Department of Ophthalmology.

Reducing the environmental impact of cataract surgery is especially pressing in India, which wants to end preventable blindness—a goal of the World Health Organization Vision 2020 initiative—by doubling its current cataract surgical rate.

According to Dr. Thiel, the U.S. healthcare system can also take a page from Aravind.

“Some of the sustainability lessons we learn by studying cataract surgeries can be applied to other procedures performed in an operating room,” she added.

Here at NYU Langone Health, [efforts are already underway](#) to make healthcare more sustainable. Some examples include NYU Langone’s reuse of its plastic sharps containers, which safely dispose of sharp medical instruments, such as needles and syringes, keeping more than 150,000 pounds of plastic waste out of the landfill each year.

Like many hospitals, NYU Langone has partnered with a vendor to reprocess many clinical items used for routine patient care, such as ultrasonic scalpels, pulse oximeters, and catheters, which can then be purchased back at reduced cost.

And the institution’s energy program had, by the end of 2016, reduced carbon emissions by about 24 percent and saved the health system over \$45 million.

NYU Langone also runs a recycling program that diverts paper, cardboard, plastics, glass, and metals away from landfills across clinical and research departments, as well as NYU School of Medicine offices and dorms. The program will roll out across the institution in 2018.

“We strive to take our environmental impact into account when making purchasing decisions, and to minimize that impact through reduction, reuse, and recycling of materials—in that order,” said Jenna Agins, MBA, MS, energy and

sustainability specialist.

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