

## Multifunctional OCT system approval simplifies imaging

### Device offers high automation, multiple possibilities of layer segmentation

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Reviewed by Francesca Giliberti, MD, JD, and Orazio Giliberti, MD

A newly approved system (3D OCT-1 Maestro, Topcon) combines a high-resolution, color, non-mydratric retinal camera with the latest spectral-domain optical coherence tomography (OCT) technology, and stands out for its versatility as well as its quality and ease of use.

Francesca Giliberti, MD, JD, acquired the OCT system in the fall of 2016, soon after its FDA approval, as an upgrade from the previous system at The Giliberti Eye and Laser Center, Totowa, NJ.

“We were attracted to the [system] because of its multifunctionality and improved technological capabilities,” Dr. Giliberti said. “This machine has excellent automation with multiple, high-definition scans, and allows us to document and follow progression in a variety of patient pathologies like diabetic macular edema (DME) and glaucoma.”

Previously, the practice had been using three different machines to image various layers of the posterior segment and optic nerve.

“This machine is so multifunctional that it takes the place of several machines,” Dr. Giliberti said. “The optic nerve and macular imaging is speedy and of high quality—the [device] also takes simultaneous color fundus photos when imaging the optic nerve and the macula.”

Results are reproducible and recognition is high because of the device’s automatic alignment feature, she said.

Additional features enable users to image the cornea and measure corneal thickness, and in patients with anterior segment anomalies, particularly narrow angles, it can be used to qualitatively assess the morphology of the angle, she continued.

#### TAKE-HOME

► *A newly approved optical coherence tomography (OCT) system (3D OCT-1 Maestro, Topcon) combines spectral-domain OCT and a fundus camera, offering rapid, wide-field scanning with multifunctionalities that can reduce the number of images taken during an exam.*



The new optical coherence tomography system (3D OCT-1 Maestro, Topcon) has replaced three different machines at The Gilliberti Eye and Laser Center, Totowa, NJ, due to its ability to image and segment multiple layers of the posterior segment and optic nerve. (Photos courtesy of Topcon)

## Adopting the system

Dr. Giliberti's father, Orazio Giliberti, MD, noted the practice had been researching OCT devices for several years before deciding on the new system and then waited eagerly for its FDA approval. In a market with a number of OCT options, their choice was swayed by factors such as the device's multifunctionality and ease of integration into the practice.

"What you are trying to do for a progressive practice is to have technology that is refined, simplistic, and cost effective," he said. "Visual outcomes and a structured analysis of the visual system are key today."

The capabilities of the OCT have helped the practice achieve new levels of quality and efficiency and enhance its ability to manage referrals because of the multiplicity and quality of the images, he said.

### Patient experience

## Patient experience

Both physicians noted the device is an asset for patient education and communication.

"It has improved the way we are able to communicate and explain what is going on in our patients' eyes," Dr. Francesca Giliberti said.

With the device's quick imaging speed, the physician and patient can review test results on a connected large screen computer within seconds, illustrating to the patient what is going on while discussing approaches to managing various conditions.

**'This machine is so multifunctional that it takes the place of several machines.'**

— Francesca Giliberti, MD, JD

Whether it is a new patient screening or a specific diagnostic or monitoring test, the images provide "a wow

factor,” since many people have never seen an image of what is inside their eye, Dr. Orazio Giliberti said.

“This also opens up a new avenue to talk to people,” he added.

Further, since the images are likely to stay in patients’ minds after the office visit, they may be more motivated to comply with treatment recommendations.

The system is fast, easy to use, and intuitive, Dr. Francesca Giliberti commented. For most users, it is no more complicated to learn than a smartphone device, and since it has a small footprint relative to some other devices, it does not take up a significant amount of space in the clinic, she said.

### FDA approval

The system received FDA clearance in July 2016, with U.S. sales starting in September. It had been available outside the country for 2 years prior to the FDA decision, according to Robert Gibson, vice president of marketing and product planning, Topcon.

The new system is the company’s third-generation spectral-domain OCT system.

