

REAL-WORLD PERFORMANCE & CLINICAL FEEDBACK

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Clinical White Paper based on Real-World clinical feedback: Hausted ESC2 in a High-Volume Ophthalmology Environment

Clinical Environment Overview

Facility: Eye Guys of Augusta (Georgia)

Specialty: Ophthalmology

ESC2 Units in Use: 10

Daily Case Volume: 30–40 procedures

Patient Throughput: ~45 minutes per patient

This environment represents a **high-efficiency procedural model**, where equipment performance directly impacts workflow, staff fatigue, and patient experience.

Executive Summary

This Clinical White Paper presents real-world clinical performance insights and design feedback on the Hausted ESC2 procedure chair, based on direct engagement with Eye Guys of Augusta, Georgia, a high-volume ophthalmology practice completing 30–40 procedures daily with rapid patient turnover.

While the ESC2 demonstrates strong performance in critical areas such as patient

comfort, positioning, and workflow integration, feedback from clinical users highlights several opportunities for improvement—particularly in usability and maneuverability.

These findings provide actionable directions for future product refinement and reinforce the importance of incorporating frontline clinical input into product development.

Introduction

In high-volume ophthalmology settings, efficiency and precision must work together. Equipment used in these environments must support:

- High patient throughput
- Reliable performance under continuous use

- Ease of operation for clinical staff
- Consistent patient safety and comfort

This paper evaluates the Hausted ESC2 within a demanding clinical setting, examining both its performance strengths and areas of opportunity through firsthand feedback from clinical users. The goal is to provide practical insights that inform future product development while reflecting real-world workflow demand

Performance Strengths

1. Patient Comfort and Support

Clinical feedback confirms that the ESC2 delivers consistent patient comfort, even under high utilization conditions.

- No reported concerns with cushion design or support
- Sectioned cushioning performs effectively without compromising patient stability

Implication:

The current cushioning system meets clinical

expectations and should be maintained as a core strength.

Advanced Cushioning Technology: Proprietary Gel Core Design

A key contributor to the ESC2's consistent patient comfort is its integrated Dura-Gel™ insert, developed and manufactured in-house by Graham-Field.

This cushioning system utilizes a proprietary non-aqueous viscoelastic gel core, specifically designed to deliver stable, consistent support in clinical environments.

Unlike traditional cushioning approaches, this design avoids:

- Free-flowing liquid systems, which can shift under pressure and create instability
- Gel bead constructions, which may result in uneven pressure distribution over time

Instead, the viscoelastic gel core provides:

- Even pressure distribution, supporting patient comfort during procedures
- Shape retention under load, maintaining consistent positioning
- Reduced migration, ensuring stability throughout repeated use cycles

In high-volume environments such as Eye Guys of Augusta—where 30–40 procedures are performed daily—this design contributes to reliable, repeatable patient support without degradation in performance.

Importantly, clinical feedback from this site confirmed no reported concerns with cushion comfort or support, reinforcing the effectiveness of this approach even under continuous use.

Liquid system Gel Bead System Dura-Gel™

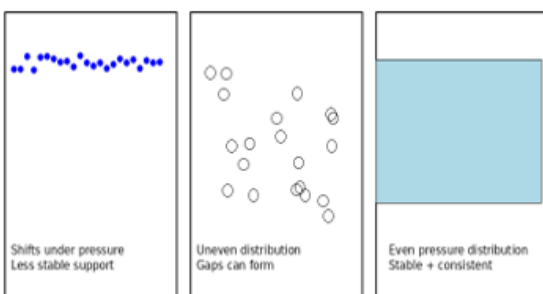


Figure 1. Comparison of cushioning systems used in clinical seating: liquid systems (prone to shifting), gel bead systems (potential for uneven distribution), and proprietary viscoelastic gel core (stable and consistent support).

The diagram illustrates key differences between common cushioning approaches used in clinical seating. Liquid-filled systems can shift under pressure, reducing stability during procedures. Gel bead systems may create inconsistent support due to bead migration and gap formation. In contrast, the proprietary non-aqueous viscoelastic gel core used in the ESC2 maintains consistent shape and pressure distribution, supporting both patient comfort and positional stability in high-volume clinical environments.

2. Clinical Positioning Capabilities

The ESC2 enables accurate patient positioning, an essential requirement for ophthalmic procedures.

- Headpiece adjustment meets positioning needs
- Supports procedural precision and clinician confidence
- Slower with knob system than lever system

Clinical Observation:

While level-based systems may allow for faster adjustments, the Hausted knob-controlled headpiece is designed to provide infinite positioning with continuous structural support. This allows OR staff to make micro-adjustments during procedures without needing to pause or manually support the patient's head.

3. Patient Accommodation

The unit supports a range of patient needs:

- Adequate width and stability
- Reliable weight capacity (600 lbs)

Key Challenges and Improvement Opportunities

To better visualize user feedback from Eye Guys of Augusta, observations were categorized into performance strengths and improvement opportunities.

