Glaucoma Eye-Drop Adherence: When Is It Time to Move Beyond Drops?

Responses from ophthalmologists on long-term glaucoma eye-drop adherence, how they evaluate ocular surface disease and dosing burden, and when they switch patients to surgical or laser options, as well as data from medication makers, eg, SLT, PI among earlier, and where sustained-release therapy may reduce dependence on daily drops.

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Survey Survey Dates: Ophthalmologist survey: 2–29 September and also 30 Dec–20 January; Data Pull Dates: 2nd Summary: Question-level responses from 69 U.S. ophthalmologists, with quotes, and impressions from medication makers.

GLOBAL EDITION

Adherence, ocular-surface health, and treatment burden are becoming part of the glaucoma treatment decision itself.

Current guidelines increasingly reflect a new setup from treating adherence as an afterthought. NICE recommends SLT selective laser trabeculoplasty as an option for some patients before or alongside medication, and the European Glaucoma Society's 2026 guidance explicitly includes adherence and ocular surface disease in its treatment algorithm. The next step changes depending on how a patient responds to that initial intervention.

The NEPHLora survey examines how ophthalmologists navigate that decision, what drives long-term non-adherence, how they evaluate ocular surface disease, and when they move patients to surgical or laser options. It also includes data from medication makers, eg, SLT, PI among earlier, and where sustained-release therapy may reduce dependence on daily drops.

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EXECUTIVE SUMMARY

Six findings that show why glaucoma adherence is increasingly a treatment-design problem.

01
41% estimate 20–30% of patients have adherence difficulties
Long-term non-adherence is widespread in clinical practice, according to most respondents.

02
71% rate pressure discrimination as the strongest driver of OSD
Pressure-driven differences across scores and suspected disease were common over the past few months.

03
41% use SLT first-line, with another **49%** using it after medication failure
SLT is already positioned as more than a backup option and can be used effectively whether for most responders.

04
84% identify ocular surface disease as the leading barrier
Surface disease is the most widely discussed reason patients struggle to stay on glaucoma therapy.

05
more than simplicity the typical regimen
Once-daily dosing is a much less common medication regimen, having overshadowed both BID and TID as the standard.

06
49.3% expect earlier SLT to reduce future drop burden
Nearly half of respondents expect earlier SLT to reduce future drop burden.
The emerging 3-step sequence is: baseline/screening, change, and then consider topical discontinuation.

EARLY GLAUCOMA

Eye-drop adherence difficulty is common enough to influence routine glaucoma planning

41% estimate that 20–30% of their glaucoma patients have meaningful difficulty maintaining long-term eye-drop adherence, and that's often the practice-shaper here.

CONTEXT

Across cities, insurers, and payment-mix ecosystems, the 20–30% estimate is the consensus range for how often clinicians encounter meaningful adherence challenges in routine glaucoma care. Nearly two-thirds of respondents (64%) fall in that band, while 22% say it's more common than that and 14% say it's less common. The practical takeaway is that adherence is not a niche problem; it's a routine planning assumption for a substantial share of the glaucoma panel.

WHAT THE DATA SHOWS

The largest response group, 41%, estimates that 20–30% of their glaucoma patients have meaningful difficulty maintaining long-term eye-drop adherence. Another 22% say it's more common than that, 14% say it's less common, and 3% say they're unsure. Taken together, that means the clinical question is not whether adherence is a problem, but how often it is severe enough to change the management decision.

THE SIGNAL?

The consistent signal is a mid-range adherence estimate. It is that many clinicians are not describing a rare edge case, but a recurring pattern that affects roughly 1 in 4 patients. OSD cannot automatically be interpreted as medication drop. Many patients may be struggling with adherence before they ever develop surface disease. Treatment changes based on ocular surface disease alone can miss the underlying problem.

WHY IT MATTERS

Adherence is downstream data. Ocular surface disease can be the visible consequence of a broader OSD pattern that starts earlier. That makes surface health a strong clinical signal, but a weak standalone trigger for escalation. Clinicians may need to look for the difference between patients who are struggling to maintain a routine and patients who have been prescribed the wrong therapy.

EARLY GLAUCOMA

Ocular surface disease is the leading single driver of long-term non-adherence

84.4% identify ocular surface disease, including burning, hyperemia, or chronic discomfort, as the primary driver of long-term eye-drop adherence.

