

Why We Added the NGENUITY® System to Our Surgery Center

By enhancing the surgeon's view, Alcon's 3D Visualization System positively impacts patient care

Wolfe Eye Clinic has been serving patients in Iowa for 99 years, maintaining through the decades its commitment to providing high-quality, technology-driven care. "We've always been involved in innovation — implementing and advancing the newest technology to improve the care of our patients," says **Jared S. Nielsen, MD, MS, MBA**, a vitreoretinal surgeon with Wolfe Surgery Center and Wolfe Eye Clinic, which has multiple locations throughout Iowa. "When I saw the performance of the NGENUITY® 3D Visualization System during my demo in our OR, it became clear to me that this is good for patients, and we elected to purchase it for our surgery center."

MUCH MORE THAN COOL

When other surgeons learn Dr. Nielsen is using the NGENUITY® 3D Visualization System, they want to hear about it. "I get the sense that some see the technology as interesting and fun, maybe a cool marketing tool, but without first-hand experience, they aren't sure how it can enhance their practice," he says. "I tell them NGENUITY® has been helpful in marketing to referring doctors, but for me, the main benefit is better patient care. The system improves my abilities in the OR. I use a very good, state-of-the-art surgical microscope, but adding the NGENUITY® with its digital visualization, enhanced stereopsis, and high magnification is amazing. Surgery is all about visualization. The better you can see what you're doing, the better you're able to precisely address pathology and perform at a higher level."

Compared to traditional analog microscopes, NGENUITY® delivers up to 48% greater magnification, up to 5 times extended depth of field, and up to 42% finer depth resolution.¹ In addition, Dr. Nielsen notes, "There's

a potential safety advantage with the NGENUITY® 3D Visualization System because electronic amplification of the camera's signal creates a brighter image on the display,² allowing me to operate using less light than I had in the past. I use 27-gauge instrumentation, and I've cut my light pipe intensity by 60% and my chandelier intensity by 30%."

Dr. Nielsen is as pleased with the ergonomics of the NGENUITY® 3D Visualization System as he is with the view it provides. Rather than looking through the microscope eye-piece, the surgeon sees the surgical field in 3D on the nearby high-definition screen. "Using a traditional microscope — even with great technology, a great chair, and a great adjustable bed — the fact of the matter is you have to hold your eyes in a very specific spot. With a whole day of cases, that's quite strenuous. He continues, "I worked with an ergonomics specialist early in my career to learn to sit properly to avoid strain, but I can still feel it in my back and neck at the end of a busy day. After we got our NGENUITY® system setup optimized, I really began to appreciate how much I enjoy not having to retain that fixed posture because of the microscope demands." Working with others in the OR, such as fellows, is easier, too. Dr. Nielsen says, "It's amazing how well we can all see."

NEW SOFTWARE INTEGRATES AND STREAMLINES

The DATAFUSION (1.2) software integrates the CONSTELLATION® Vision System and the NGENUITY® 3D Visualization System, allowing surgeons to track key surgical parameters — such as intraocular pressure, flow rates, infusion pressure, and laser power — in real-time on one screen. Data from the CONSTELLATION® can be displayed on the 16:9 aspect ratio NGENUITY® screen in

the four corners that aren't occupied by the circular image of the eye.

Other upgrades for improved functionality, procedure flow, and surgeon control include the addition of four preset imaging modes, two footswitch control options, advanced 2D or 3D video capture, and enhancement of the user interface to enable a streamlined white balancing process.

VERSATILITY = VALUE

Dr. Nielsen began using the NGENUITY® 3D Visualization System for macular cases only, but now uses it exclusively

in all of his macular and vitreoretinal surgeries. "I also do anterior segment cases from time to time and have used the NGENUITY® 3D Visualization System to perform cataract surgery and IOL exchanges," he says. "I'm comfortable using the system in every situation in the operating room."

References

1. Alcon, data on file, December 2017.
2. Eckardt C, Paulo EB. Heads-up surgery for vitreoretinal procedures: an experimental and clinical study. *Retina*. 2016;36(1):137-147.

Dr. Nielsen has received compensation from Alcon for this article.

CONSTELLATION® SYSTEM WITH PUREPOINT® LASER BRIEF STATEMENT

CAUTION: Federal law restricts this device to sale by, or on the order of, a physician.

INDICATIONS FOR USE: The CONSTELLATION® Vision System is an ophthalmic microsurgical system that is indicated for both anterior segment (i.e., phacoemulsification and removal of cataracts) and posterior segment (i.e., vitreoretinal) ophthalmic surgery.

