

EXPERIENCE EXTRAORDINARY WITH **UNITY VITREORETINAL CATARACT SYSTEM***

A roundtable of world-class cataract surgeons discuss how the innovations packaged in UNITY VCS|CS have changed their ORs for the better.



PARTICIPANTS



MODERATOR
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INTRODUCTION

The introduction of the UNITY Vitreoretinal Cataract System and Cataract System (VCS|CS; Alcon) represents a new era of surgery. UNITY VCS|CS is the only platform that marries Alcon's world-class vitreoretinal platform with Alcon's cutting-edge cataract surgery technology, thereby creating a versatile, integrated system for the modern OR. With UNITY VCS|CS, surgeons can expect capability to work at more/near physiologic IOP,¹ more efficient lens removal,^{2,*†‡} and improved OR turn-over time compared to the CONSTELLATION Vision System (Alcon).^{3,†§,¶,***††} This efficiency improvement is due to shorter set-up and tear-down times.³ Cataract surgeons in particular should also expect to experience less surge during phacoemulsification compared to the CENTURION Vision System (Alcon).⁴ The arrival of UNITY VCS|CS brings improved experiences for patients, surgeons, and staff powered by world-class engineering.

To learn more about the experiences of leading anterior segment surgeons who have used UNITY VCS|CS, I sat down with four of my colleagues at a recent meeting. Our wide-ranging conversation is produced here, edited for brevity and clarity. Select questions from the audience and answers from our panel, scattered throughout this piece, illustrate the conversational dynamic between the roundtable and the audience.

—Kerry D. Solomon, MD (Moderator)

Kerry D. Solomon, MD: UNITY VCS|CS is not a single innovation. Rather, it is a series of innovations packaged in a single platform. Importantly, engineering concepts that on some platforms were similar but distinct—for example, fluidics technology—are now combined in a single, streamlined technology.

Nicole Fram, MD: When presented with a new surgical technology, many surgeons simply say that their current set-up is safe and effective—which is almost certainly true. Still, I would encourage surgeons to accept that they may not know what they're missing until they try a new platform. I didn't quite understand how much new fluidics and 4D Phaco handpiece could enhance the dynamics of surgery, until I tried UNITY VCS|CS for myself.

CONFIDENCE IN STABILITY: UNITY INTELLIGENT FLUIDICS

Dr. Solomon: Let's turn to UNITY Intelligent Fluidics, a novel feature of the platform, to better understand how this innovation has real-world consequences (Figure 1). Dr. Samuelson, why should cataract surgeons be concerned about fluidics and IOP during surgery?

Thomas Samuelson, MD: It has been established in the literature that higher IOP during cataract surgery may cause greater inflammation in the anterior segment, as shown by the presence of flare on postoperative day 1.⁵ By leveraging UNITY Intelligent Fluidics, surgeons can maintain accurate IOP control during cataract surgery, which is essential to maintaining anterior chamber stability.^{4,6-8} Lack of adequate IOP control during vitrectomy may impact visual recovery or result in some intraoperative and/or postoperative complications.⁹

UNITY® Intelligent Fluidics enables efficiency with more physiologic surgical conditions



Intelligent IOP

Dynamic pressure sensing sustains chamber stability at a more physiologic IOP



Intelligent Aspiration

Smart pump acceleration boosting vacuum to facilitate efficiency



Intelligent Sentry

Alcon's best-in-class surge mitigation with integrated pressure sensor and proprietary dual venting

Figure 1. Features of the Intelligent Fluidics on UNITY VCS|CS.

Dr. Solomon: Dr. Fram, you mentioned patient comfort. Can you expand on that?

Dr. Fram: My patients' comfort on UNITY VCS|CS shines in complex cases.^{1,5,10,11} Because the high-performance dual-pump system behind UNITY Intelligent Fluidics delivers real-time sensing and independent, precise control of IOP, infusion flow, and aspiration flow, I can confidently control these variables during surgery in complex patients, where such control is paramount to success.

Subjectively, in my clinic, I have noticed that patients with complex cases report less corneal edema, less endothelial cell loss, and lower levels of anterior segment inflammation after surgery with near physiological IOP compared with patients who undergo surgery at higher IOPs; this observation matches what others have seen in the literature.^{1,5,10,11} I suspect this is in large part due to reduced postoperative inflammation linked with greater control of fluidics.

Neda Shamie, MD: Patient comfort will be key if, indeed, our field moves toward office-based surgery. For the present moment, however, we must remember that more physiologic IOP ensures patient comfort and less corneal edema without compromising efficiency.¹² With clear corneas come not only physical comfort but also a "wow" effect that enhances the patient experience.

Surgeons have tried for years to operate at the lowest possible IOP, but often found that chamber stability was compromised. Now, with UNITY Intelligent Fluidics, I can operate with confidence that the anterior chamber will remain stable.

CONFIDENCE IN INSTRUMENTATION: UNITY 4D PHACO

Dr. Solomon: Efficiency during phacoemulsification is key to maximizing the potential of a cataract surgeon's OR. The introduction of 4D Phaco technology on UNITY VCS|CS represents a major step forward in this regard.

