

## Interview - Sensimed also looks through the lens of future healthcare



[Lisa Urquhart](#)

Google might have grabbed the headlines yesterday with its tie-up with Novartis to produce contact lenses to monitor diabetics' blood sugar levels, but it is not alone in this fledgling medical device field.

The Swiss company Sensimed has been working on its proprietary Triggerfish Sensor technology in glaucoma for the past 11 years and could see the project on the market by the end of the year, offering true validation of this novel approach to diagnostic testing. However, speaking to *EP Vantage*, David Bailey, the new chief executive, says the real potential of Triggerfish will be using the device not just to monitor, but to predict disease progression.

### Day and night

At present, glaucoma is monitored through measuring intraocular pressure (IOP) using Goldmann Applanation Tonometry, an old technology that only provides snapshots of IOP at any given moment and requires the patient to be monitored during office hours by an ophthalmologist. If a 24 hour profile of IOP is required patients have to stay overnight in a hospital or sleep lab.

In contrast, Sensimed's technology, like Google's, uses soft contact lenses with built-in micro sensors, and is able to record the changes in circumference of the corneoscleral area, and hence the changes in the pressure.

The information recorded by the lens is wirelessly transmitted to an adhesive patch around the eye that acts as an antenna. The data are captured by the patch, downloaded through a cable to a portable reader, and then sent to the ophthalmologist's computer.



The group has so far eschewed the use of glasses as a receiver, like Google, in favour of the patch because this allows 24-hour monitoring of the eye as it can be worn during sleep. "There is a widespread belief that measurement of the eye during sleep has particular utility," Mr Bailey says.

### Data collection

To date the Triggerfish system, which records dimensional changes in the eye for 30 seconds at five-minute intervals over a 24-hour period, has been used on 3,000-4,000 patients. It has also shown that the data curves generated for individual patients appear to be unique. Additionally, the sensor can even differentiate between when patients are awake, sat upright or lying down, and show the impact of treatment on the eye.

Last month, the privately held group filed a 510K in the US and given the average six-month clearance time could be on the market by the end of the year.

It might be assumed that ophthalmologists and surgeons would welcome this highly personalised information

about the eyes of glaucoma patients, and Mr Bailey describes the clinicians who have already used the technology as “completely receptive and intrigued”.

But what Triggerfish measures is not IOP, and to secure widespread adoption – if the product is approved – will come down to what Mr Bailey calls not an education but an “understanding programme” to make clinicians aware of the full potential of Triggerfish.

### **Hidden potential**

Understanding the full potential of the product means that ophthalmologists will have to look beyond the device’s ability to measure and monitor changes in the dimension of the eye and instead focus on the clinical utility of the data. “It’s now about using the biomechanical measurements we can capture to improve the progress of the disease.”

This will be down to finding ways to use the thousands of data curves and more importantly, the accompanying patient metadata the clinical trials of Triggerfish has generated. “We will work with doctors to get as much specific metadata and curves and build on that into a database where we will be able to model it to assist in treatment decisions. We will be to see what surgical interventions are more effective and if the timing of these could make treatment more or less effective.”

What Sensimed is offering could certainly change the treatment dynamic for glaucoma, allowing for highly personalised treatment programmes for patients and effective monitoring of the success of those treatments.

### **Paradigm shift**

But the group faces a big task in changing the existing treatment habits of clinicians who are known for their conservatism. What might ultimately help Sensimed, which has so far been supported by VCs to the tune of SFr40m, is a large pharma or medtech partner, something that Mr Bailey says he could consider.

The news from Google yesterday, and pharma’s paranoia about being left behind, might see new interest in Sensimed, but Mr Bailey is also happy to plough on alone in his quest to build a recognised data profile for Triggerfish.

“Over time what we are measuring has the potential to be like ECGs. When ECGs first came out no one understood what they were or how to use them. Now they are used to manage patient outcomes. Ultimately what we want to do is improve the management of glaucoma patients using this technology.”

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