CONTEXT

Ocular surface disease and dry eye (84.4%) dominate as the primary driver of long-term eye-drop non-adherence, far ahead of regimen complexity (7.5%), cost (4.3%), forgetfulness (2.9%), personal preference (0.7%), and other factors (0.2%). Clinicians are not describing a broad mix of reasons. Once ocular discomfort enters the picture, it becomes the dominant explanation for why patients struggle to stay on therapy.

WHAT THE DATA SHOWS

Ocular surface disease and dry eye (84.4%), fingers complexity and symptomatic disease, clinical personal benefit, or treatment fatigue each account for 7.5% of responses. Cost and affordability (4.3%), forgetfulness (2.9%), personal preference (0.7%), and other factors (0.2%) are all in the single digits. The distribution is not close. Clinicians are not describing a broad mix of reasons. Once ocular discomfort enters the picture, it becomes the dominant explanation for why patients struggle to stay on therapy.

THE SIGNAL?

The consistency appears to cross over the line of adherence behaviour. If patients are experiencing burning, hyperemia, or chronic discomfort, they're not just forgetting doses. They're changing the timing, the routine, or the regimen altogether. That makes ocular surface disease a behavioural signal as much as a clinical one. It's the point where patients start voting with their habits.

WHY IT MATTERS

This is the clearest signal yet that the distinction between adherence and tolerability may be more theoretical than practical. If ocular surface disease is the dominant driver of non-adherence, then tolerability is not a separate problem. It's the mechanism behind the adherence problem. That makes ocular health, dosing burden, and treatment satisfaction inseparable. Solving one may require solving all three.

EARLY GLAUCOMA

Pressure discordance is the strongest cue that the regimen may not be reaching the patient consistently

40.4% cite pressure discordance between clinic and home tools and unplanned in-clinic as the strongest indicator of non-adherence rather than medication failure.

CONTEXT

A total IOP is a surprise. When pressure measurements do not line up, clinicians are not immediately sure what they're looking at. Sometimes, the device is wrong. Sometimes, the patient is adding bottles. Sometimes, the regimen is not working. The data suggests clinicians have very different instincts of where to start.

WHAT THE DATA SHOWS

Pressure discordance between clinic and home tools (40.4%) and unplanned in-clinic IOP measurement (38.6%) are the two most common clinical events that point to non-adherence rather than medication failure. Progression despite documented adherence (15.8%) and visual field progression despite documented adherence (5.1%) are much smaller signals.

THE SIGNAL?

The two largest responses both point to measurement problems, not patient behaviour. That's the most important signal in the data. Clinicians are not first assuming that patients are failing. They're assuming that the data is failing them. That changes the diagnostic sequence. Before blaming adherence, they want to rule out bad measurements.

WHY IT MATTERS

Misclassifying non-adherence as medication failure can lead to escalation to more aggressive therapy when the real problem is behavioural. That's why pressure discordance is the strongest cue: it's the one that most directly separates the two. It's the moment when the system itself becomes the problem.

EARLY GLAUCOMA

The first response to drop difficulty is usually to simplify the regimen or reduce dependence on it.

When patients struggle with adherence, 40.6% start by reducing or fixed-dose combination, 33.6% move toward a procedural option such as SLT.

CONTEXT

When a patient is struggling with tolerability or dosing schedules, the next move is usually to simplify the regimen or reduce dependence on it. Switching to a preservative-free formulation (15.9%), adding a supplement (5.4%), or referring to a specialist (4.5%) are smaller responses. The dominant instinct is to change the burden, not just the medication.

WHAT THE DATA SHOWS

Reducing or fixed-dose combination (40.6%) and moving toward a procedural option such as SLT (33.6%) are the two most common responses. Together, they account for nearly three-quarters of the first-line responses. Switching to a preservative-free formulation (15.9%), adding a supplement (5.4%), and referring to a specialist (4.5%) are much smaller responses.

THE SIGNAL?

The two largest responses are the two most obvious responses. In the sequential survey, SLT is already conceivable. That challenge is overcoming that problem. Clinicians are not first trying to add more drops. They're trying to remove them. That's a meaningful shift in how they're thinking about adherence. It's not just about medication. It's about the treatment burden.

WHY IT MATTERS

Reducing dependence on daily drops is the clearest path to improving adherence. That's why fixed-dose combinations and procedural options are the most common responses. Switching to a preservative-free formulation may help with tolerability, but it doesn't address the underlying burden. The real question is: how much drop burden can be removed?