John Berdahl, MD: UNITY 4D Phaco is a proprietary ultrasound technology that uses advanced multi-directional tip movement to create a repeatable volumetric cutting pattern that is completed in 0.1 seconds. Bench data have revealed that this results in nucleus removal up to 48% faster than OZil Torsional Phaco (Alcon), and releases 41% less energy into the eye^{*,†,§,§} and 48% less dissipated energy at the incision site (Figure 2).²

Dr. Shamie: I was pleasantly surprised not just at how tightly the nuclear pieces were controlled at the tip of the 4D Phaco (there were few to no lens fragments breaking off and getting caught in the angles), but also was impressed by how quickly the fragments were emulsified by the 4D Phaco tip. It was as if they just melted away. The followability was fantastic.

Dr. Solomon: Speaking of the Phaco tip, it is easy to overlook the polymer material at the end of the probe. Alcon calls this the hybrid tip. What should our colleagues know about this polymer tip?

UNITY® 4D Phaco HP delivers 2x faster nucleus removal than OZil® with ~41% less energy*^{†,‡,§§}



4D Phaco

Breakthrough volumetric ultrasound motion



Thermal Sentry

Real-time temperature sensing and power modulation



Figure 2. Features of the UNITY 4D Phaco.²

Dr. Shامية: The polymer tip offers an advantage over a conventional metal irrigation and aspiration tip. A polymer tip is not as sharp, so if you inadvertently touch the capsule during surgery while not performing phacoemulsification, then the likelihood that you puncture the capsule is lower.

Dr. Berdahl: When I saw that the UNITY Handpiece came with a polymer tip, I was at first discouraged. My previous experience with polymer tips was underwhelming, as I felt that they were inefficient. However, I quickly found myself falling in love with the polymer tip, as it was, in my hands, as efficient as the instruments I used during my days leveraging the power of torsional phacoemulsification.

Dr. Fram: We should point out that 4D Phaco technology and the aforementioned UNITY Intelligent Fluidics system speak to each other via the UNITY Phaco Handpiece (Alcon). This marriage, called Intelligent Sentry, provides efficient surge mitigation using a proprietary dual vent valve and a pressure sensor in the handpiece.¹³ Stopping surge is key to successful, safe surgery, and any technology that lessens the risk of surge will be welcomed by surgeons and patients.

CONFIDENCE IN STAFF SATISFACTION: EMPLOYEE BUY-IN, SETUP, AND TEARDOWN

Dr. Solomon: No change to the surgical routine can be successful without buy-in from staff. How have your respective staff members responded to UNITY VCS|CS?

Dr. Fram: Leadership and my staff love the short set-up time UNITY VCS|CS requires. My staff experience significantly faster set

up and breakdown time when compared to our current system.³ Data show that setup and teardown time for UNITY VCS is significantly faster (25%),^{3,§,†,‡} but I always like to rely on the feedback from my staff to determine just how much that matters.

It turns out, it matters a lot—and my staff has noticed the quick setup time. To see my lead surgical staff member smiling when I walk into the OR with a simple salutation of “I’m ready” speaks to my staff’s relationship with UNITY VCS|CS. This has also led to more efficient OR turnover.

Dr. Berdahl: A system that is easy to set up and tear down can be the foundation for a team-friendly workplace. Practices struggle with employee retention, which leads to inefficiencies when hiring and training must be prioritized. Even small innovations—for example, the one-step prime or wheel casters that prevent cord tangles—lead to big differences in the quality of work.

Dr. Shامية: Various little time-savers present themselves when you operate on UNITY VCS|CS. We already discussed the increased efficiency of nucleus removal during surgery, and if that saves even a minute, that may be a significant reduction in a busy day with a big lineup of cases.² The one-step prime allows staff to set the tray while the machine primes, which might save more time. Turnover time is down, meaning that I can move into a prepared OR as soon as I’m done with a case, eliminating the downtime between cases that serves no purpose. Those seconds and minutes add up to hours saved in a busy surgical day. For us surgeons, that may mean we can see more patients in a day or that we can get time back to dedicate to other areas of our practice. ■

*Based on bench data

† 66 cadaver porcine eyes (33 Tors, 33 4D) and 64 artificial lenses (32 Tors, 32 4D)

‡ (P<0.001)

§ Compared to Constellation Vision System

†† For posterior segment surgeries/posterior cassette pack

~1.5 minutes faster

‡‡ Trademarks are the property of their respective owners.

§§ Based on N=10 HPS, Artificial cataract lens IOP 55mmHg vacuum of 450 mmHg

1. Alcon Data on File 2024, REF-24899

2. Alcon Data on File 2024, REF-24379

3. Alcon Data on File, 2024, REF-25374

4. Alcon Data on File 2024, REF-25562

5. Vasavada V, et al. Real-time dynamic intraocular pressure fluctuations during microaxial phacoemulsification using different aspiration flow rates and their impact on early postoperative outcomes: a randomized clinical trial. *J Refract Surg.* 2014;30(8):534-540.

