Fast Trac is the new tracking program that the Cirrus has. What we’re doing in this case is because it registers those blood vessels, during acquisition of the image, it automatically detects any changes in the patient’s movement based off of those blood vessels, and it will re-adapt to that. As the patient’s eyes are moving, the equipment is re-acquiring, making sure that you get that continuous band of information that is there. You should not have any dark zones or be seeing any of these artifacts that happen with patients moving. In the bottom pictures in Figure 1, you can see it eliminates those motion artifacts during the scan, so effectively you are getting the same scan over and over. The equipment actually memorizes the patient’s positioning of their head, chin rest, all the rest of the stuff, but now it actually scans and makes sure that the patient has the same image taken over and over again.

With your five-line raster, make sure that you get the same scan again so that you are looking at exactly the same area through the retina.

We now actually have a combined report as well, where we are combining the Cirrus OCT, your optic nerve and nerve fiber layer printout, in combination with your Humphrey Visual Field. (Fig 2) This is a really nice addition because now we actually have anatomy and function going on here. You can see your objective assessment below with your OCT data of the nerve fiber layer as well as the optic nerve, and your subjective report from your patient’s response to their visual field; a very good combination of objective and subjective results from your patient.

In addition to their arsenal of not only the OCT, they’ve got not only the 600 and the 800 model, but Figure 3 is actually the 4000 unit OCT, so you’re not going to be able to have FastTrac on this one, but it’s now a combined unit that is giving you a camera in addition to an OCT. If you don’t have a lot of room in your practice, this is a great space-saver because you have a combined full-fundus camera unit, plus then your OCT. In addition to that you also get Fundus
Autofluorescence (FAF) with the 600 unit and you can actually add on the Fluorescein Angiography and ICG in the 800 unit.

Figure 2: Combined printout of OCT and Visual Fields

Figure 3: All New Multi-Modality Imager
Model 600: OCT, Non-myd color with FAF option
Model 800: adds fluorescein angiography with IGCA option
Case 1

Let’s deal with some cases. Figure 4 is our first case. A 60 year old white male comes in. He complains of type 2 diabetes for the past four years, as well as hypertension for the past four years. From my recollection, his control of his diabetes is pretty good. He’s had bilateral PK’s done secondary to keratoconus. There is a history of steroid injections for his lower back stenosis for which he needs the steroid injections. He reports that he has increases in IOP above 40 after these injections. We don’t have reports in our office of those IOP spikes, he’s just reporting them to us. The patient’s VA’s are pretty good: 20/25 in the right eye, 20/20 in the left. IOP ranges that we have in our chart range from 20 to 24 in his right eye, and 17 to 20 in his left.

Figure 4 shows the patient’s fundus images looking at his optic nerve. I know this is a little tough to see, looking at these flat images, but if you look at his right eye, you can see that the temporal rim tissue tends to be pretty thin. We call it Temporal Sloping, and in my mind, Temporal Sloping is one of those risk factors for glaucoma. Remembering that glaucoma is not just like a cookie-cutter; it doesn’t just chew out that optic nerve, it gradually eats away that optic nerve. Thus, any time you see this temporal sloping or are having a hard time defining a hard edge to the C/D, to this rim tissue, then I get a little bit suspicious. On top of that, the right C/D is a little bit larger than the one in the left eye. It’s also a little bit more defined on the left eye than on the right.

Figure 6 is a first-time visual field on this patient. In this case, we have good reliability for the most part. There’s some defects on your pattern standard deviation in the right eye.
So here is our first interactive question:

1. Based off of the information you’ve gotten so far, looking at the patient’s current IOP’s, the IOP spikes, optic nerves, and first time visual field, what would you do for this patient?
   a. Return within 1 month for repeat VF
   b. Monitor in 3 months
   c. Monitor in 6 months
   d. Begin Treatment
   e. Unable to determine with current data
The majority of polled doctors went with a. Return within 1 month for repeat VF.

I think I would do the same thing. Ultimately, this is a first-time visual field and we know that patients need to learn how to do visual fields. Thus, I would agree – probably bring them back for a repeat visual field at this point. Some have chosen to say bring them back in 3 months, others in 6. Not a lot of people choosing to treat at this point. So… let’s give you some more information.

When you bring the patient back for another visual field, you are probably going to want to do an OCT scan. We did an OCT scan on that first day, but instead of giving you the OCT, I want you to predict the OCT that goes along with the visual field shown in Figure 7 from the TSNIT curves shown in Figure 8.
Figure 8

(Scroll down to the following page for the correct answer)
The correct answer is number two. In our poll, the majority of docs got this correct the last time I polled this question.

There is actually really good correlation between the OCT and the visual fields. Take a look at the right eye, because that is the one we are really concerned about. (The left eye has a few spots, but I don’t know that we are overly concerned about those spots.) In the right eye, the biggest defect is superior nasal, with a little bit of inferior nasal visual field defect, as well. (See Fig 9) Thus, we are looking for a change in the TSNIT curve superior temporally on the nerve fiber layer, and inferior temporally. We are seeing those changes as well, again with a larger dip here on the inferior temporal corresponding with the larger field defect superior nasal, and a thinning superior-temporal, as well, corresponding with that inferior nasal defect.

