

Prospective Evaluation of Eye Drop Self-Administration Accuracy in a Real-World Patient Population

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Disclosures

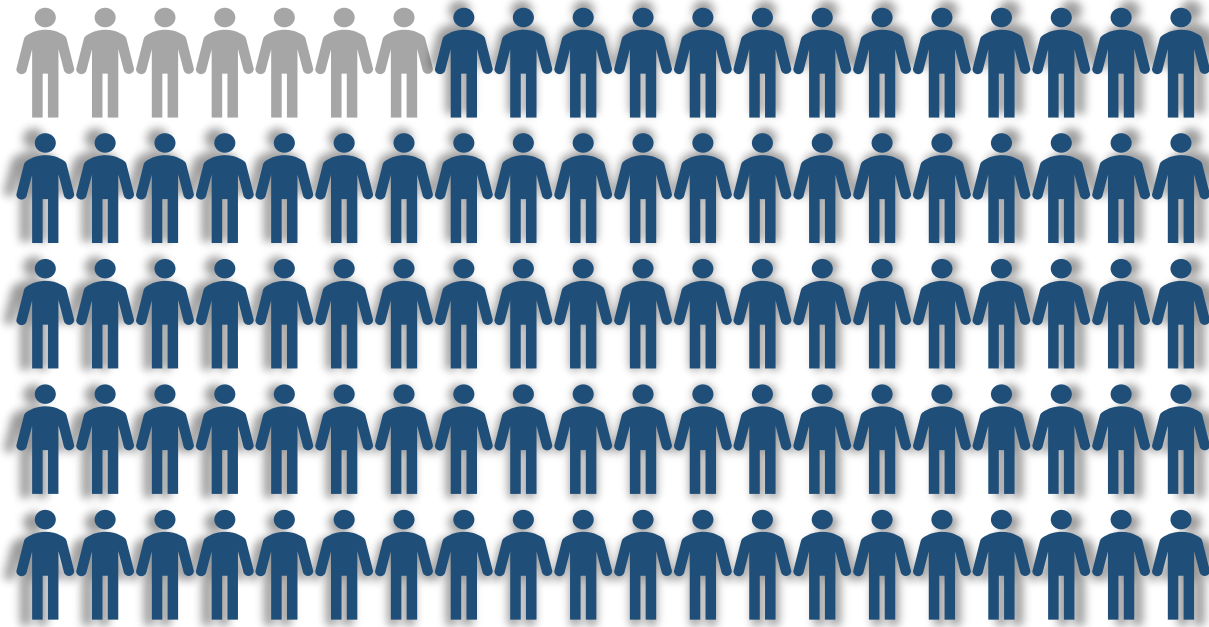
Financial Disclosures

- Alison Early participated as a video grader in the current study

Study Disclosures

- This study was supported by Ocular Therapeutix, Inc.

Improper Self-Administration of Eyedrops Has Been Identified as a Challenge in Patients with Ophthalmic Disorders



92.6%

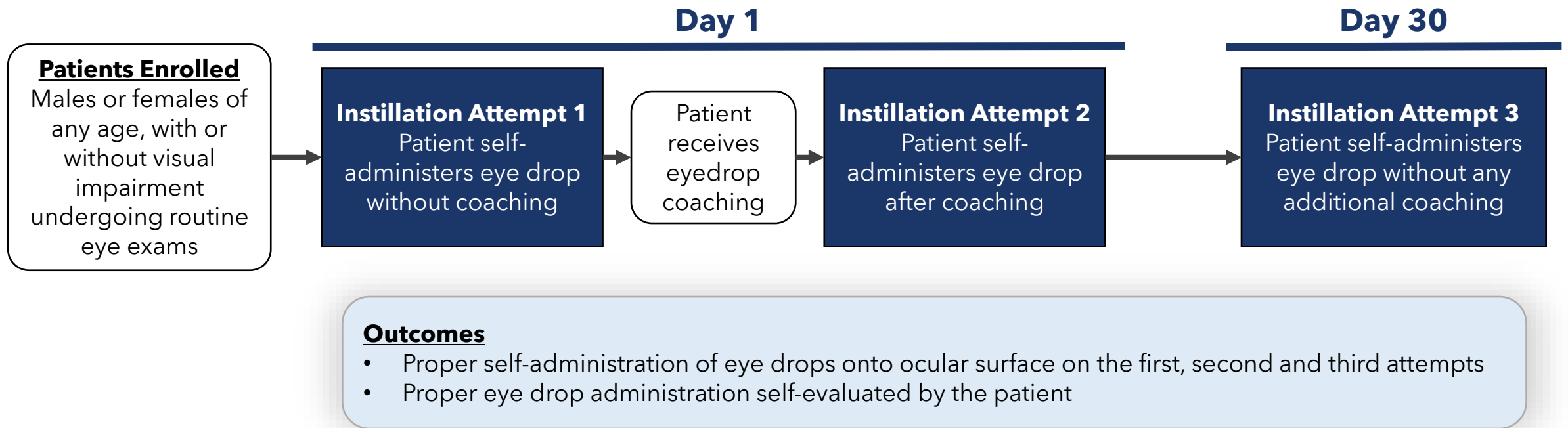
of subjects demonstrated at least **one type of improper administration technique** during the post-op period in a study of 54 eyedrop-naïve **cataract surgery patients**

Possible issues included: neglect of handwashing, contamination of the bottle tip, incorrect number of drops administered, missing ocular surface

To our knowledge, no studies evaluating eye drop administration in real-world individuals undergoing routine eye exams have been performed

The TEAR Study: A Prospective, Qualitative Study Evaluating Patient Eyedrop Administration

Purpose: To assess the accuracy of successful self-administration of eye drop in real-world patients undergoing routine eye exams



Patients in this study (N=110) had a mean age of 50.9 years (range: 12-85 years) and were majority female (69.0%).