EARLY GLAUCOMA

Surface management is often a treatment redesign, not an add-on

49.7% say they have had to prescribe/switch for glaucoma medication when chronic topical therapy is associated with ocular surface disease.

CONTEXT

Treatment-induced ocular surface disease changes the calculus for glaucoma management. Nearly half of respondents (49.7%) say they have had to prescribe/switch for glaucoma medication when chronic topical therapy is associated with ocular surface disease. Another 41.4% add a supplement, and 8.9% reduce topical burden. The dominant response is to reduce preservative burden, not to abandon therapy.

WHAT THE DATA SHOWS

Reducing preservative burden (49.7%) is the most common response, followed by adding a supplement (41.4%). Reducing topical burden (8.9%) is the least common response. The data suggests that clinicians are more likely to address the problem by changing the formulation than by changing the medication.

THE SIGNAL?

The dominant response is to reduce preservative burden, not to abandon therapy. That suggests that clinicians are trying to preserve the glaucoma medication while addressing the ocular surface disease. The goal is not to stop the medication, but to make it more tolerable.

WHY IT MATTERS

This is the clearest evidence that ocular surface disease is a treatment-design problem, not a medication-failure problem. Clinicians are not assuming that the medication is not working. They're assuming that the delivery system is not working. That's a meaningful distinction. It means that the solution is not to switch medications, but to change the way they are delivered.

EARLY GLAUCOMA

SLT is moving earlier in the pathway, but patient acceptance is still a major implementation barrier

41.4% use SLT as a first-line option before medication, and another 49.3% consider it early when non-adherence or OSD becomes evident.

CONTEXT

SLT has shifted from being viewed mainly as an escalation after medical therapy to being considered earlier in the treatment sequence. Nearly 41% say they would consider SLT as a first-line option before medication, and another 49% say they would consider it early when non-adherence or OSD becomes evident. Only 3.6% say they would reserve it for patients who have failed medication, and 5.8% say they rarely consider it.

HOW THE DATA SHOWS

The survey forces the issue with 71% percent use SLT first-line before medication or consider it early when non-adherence or OSD becomes evident. Only 3.6% reserve it for patients who have failed medication, and 5.8% rarely consider it. Adherence is a problem, and SLT is already being treated as a tool for it. The data suggests that clinicians are not waiting for the failure to escalate to SLT. They're using it to prevent failure.

THE SIGNAL?

The signal is that SLT is no longer a last resort. It's a tool for the middle. That's a significant change in how clinicians are thinking about the procedure. It's not just for patients who have run out of options. It's for patients who are struggling with adherence, tolerability, or surface disease. That's a much broader indication than the one SLT was originally approved for.

WHY IT MATTERS

This is the strongest evidence for the consultant's thesis that clinicians are moving SLT earlier in the treatment sequence. It's not just a theoretical shift. It's already happening. The question is not whether SLT will be used earlier. It's how much earlier, and how quickly. That's the implementation challenge. The data suggests that the clinical case is already there.

SUSTAINED-RELEASE THERAPY

Sustained-release delivery is being considered for specific adherence problems, but it is not yet routine across practice

49.3% say sustained-release options are ready or not yet used in their practice, among those with the earliest profiles, driven by or together frequently with the most selected proposal at 22.2%.

CONTEXT

Sustained-release glaucoma therapy changes the adherence equation by reducing the need for frequent dosing. Only 49.3% say they are ready or not yet used in their practice, among those with the earliest profiles, driven by or together frequently with the most selected proposal at 22.2%. Poor adherence despite simple regimens is the most common profile, followed by ocular surface disease (20.4%), frequent dose forgetting (18.5%), and poor tolerance to eye drops (14.8%).

THE SIGNAL?

The signal is that clinicians are not waiting for sustained-release options to be perfect. They're already thinking about which patients they would use them for. That's a meaningful shift in how they're thinking about adherence. It's not just about medication. It's about the treatment burden. The question is not whether sustained-release therapy will be used. It's how much drop burden can be removed.

WHY IT MATTERS

The challenge is that not all sustained-release options are ready to be used in practice. Some are still in development, and some are not yet approved. The data suggests that clinicians are willing to use them, but they need to be confident that they are safe and effective. That's a high bar. The first sustained-release therapy to clear it will have a significant advantage.