The ULTRAVIT® Vitrectomy Probe is indicated for vitreous cutting and aspiration, membrane cutting and aspiration, dissection of tissue and lens removal. The valved entry system is indicated for scleral incision, canulae for posterior instrument access and venting of valved cannulae. The infusion cannula is indicated for posterior segment infusion of liquid or gas.

The PUREPOINT® Laser is indicated for use in photocoagulation of both anterior and posterior segments of the eye including:

- Retinal photocoagulation, panretinal photocoagulation and intravitreal endophotocoagulation of vascular and structural abnormalities of the retina and choroid including: Proliferative and nonproliferative retinopathy (including diabetic); choroidal neovascularization secondary to age-related macular degeneration; retinal tears and detachments; macular edema, retinopathy of prematurity; choroidal neovascularization; leaking microaneurysms.
- Iridotomy/Iridectomy for treatment of chronic/primary open angle glaucoma, acute angle closure glaucoma and refractory glaucoma.
- Trabeculoplasty for treatment of chronic/primary open angle glaucoma and refractory glaucoma.
- And other laser treatments including: internal sclerostomy; lattice degeneration; central and branch retinal vein occlusion; suturelysis; vascular and pigment skin lesions.

The FlexTip® laser probe is intended to be used with ALCON® 532nm laser systems.

CONTRAINDICATIONS:

- Patients with a condition that prevents visualization of target tissue (cloudy cornea, or extreme haze of the aqueous humor of the anterior chamber of vitreous humor) are poor candidates for LIO delivered laser treatments.
- The infusion cannula is contraindicated for use of oil infusion.

IMPORTANT PRODUCT INFORMATION FOR NGENUITY® 3D VISUALIZATION SYSTEM FOR THE DIGITALLY ASSISTED VITREORETINAL SURGERY PLATFORM

IMPORTANT PRODUCT INFORMATION

CAUTION: Federal (USA) law restricts this device to sale by, or on the order of, a physician.

INDICATION: The NGENUITY® 3D Visualization System consists of a 3D stereoscopic, high-definition digital video camera and workstation to provide magnified stereoscopic images of objects during micro-surgery. It acts as an adjunct to the surgical microscope during surgery displaying real-time images or images from recordings.

WARNINGS: The system is not suitable for use in the presence of flammable

COMPLICATIONS: Corneal burns, inflammation, loss of best-corrected visual acuity, loss of visual field and transient elevations in intraocular pressure can occur as a result of ophthalmic laser treatment. Unintentional retinal burns can occur if excessive treatment beam power or duration is used.

WARNINGS AND PRECAUTIONS:

- The disposables used in conjunction with ALCON® instrument products constitute a complete surgical system. Use of disposables and handpieces other than those manufactured by Alcon may affect system performance and create potential hazards.
- Attach only Alcon supplied consumables to console and cassette luer fittings. Do not connect consumables to the patient's intravenous connections.
- Mismatch of consumable components and use of settings not specifically adjusted for a particular combination of consumable components may create a patient hazard.
- Vitreous traction has been known to create retinal tears and retinal detachments.
- The closed loop system of the CONSTELLATION® Vision System that adjusts IOP cannot replace the standard
- of care in judging IOP intraoperatively. If the surgeon believes that the IOP is not responding to the system settings and is dangerously high or low, this may represent a system failure. **NOTE:** To ensure proper IOP Compensation calibration, place infusion tubing and infusion cannula on a sterile draped tray at mid-cassette level during the priming cycle.
- Leaking sclerotomy may lead to post operative hypotony.
- Back scattered radiation is of low intensity and is not harmful when viewed through a protective filter. All personnel in the treatment room must wear protective eyewear, OD4 or above at 532nm, when the system is in Standby/Ready mode as well as during treatment. The doctor protection filter is an OD greater than 4 at 532nm.

ATTENTION: Please refer to the CONSTELLATION® Vision System Operators Manual for a complete listing of indications, warnings, and precautions.

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anesthetics mixture with air or oxygen. There are no known contraindications for use of this device.

PRECAUTIONS: Do not touch any system component and the patient at the same time during a procedure to prevent electric shock. When operating in 3D, to ensure optimal image quality, use only approved passive-polarized glasses. Use of polarized prescription glasses will cause the 3D effect to be distorted. In case of emergency, keep the microscope oculars and mounting accessories in the cart top drawer. If there are any concerns regarding the continued safe use of the NGENUITY® 3D Visualization System, consider returning to using the microscope oculars.

ATTENTION: Refer to the User Manual for a complete list of appropriate uses, warnings and precautions.