6. Suzuki H, Igarashi T, Takahashi H. Effect of a new phacoemulsification and aspiration handpiece on anterior chamber stability. *J Cataract Refract Surg.* 2023;49(1):91-96.

7. Vasavada V, Agrawal D, Vasavada SA, Vasavada AR, Vagnik J. Intraoperative performance and early postoperative outcomes following phacoemulsification with three fluidic systems: A randomized trial. *J Refract Surg.* 2024;40(5):e304-e312.

8. Nicoli CM, Dimalanta R, Miller KM. Experimental anterior chamber maintenance in active versus passive phacoemulsification fluidics systems. *J Cataract Refract Surg.* 2016;42(1):157-162.

9. Sugiura Y, Okamoto F, Okamoto Y, Hiraoka T, Oshika T. Intraocular pressure fluctuations during microincision vitrectomy with Constellation Vision System. *Am J Ophthalmol.* 2013;156(5):941-947.

10. Suzuki H, et al. Effect of bottle height on the corneal endothelium during phacoemulsification. *Journal of Cataract & Refractive Surgery.* 2009;35(11):2014-2017.

11. Kokubun T, et al. The protective effect of normal-IOP cataract surgery on the corneal endothelium. Presentation.

12. Vasavada AR, et al. Impact of high and low aspiration parameters on postoperative outcomes of phacoemulsification: randomized clinical trial. *Journal of Cataract & Refractive Surgery.* 2010;36(4):588-593.3.

13. Unity Phaco Handpiece. Directions for Use.



Q: How are patients in your clinic responding to phacoemulsification surgery with UNITY VCS|CS? And what do corneas look like on postoperative day 1?

Neda Shamie, MD: In a small series of patients in my clinic, I performed cataract surgery in one eye with UNITY VCS|CS with Phaco 4D, and I performed cataract surgery in the contralateral eye with the CENTURION Vision System with ACTIVE SENTRY instrumentation. Differences in the central cornea were negligible.



Q: Can I use the UNITY Phaco Handpiece with 4D Phaco but without the THERMAL SENTRY?

Nicole Fram, MD: In short, yes. The THERMAL SENTRY on the UNITY Phaco Handpiece enables temperature detection in order to limit the potential for wound burns. (Even though wound burns don't happen often, the feature is a useful guard against such accidents.) If you don't want to include the thermal sensor on your handpiece, you can still realize the benefits of 4D Phaco technology. Your current ACTIVE SENTRY Handpiece is forward compatible with UNITY VCS|CS and will allow you to take advantage of 4D Phaco. However, THERMAL SENTRY is only available on the UNITY Phaco handpiece.



Q: When operating on patients with small pupil, have you noticed any advantages to using UNITY VCS|CS? And does the hybrid tip on the 4D Phaco instrument offer an advantage in general to small pupil patients?

John Berdhal, MD: I'll answer the second question first. The hybrid tip on the 4D Phaco Instrument gives me more confidence that I can perform the surgery I want to perform, as it is far more forgiving to an inadvertent bounce of the capsule or an errant movement, which can be common in small pupil cases.

In the cases involving small pupils, we often find that the pupil gets smaller as the case goes longer. In these instances, speed is your friend. Given the efficiency of UNITY VCS|CS and 4D Phaco, the answer to the question is yes, patients with small pupils may realize surgical benefits with UNITY VCS|CS.

UNITY® VCS and CS Important Product Information

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

Indications / Intended Use:

UNITY VCS:

The UNITY VCS console, when used with compatible devices, is indicated for use during anterior segment (i.e. phacoemulsification and removal of cataracts) and posterior segment (i.e. vitreoretinal) ophthalmic surgery.

In addition, with the optional laser this system is indicated for photocoagulation (i.e. vitreoretinal and macular pathologies), iridotomy and trabeculoplasty procedures.

UNITY CS:

The UNITY CS console, when used with compatible devices, is indicated for use during anterior segment (i.e. phacoemulsification and removal of cataracts) ophthalmic surgery.

Warnings:

Appropriate use of UNITY VCS and CS parameters and accessories is important for successful procedures. The console supports various accessories to perform various surgical procedures. Accessories include handpieces and probes, as well as tips and sleeves when necessary. Different accessories are required for different procedures and operating modes.

Test for adequate irrigation and aspiration flow, reflux, and operation of each accessory prior to entering the eye.

The consumables used in conjunction with ALCON® instrument products constitute a complete surgical system. To avoid the risk of a patient hazard, do not mismatch consumable components or use settings not specifically adjusted for particular consumable component combinations.

AEs/Complications:

Inadvertent activation of functions that are intended for priming or tuning accessories while the accessory is in the eye can create a hazardous situation that could result in patient injury. During any ultrasonic procedure, metal particles may result from inadvertent touching of the ultrasonic tip with a second instrument. Another potential source of metal particles resulting from any ultrasonic handpiece may be the result of ultrasonic energy causing micro abrasion of the ultrasonic tip.

ATTENTION:

Refer to the Directions for Use for the accessories/consumables and User Manual for a complete listing of indications, warnings, cautions and notes.