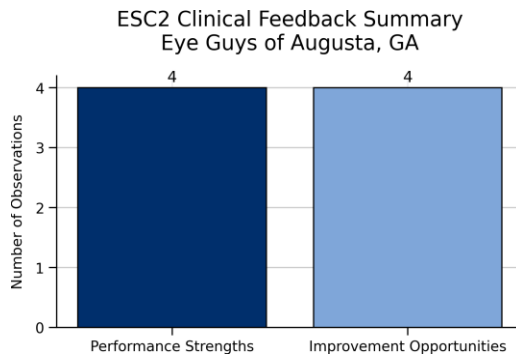


Figure 2. Summary of clinical observations from Eye Clinic in GA, highlighting the relative concentration of performance strengths and improvement opportunities identified during evaluation of the ESC2.

1. Weight and Maneuverability

Feedback indicates the ESC2 may be perceived as heavy, which can influence initial maneuverability.

- Movement initiation reflects the chair's robust construction

Design Strength and Clinical Value

The ESC2's robust construction supports an increased weight capacity—up to 100 lbs more than comparable models—providing enhanced stability and safety across a broader patient population.

- Designed to support higher weight capacity with confidence
- Reinforced frame construction contributes to long-term durability and clinical safety

Clinical Consideration

The ESC2's solid build reflects its focus on structural integrity and controlled movement. While this enhanced stability may require more deliberate initiation of movement, it helps reduce unintended motion during positioning and

procedures, supporting clinician control and patient safety.

Ongoing evaluation of mechanical assist and handling features ensures that mobility and maneuverability continue to improve without compromising the chair's strength, weight capacity, or procedural stability.

2. Ease of Use and System Complexity

Feedback indicates the ESC2 may be perceived as complex for routine clinical use, particularly in high-volume environments:

- Multiple control functions
- Increased learning curve for new users
- Perception of slower operation in fast-paced clinical settings

Design Intent and Clinical Context

The ESC2 was designed to support advanced procedural workflows, incorporating a large-screen hand pendant with enhanced functionality to meet diverse clinical needs.

Features include:

- **Large, easy-to-read display** for clear visibility
- **Memory buttons and programmable presets** to support repeatable positioning
- **Lockout functionality** to enhance safety and prevent unintended adjustments

At the time of its introduction, this pendant represented one of the most advanced control systems available, prioritizing precision, repeatability, and safety over simplified operation.

Operational Perspective and Continuous Improvement

While this level of functionality can introduce a learning curve, it also enables greater procedural control and consistency once staff are familiar with the system. To further support ease of use and faster adoption, Hausted is rolling out a simplified, single-hand pendant system designed to:

- Reduce perceived complexity
- Improve usability in fast-paced environments
- Shorten the learning curve for new users

Ongoing training and education for both current and new staff remains a critical component to ensure clinicians can fully leverage system

capabilities while maintaining efficient and confident operation.

Customer Partnership and Future Opportunity

Strategic Development Insights

Evaluation of the ESC2 within a high-volume ophthalmic environment highlights several key design priorities that can guide future product refinement while preserving the system's core strengths:

1. **Prioritize Simplicity**
High-throughput clinical environments benefit from intuitive, streamlined controls that reduce cognitive load and support rapid adoption.
2. **Improve Mobility Systems**
Feedback consistently identified caster and mobility performance as the highest-impact opportunity for improvement, with the potential to significantly enhance workflow efficiency.
3. **Reduce Physical Burden on Staff**
Enhancing maneuverability may help reduce staff fatigue, support safer handling, and improve overall operational efficiency in fast-paced procedural settings.
4. **Retain Proven Design Elements**
Several ESC2 features were identified as essential and should be preserved as part of any future evolution:
 - Infinite head and neck positioning capability
 - Cushioning system with proprietary visco-elastic gel core
 - Core structural stability and load-bearing integrity

Clinical Partnership Opportunity

The Eye Guys of Augusta clinic expressed strong interest in continued collaboration with Hausted, indicating a willingness to support ongoing product development efforts.

Specifically, the site is:

- Open to providing ongoing clinical feedback
- Willing to evaluate and trial future prototypes
- Actively considering a future replacement cycle, contingent on targeted improvements aligned with operational needs

Strategic Implication

This account represents both:

- A **development partner**, offering real-world clinical insight from a demanding procedural environment
- A **future revenue opportunity**, directly linked to product evolution informed by frontline user experience

By incorporating structured clinical feedback into the product development lifecycle, Hausted can strengthen customer relationships, enhance product performance, and reinforce its commitment to solutions designed around real clinical workflows.

Clinical Feedback Summary

To support clarity and analysis, feedback from Eye Guys of Augusta was categorized into performance strengths and improvement opportunities, providing a balanced view of ESC2 performance in daily use.

This structured approach enables targeted refinement while preserving the features that clinicians value most, ensuring future iterations continue to meet the demands of high-volume ophthalmic practices.

Conclusion

The Hausted ESC2 demonstrated strong performance in high-volume ophthalmic environments, particularly with respect to patient comfort, positioning precision, and workflow integration when configured to align with clinical preferences. Customer feedback consistently identified these characteristics as important contributors to overall user experience.

At the same time, this case study identified several recurring opportunities for product refinement, including caster performance and

reliability, system simplification, maneuverability, perceived weight, and additional user-centered design improvements informed by clinical workflow.

Taken together, these findings illustrate the value of systematically analyzing customer experience data to identify both product strengths and opportunities for continuous improvement. By preserving the ESC2's established clinical advantages while addressing recurring user feedback, Hausted can further enhance clinician satisfaction, strengthen its competitive position, and support long-term customer partnerships in high-performance procedural environments.