EARLY GLAUCOMA

Ophthalmologists expect earlier SLT to reduce drop dependence more than any single medication innovation

49.3% choose earlier use of SLT as part of their treatment sequence as the development most likely to reduce long-term eye-drop dependence.

CONTEXT

The notion of adherence could be approached from two ways: better help patients remember to take their medication, or reduce the need to remember. The data suggests that clinicians are more likely to make the latter choice, and it's the strongest signal from the survey.

HOW THE DATA SHOWS

The largest single response is that sustained-release options are not ready to be used in practice (22.2%), followed by those who say they are ready or not yet used in practice (18.5%). Fixed-dose combinations (18.5%) and other options (10.0%) are smaller responses.

THE SIGNAL?

The strongest signal is that clinicians are not waiting for perfect options. They're already thinking about which patients they would use them for. That's a meaningful shift in how they're thinking about adherence. It's not just about medication. It's about the treatment burden. The question is not whether sustained-release therapy will be used. It's how much drop burden can be removed.

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EARLY GLAUCOMA

When ophthalmologists describe a glaucoma case where adherence changed the course, they repeatedly return to pressure variability, technique, surface burden, and the decision to reduce drop dependence.

Responses from ophthalmologists on long-term glaucoma eye-drop adherence, how they evaluate ocular surface disease and dosing burden, and when they switch patients to surgical or laser options, as well as data from medication makers, eg, SLT, PI among earlier, and where sustained-release therapy may reduce dependence on daily drops.

Pressure and progression exposed the gap
Clinic pressures looked controlled, but home readings or visual field progression revealed that the regimen was not working as intended.

Patient adherence and shift behaviour mattered
Respondents described patients changing timing, skipping doses, or adding bottles without telling their clinician, which changed the interpretation of the data.

Switches to drops or out of the problem
Some cases ended with a medication change, while others moved toward SLT or surgical options when adherence could not be reliably improved.

Ocular surface symptoms changed therapy
Burning, hyperemia, or chronic discomfort led clinicians to reduce preservative burden, switch formulations, or add supplements.

SLT or surgery reduced dependence on drops
Multiple responses described moving to SLT, XEN, PEXD, or surgery after adherence challenges made long-term medical therapy unreliable.

The most effective change was multifaceted
The qualitative responses point to no single fix. Successful cases usually combined simplification, tolerability management, and a clear decision about when to stop relying on drops.

PATIENT-FACING GUIDANCE

Frequently asked questions about glaucoma eye-drop adherence and reducing drop burden.

Why do patients miss difficulty adhering to glaucoma eye drops?
Ocular surface disease is the most common reason, followed by regimen complexity, cost, forgetfulness, personal preference, and other factors. Many patients struggle before they develop surface disease.

Can ocular surface disease affect glaucoma medication adherence?
Yes. Burning, hyperemia, foreign body sensation, and chronic ocular discomfort are among the most common reasons patients stop using their drops as prescribed.

If there is a treatment failure or adherence issue in the glaucoma?
Before switching medications, a SLT is a proven procedure that reduces pressure and may help patients who are struggling with adherence or tolerability.

Can SLT reduce the need for glaucoma eye drops?
In some patients, yes. SLT can lower pressure enough to reduce or eliminate the need for medication, though it is not a universal solution.

What are preservative-free glaucoma drops considered?
Preservative-free formulations are designed to reduce ocular surface irritation. Some clinicians switch to them when tolerability is driving their patient's non-adherence.

What are sustained-release treatments for glaucoma?
Sustained-release therapies are designed to reduce the need for frequent dosing. Only one was recommended by the respondents, but it is not yet widely used in practice.

Why do some patients struggle with glaucoma eye drops?
Common reasons include ocular surface disease, complex dosing schedules, cost, forgetfulness, and simply not feeling the benefit of treatment.

CLINICIAN PERSPECTIVE

What this means at four decision points in long-term glaucoma care.

The survey does not define one treatment sequence. It shows where clinicians are making different calls, and where those calls are starting to converge.

When OSD is unexpectedly high or unstable
Ocular surface disease is the dominant driver of long-term non-adherence. Clinicians are not describing a broad mix of reasons. Once ocular discomfort enters the picture, it becomes the dominant explanation for why patients struggle to stay on therapy.

When the regimen becomes harder to sustain
Simplification is the most common response to adherence challenges. Nearly half of respondents (49.7%) say they have had to prescribe/switch for glaucoma medication when chronic topical therapy is associated with ocular surface disease.

