

Smart Contact Lenses: Is Optometry Data-Ready?

Optometrist perspectives on smart contact lenses, continuous data, drug delivery, corneal safety, reimbursement and clinical ownership.

Optometrists · 3 countries · Global peer perspectives

19

Complete responses

23

Survey records

3

Countries represented

82.6%

Completion rate

THE PEER QUESTION

When a contact lens becomes a data stream, who has time to monitor it?

Drug-eluting contact lenses are already a regulatory reality in a limited indication, while investigational smart lenses are being studied for continuous intraocular-pressure monitoring and feedback-guided therapy. The technology trajectory is moving from passive correction toward sensing and treatment. The MDForLives optometry responses suggest adoption will depend less on novelty alone and more on workflow ownership, corneal safety, clinical credibility and reimbursement.

FDA approved a ketotifen drug-eluting daily disposable contact lens in 2022, while current U.S. clinical research is evaluating sensor-enabled soft contact lenses for extended IOP monitoring in glaucoma care. These emerging devices remain indication-specific and require established contact-lens safety principles.

Coverage: United States, Canada, Italy. Findings describe the opinions and reported practice or operating patterns of participating respondents. Question-level response bases vary because not every survey record answered every item.

EXECUTIVE SUMMARY

The pattern in one view

The pattern is cautious curiosity. Optometrists are already thinking past the hardware: who monitors the data, what findings are actionable, how corneal safety is protected and who pays for the time. That is the real transition from wearable novelty to clinical infrastructure.

01 / PEER SIGNAL

Workflow outranks liability

57.9% Uncompensated telemetry review time is the most selected concern.

02 / PEER SIGNAL

Drug-eluting lenses trigger caution

68.4% Most would wait for extensive post-market safety data before shifting from drops.

03 / PEER SIGNAL

Nocturnal IOP spikes matter most

68.4% Previously unseen night-time pressure peaks are the leading treatment-change trigger.

04 / PEER SIGNAL

Consumer adoption may lead first

68.4% Tech-forward out-of-pocket users are expected to drive initial uptake.

SECTION 01

Optometrists expect to own at least part of the data workflow

CONTEXT

The core role split is almost even between primary ownership of ocular/systemic lens data and co-management with medical colleagues.

DATA

52.6% see themselves as the primary manager and interpreter of systemic ocular data from smart lenses. Response pattern: Primary manager / interpreter: 52.6%, Co-manager with physician / endocrinologist: 47.4%.

INSIGHT

The future role is not being framed as hardware fitting alone. Respondents expect a clinical interpretation role, but many also anticipate shared responsibility for systemic data.

WHY IT MATTERS

Smart-lens adoption will need explicit ownership rules for monitoring, escalation and cross-specialty communication.

Optometrists expect to own at least part of the data workflow

Percent of responding participants at this question

Primary manager / interpreter **52.6%**

Co-manager with physician / endocrinologist **47.4%**

SECTION 02

The biggest data concern is time, not legal liability

CONTEXT

Continuous telemetry creates a new type of workload outside the appointment.

DATA

57.9% select uncompensated telemetry review time as the primary concern. Response pattern: Workflow time: 57.9%, Software integration: 21.1%, Legal liability: 15.8%, No major concern: 5.3%.

INSIGHT

Continuous data can turn a device into an always-on service obligation. The value of monitoring depends on how much data requires human review and how alerts are triaged.

WHY IT MATTERS

A viable model needs thresholds, exception-based monitoring, reimbursement and software integration that prevent clinicians from manually watching raw data streams.

The biggest data concern is time, not legal liability

Percent of responding participants at this question

Workflow time **57.9%**

Software integration **21.1%**

Legal liability **15.8%**

No major concern **5.3%**

SECTION 03

Drug delivery is compelling, but the corneal safety bar is high

CONTEXT

Most respondents are interested but cautious about replacing traditional drops with drug-eluting lenses.

DATA

68.4% would wait for extensive post-market safety data before broadly using drug-eluting lenses instead of drops. Response pattern: Early adopter: 26.3%, Cautious observer: 68.4%, Skeptic: 5.3%.

INSIGHT

The technology may solve adherence, but the lens sits on a biologically sensitive surface for prolonged periods. Safety evidence therefore has to address both the drug and the device.

WHY IT MATTERS

Adoption will depend on long-term ocular-surface tolerability, oxygen transmission, infection risk and the ability to stop or change therapy when needed.

Drug delivery is compelling, but the corneal safety bar is high

Percent of responding participants at this question

Early adopter **26.3%**

Cautious observer **68.4%**

Skeptic **5.3%**

SECTION 04

For glaucoma, the value proposition is finding what office hours miss

CONTEXT

The strongest clinical use signal is not the 24-hour average. It is previously unseen nocturnal IOP behaviour.

DATA

68.4% say previously undetected nocturnal IOP spikes would be the main trigger to change treatment. Response pattern: Nocturnal IOP spikes: 68.4%, 24-hour mean pressure: 21.1%, Activity-linked fluctuations: 10.5%.

INSIGHT

Continuous monitoring is most persuasive when it reveals clinically relevant patterns that static tonometry cannot capture.

WHY IT MATTERS

The practical question is whether new data changes management, not simply whether it can be measured.

For glaucoma, the value proposition is finding what office hours miss

Percent of responding participants at this question

Nocturnal IOP spikes **68.4%**

24-hour mean pressure **21.1%**

Activity-linked fluctuations **10.5%**

SECTION 05

Consumer technology may open the market before disease monitoring does

CONTEXT

Respondents expect tech-forward consumers to drive early financial adoption more than chronic-disease need.

DATA

68.4% expect tech-forward out-of-pocket consumers to drive initial smart-lens adoption. Response pattern: Tech-forward consumers: 68.4%, Chronic disease need: 26.3%, Premium lens users: 5.3%.