Now, with the addition of that OCT data, again this was all done on the first day, does that change your mind on what you would do? If you had this OCT data in addition to the visual field and the optic nerves on that first visit, would you do anything different in this case?

2. Does the information from the OCT change how you would manage this patient?
   a. Return within 1 month for repeat VF
   b. Monitor in 3 months
   c. Monitor in 6 months
   d. Begin Treatment
   e. Unable to determine with current data
In this case, the last time I polled this question, we had a shift to beginning treatment, with the majority starting treatment in both eyes, which I find a little bit interesting. Regardless, we can see that there is a large shift from ‘Repeat the Visual Field in a month’ now that we have some type of objective assessment of what’s going on with the optic nerve and correlating that to the visual field defect, making doctors feel much more comfortable about initiating treatment.

We know that, with glaucoma, we need to sell the treatment to our patients. If patients don’t understand why they are being treated, their compliance and adherence goes straight out the window. Thus, we need to talk to our patients, make sure they understand why they are being treated, and we really need to be a part of that treatment. In this case, we talked to our patient and he wanted to start treatment.

Figure 10 shows our repeat visual field, which we did when we brought the patient back in a month and repeated the visual field. We can still see that there is a significant defect in that right eye.

![Correct Answer: Any Correct: 100% Incorrect: 0% Cumulative: 62.378%](image)

**Figure 10:** Repeat VF at 1 month
So, if you are going to begin treatment, what would you begin treatment with for this patient?

3. What would you begin treatment with for this patient?
   a. Travatan Z qhs
   b. Simbrinza BID
   c. Timoptic BID
   d. Combigan BID
   e. Zioptan qhs

Let’s see what the doctors chose:

The majority of doctors chose Travatan Z, going with a prostaglandin analog, and I agree – I think I would go with that, as well. Timoptic certainly can be used and is inexpensive for our patients, but with the patient having diabetes and hypertension, we might be a little bit more concerned about the cardiovascular effects of our Timoptic. Combigan has Timoptic in it, as well. Zioptan is our preservative-free prostaglandin analog. It comes in single use vials, much like Restasis does. Simbrinza is our latest combination med that is on the market. It is our first combo product that doesn’t have a beta-blocker as a secondary medication, so effectively we have our Alphagan as well as our CAI in it. It’s a really nice addition for a combo product as far as not relying on having that beta blocker, particularly when we are using it two or three times a day. Remember, we really don’t want that beta blocker at night time when patients are going to sleep, potentially lowering their blood pressure again, and having that imbalance between their blood pressure and IOP at night time.
Case 2

Here is our next case. A 60 year old white male comes in, complaining of blurry vision. Interestingly enough, he is currently wearing his sister’s contact lenses. Of course, we always recommend that if you can’t find your glasses or contact lenses, that you borrow your sister’s or another relative’s eyewear...

The patient has depression that is not currently controlled. Ocular history is unremarkable. Good best-corrected vision, 20/20, and other than that all other entrance skills are unremarkable.

The patient has arcus, and his anterior chamber is deep and quiet. We have had two visits with this patient. His first IOP in the right eye was 26 and 23 in his left. The second visit gave us 24 OD and 20 OS. There is some asymmetry in his IOP’s, and there is some asymmetry in his C/D ratio, as well. There is some temporal sloping that we noted in the right eye, with a cup size of 0.75/0.75 in the right, and 0.6/0.6 in the left.

![Figure 11: Patient’s Optic Nerves. Left image: OD, Right image: OS](image)
Figure 11 shows the patient’s optic nerves. I apologize that these are not the best pictures. You can see in the right nerve a little bit of temporal sloping there. It’s a little hard to define for the temporal edge of that C/D ratio. The cup is a little bit more defined in that left eye, but we definitely have a difference between the C/D’s of both eyes.

Figure 12 shows a screening FDT Visual Field, a 30-2 screening field on your FDT.
Figure 13 is the Ganglion Cell Analysis on this patient. Taking a look at Figures 12 and 13, as well as the optic nerves (Figure 11), what would you do for this patient?

4. Based off the available data, what would you do?
   a. Monitor in 1 month
   b. Monitor in 3 months
   c. Monitor in 1 year
   d. Begin treatment right eye
   e. Begin treatment in both eyes
In this case, the majority of doctors polled actually began treatment for this patient in both eyes. Again, a little bit interesting at this point, whether or not we would begin treatment just based off of the Ganglion Cell Analysis, and I don’t know if I would necessarily do that. I think with the GCA we would want to make sure that there is some nerve fiber layer loss, and repeat the visual field. I think I would re-ask them this question after I show them the OCT data. (Fig 14) 

Figure 14: OCT printout
So obviously we did do an OCT in addition to a Ganglion Cell Analysis, and you can definitely see in the right eye that there are some defects not only in the nerve fiber layer, but also in your optic nerve. In this case, the loss of nerve fiber layer really corresponding with the changes in the optic nerve. What we don’t have is a really detailed visual field in this case, and no visual field defects that are noted. If we did a Humphrey Visual Field, we may pick up some defects that are associated with this optic nerve loss and nerve fiber defect. Again, I’m pretty sure I asked question #4 after showing the doctors the data from the nerve fiber layer and the optic nerve, which is why the docs all wanted to begin treatment at this point.

**The presentation continues on Part 3.**