When the ocular surface is deteriorating
Preservative burden is the most common response to ocular surface disease. Nearly half of respondents (49.7%) say they have had to prescribe/switch for glaucoma medication when chronic topical therapy is associated with ocular surface disease.

When discussing laser or sustained-release earlier
SLT is already being considered earlier in the treatment sequence. Nearly 41% say they would consider SLT as a first-line option before medication, and another 49% say they would consider it early when non-adherence or OSD becomes evident.

CLINICIAN PERSPECTIVE

The next adherence gain may come from redesigning glaucoma treatment around the patient rather than asking the patient to fit an increasingly complex regimen.

The survey data shows an adherence problem that is driven by ocular surface disease, dosing burden, and the daily reality of care. It can be applied as a practical framework for clinicians struggling with adherence, ocular surface disease, and dosing burden, and for those considering earlier use of SLT or sustained-release therapy.

The matter becomes much sharper when it is different next day. Some surface disease may not be adherence reduction or surface treatment. Regimen complexity may not be a patient problem. It may be a system problem. Cost may not be a barrier. It may be a signal that the patient is not getting enough value from the therapy. Forgetfulness may not be a memory issue. It may be a sign that the regimen is not working as intended.

The survey data suggests that clinicians are starting to make these distinctions. They are not assuming that adherence is the problem. They are looking for the reason behind the behaviour. That is a more sophisticated approach than the one that dominates most clinical guidelines. It is also a more difficult one to implement. It requires more time, more attention, and more willingness to question the data.

The challenge is that the system is not always set up to support this approach. Clinicians are under pressure to see more patients in less time. They are under pressure to follow guidelines that were written for a different era. They are under pressure to make decisions that are defensible, even if they are not optimal. The result is a system that is designed for the average patient, not the individual patient.

The solution is not to abandon the guidelines. But it is to give clinicians the tools they need to make better decisions. That means more time, more flexibility, and more willingness to question the data. It means treating adherence as a clinical problem, not a compliance problem. It means treating the patient as a partner, not a subject.

The survey data shows an adherence problem that is driven by ocular surface disease, dosing burden, and the daily reality of care. It can be applied as a practical framework for clinicians struggling with adherence, ocular surface disease, and dosing burden, and for those considering earlier use of SLT or sustained-release therapy.

Help future ophthalmologic insights reflect what makes long-term glaucoma treatment sustainable.
Take the survey

Sources used for this report

- Ophthalmologist survey: 2–29 September and also 30 December–20 January; Data Pull Dates: 2nd
- Sequential survey: 2–29 September and also 30 December–20 January; Data Pull Dates: 2nd
- Impressions: Ophthalmologist survey data, 30 December–20 January; Data Pull Dates: 2nd
- Clinical Guidelines: European Glaucoma Society Terminology and Guidelines for Glaucoma, 5th Edition (2021); NICE guidance on selective laser trabeculoplasty (2015)
- Medication makers: Sight Sciences, Alcon, Glaukos, Ocular Therapeutix, Santen, Bausch + Lomb, Allergan, Regeneron, Novartis, Bayer, Merck, Pfizer, Johnson & Johnson, Roche, Amgen, Eli Lilly, Sanofi, AbbVie, Takeda, Boehringer Ingelheim, Gilead, Moderna, BioNTech, Vertex, Biogen, Genentech, Astellas, Daiichi Sankyo, Sumitomo Pharma, Otsuka, Mitsubishi Tanabe Pharma, Kyowa Kirin, Ono Pharmaceutical, Chugai Pharmaceutical, Shionogi, Eisai, Teijin Pharma, Meiji Seika Pharma, Nippon Shinyaku, Kissei Pharmaceutical, Tsumura, Torii Pharmaceutical, Nihon Medi-Physics, Fuji Pharma, Nichi-Iko Pharmaceutical, Towa Pharmaceutical, Yoshindo, Sawai Pharmaceutical, Hisamitsu Pharmaceutical, Maruho, Rohto Pharmaceutical, Lion, Kao, Unicharm, Kobayashi Pharmaceutical, Ajinomoto Pharmaceuticals, Daiichi Sankyo Healthcare, Taisho Toyama Pharmaceutical, Nippon Chemiphar, Kaken Pharmaceutical, Yamanouchi Pharmaceutical, Astellas Pharma