“It’s fully automated, so with just one or two touches the doctor or technician can get a scan, and that really helps with their work flow,” Gibson said.

The system’s features include a widefield, 12×9-mm scan with a reference database.

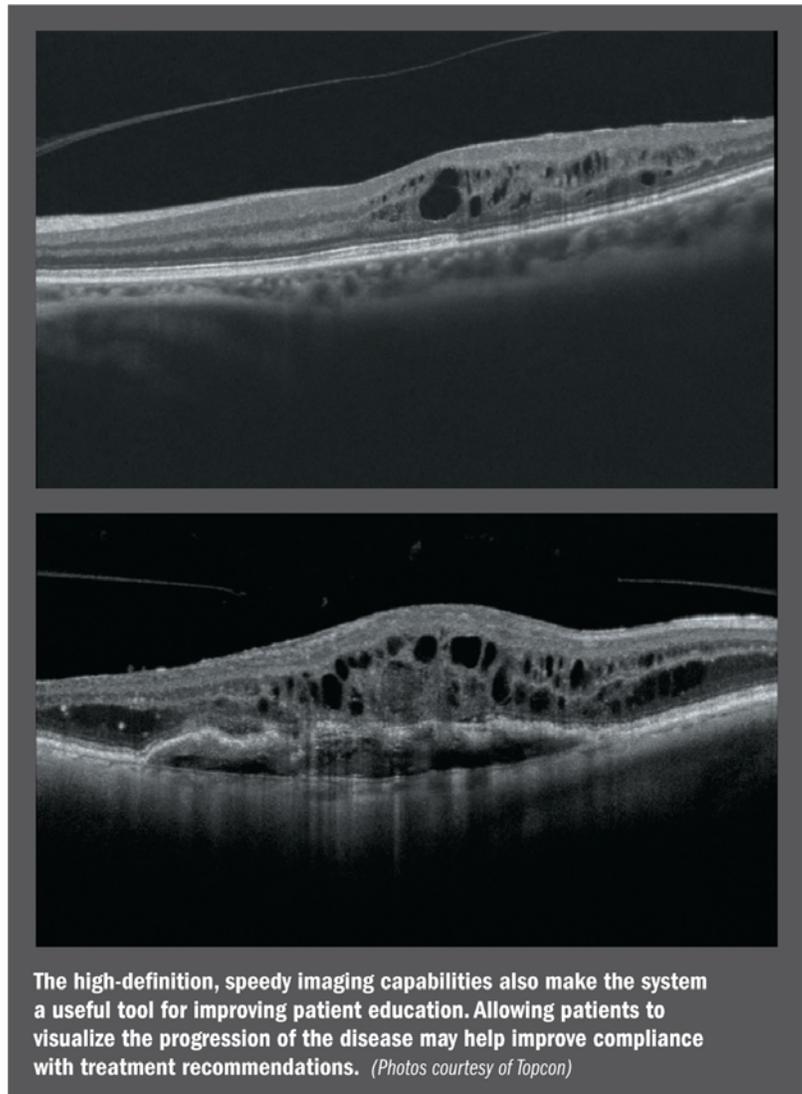
“With one scan, it can take a picture of the patient’s optic nerve and their macula, and it has a reference database on both. This cuts in half the number of scans that the doctor has to do,” Gibson said. “The [system] is also very fast--50,000 A-scans per second--which is twice the speed of a normal spectral-domain OCT.”

### Layer segmentation

## Layer segmentation

The device can also perform automatic layer segmentation analyses that can assist with early detection of glaucoma: total retina, retinal nerve fiber layer (RNFL), ganglion cell layer (GCL), inner plexiform layer (IPL), and all three combined.

The operation--alignment, focus, and capture--is fully automated, and the system also features a pinpoint registration that indicates the correct location of the OCT image within the fundus image.



The device also has a rotating touch screen control panel, which means that it can be positioned against a wall or in a corner, accessible yet out of the flow of traffic.

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Drs. Francesca and Orazio Giliberti have no relevant financial disclosures.

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“a wow factor,” since many  
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