INSIGHT

The earliest commercial pathway may look more like premium consumer wearables than reimbursed medical monitoring.

WHY IT MATTERS

Optometrists may become the clinical checkpoint between consumer technology adoption and safe ocular use.

Consumer technology may open the market before disease monitoring does

Percent of responding participants at this question

Tech-forward consumers **68.4%**

Chronic disease need **26.3%**

Premium lens users **5.3%**

SECTION 06

Reimbursement and manufacturer trust will decide how fast the category moves

CONTEXT

High price is the leading predicted payer barrier, while manufacturer clinical credibility is the most selected partnership factor.

DATA

47.4% identify high manufacturer pricing as the biggest barrier to insurance coverage. Response pattern: High manufacturer pricing: 47.4%, Billing / coding difficulty: 31.6%, Longitudinal outcomes evidence: 21.1%.

INSIGHT

The adoption gate is partly economic and partly epistemic: clinicians need to trust the manufacturer, and payers need a credible cost-benefit case.

WHY IT MATTERS

Evidence, coding, interoperability and support services will matter almost as much as the optical or sensing technology itself.

Reimbursement and manufacturer trust will decide how fast the category moves

Percent of responding participants at this question

High manufacturer pricing **47.4%**

Billing / coding difficulty **31.6%**

Longitudinal outcomes evidence **21.1%**

PRACTICE PATTERN

What may be sitting underneath the responses

■

Continuous data creates a new service obligation

A smart lens is not only a device; it can create an ongoing monitoring workload outside the appointment.

■

Clinical value depends on actionable thresholds

More data matters only when it reveals a pattern that changes management.

■

Safety and economics may set the pace

Corneal tolerability, reimbursement and manufacturer credibility can slow adoption even when sensing technology works.

CLOSING PERSPECTIVE

Smart Contact Lenses: Is Optometry Data-Ready?

The pattern is cautious curiosity. Optometrists are already thinking past the hardware: who monitors the data, what findings are actionable, how corneal safety is protected and who pays for the time. That is the real transition from wearable novelty to clinical infrastructure.

PEOPLE ALSO ASK

Clinical questions about Smart contact lenses and wearable ocular technology in optometry

What is a smart contact lens?

A smart contact lens integrates sensing, electronics, microfluidics or other functional components into a contact-lens platform so it can do more than refractive correction, such as monitor a biomarker or deliver a medication.

Can contact lenses monitor intraocular pressure continuously?

Sensor-enabled contact lenses are being studied for extended or 24-hour IOP monitoring. The goal is to capture pressure patterns outside office hours, but individual devices differ in what they measure and how closely that signal maps to standard tonometry.

Are drug-eluting contact lenses already approved?

Yes, in a limited indication. FDA approved ACUVUE Theravision with Ketotifen as a daily disposable drug-eluting contact lens for treatment of ocular itch due to allergic conjunctivitis while also correcting refractive error.

What are the main ocular safety concerns with advanced wearable lenses?

Core contact-lens risks still apply, including infection and corneal injury. More complex lenses may also need to demonstrate adequate oxygen transmission, biocompatibility, thermal safety and tolerability of embedded materials or drug-delivery components.

Who should monitor continuous data from a smart lens?

That depends on the device, indication and data type. A clinically sustainable model needs defined responsibility for reviewing data, responding to alerts, documenting decisions and coordinating with other clinicians when systemic information is involved.

What will determine whether smart contact lenses become mainstream?

Clinical usefulness, safety, comfort, manufacturing reliability, reimbursement, coding, workflow integration, patient acceptance and evidence that the data or treatment capability improves meaningful outcomes will all influence adoption.

Share your perspective.

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SELECTED EXTERNAL CONTEXT

- [FDA label: ACUVUE Theravision with Ketotifen](#)
- [ClinicalTrials.gov: Smart Soft Contact Lenses for Monitoring Glaucoma](#)
- [FDA Recall Lens Risks](#)
- [PubMed: Real-time IOP monitoring and responsive drug release in preclinical models](#)

Source note: External references provide clinical, operational or regulatory context. All MDForLives percentages and response counts come from survey SGID 8918893.

Visual Graphs and Backend Data

Percentages and counts are reproduced from MDForLives survey SGID 8918893. Question bases vary across partial completes.

Survey profile

Metric	Value
Completion rate	82.6%
Complete	19
Partial	4
Total survey records	23
Countries	United States, Canada, Italy

Section 01: Optometrists expect to own at least part of the data workflow

Response option	Percent	Responses
Primary manager / interpreter	52.6%	10
Co-manager with physician / endocrinologist	47.4%	9

Section 02: The biggest data concern is time, not legal liability

Response option	Percent	Responses
Workflow time	57.9%	11
Software integration	21.1%	4
Legal liability	15.8%	3
No major concern	5.3%	1

Section 03: Drug delivery is compelling, but the corneal safety bar is high

Response option	Percent	Responses
Early adopter	26.3%	5
Cautious observer	68.4%	13
Skeptic	5.3%	1

Section 04: For glaucoma, the value proposition is finding what office hours miss

Response option	Percent	Responses
Nocturnal IOP spikes	68.4%	13
24-hour mean pressure	21.1%	4
Activity-linked fluctuations	10.5%	2

Section 05: Consumer technology may open the market before disease monitoring does

Response option	Percent	Responses
Tech-forward consumers	68.4%	13
Chronic disease need	26.3%	5
Premium lens users	5.3%	1

Section 06: Reimbursement and manufacturer trust will decide how fast the category moves

Response option	Percent	Responses
High manufacturer pricing	47.4%	9
Billing / coding difficulty	31.6%	6
Longitudinal outcomes evidence	21.1%	4