The TEAR Study Used Predefined Criteria to Distinguish Between Successful and Improper Eyedrop Instillation

All eyedrop instillations were video recorded and independently evaluated* by 2 masked ophthalmologists and 1 masked optometrist for the following criteria:

Success Criteria

1. One artificial tear is administered to the ocular surface with single drop administration

Failure Criteria (at least one)

1. Eyedrop bottle tip makes contact, with eyelid, conjunctiva, eyelashes, or hands
2. Two or more drops are administered
3. Subject missed the eye entirely

Eyedrop self-administration was considered successful if the **patient properly administered one eyedrop** onto the ocular surface and the **eye drop bottle did not touch** the hands or eyes

*Masked evaluation was achieved by randomly assigning videos to each grader

Example of Successful Instillation and Improper Instillation

Successful Instillation



- ✓ One artificial tear is administered to the ocular surface with single drop administration
- ✓ Eyedrop bottle tip does not make contact, with eyelid, conjunctiva, eyelashes, or hands

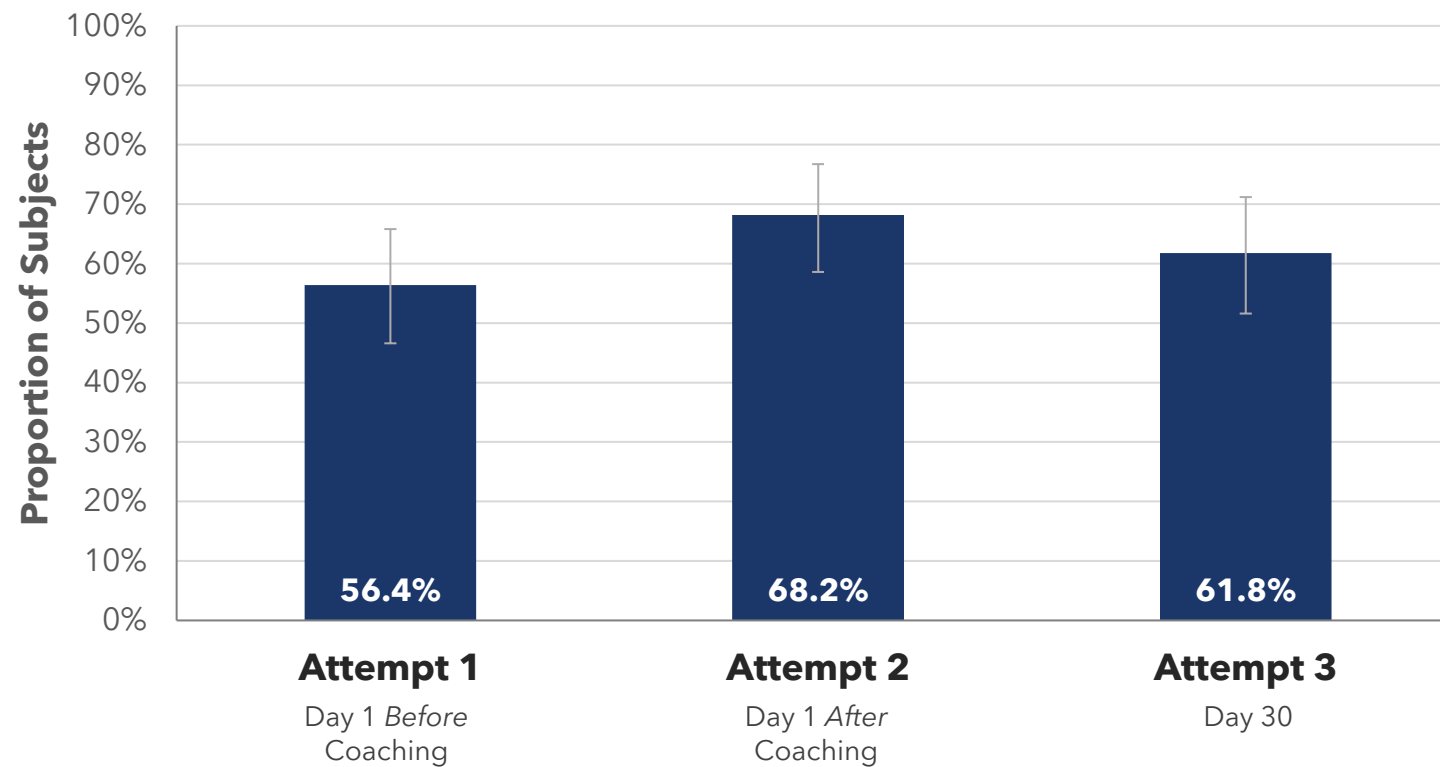
Improper Instillation



- ✗ Eyedrop bottle tip makes contact, with eyelid, conjunctiva, eyelashes, or hands
- ✗ Two or more drops are administered
- ✗ Subject missed the eye entirely

Nearly One in Two Subjects Instilled Eyedrops Improperly on the First Attempt

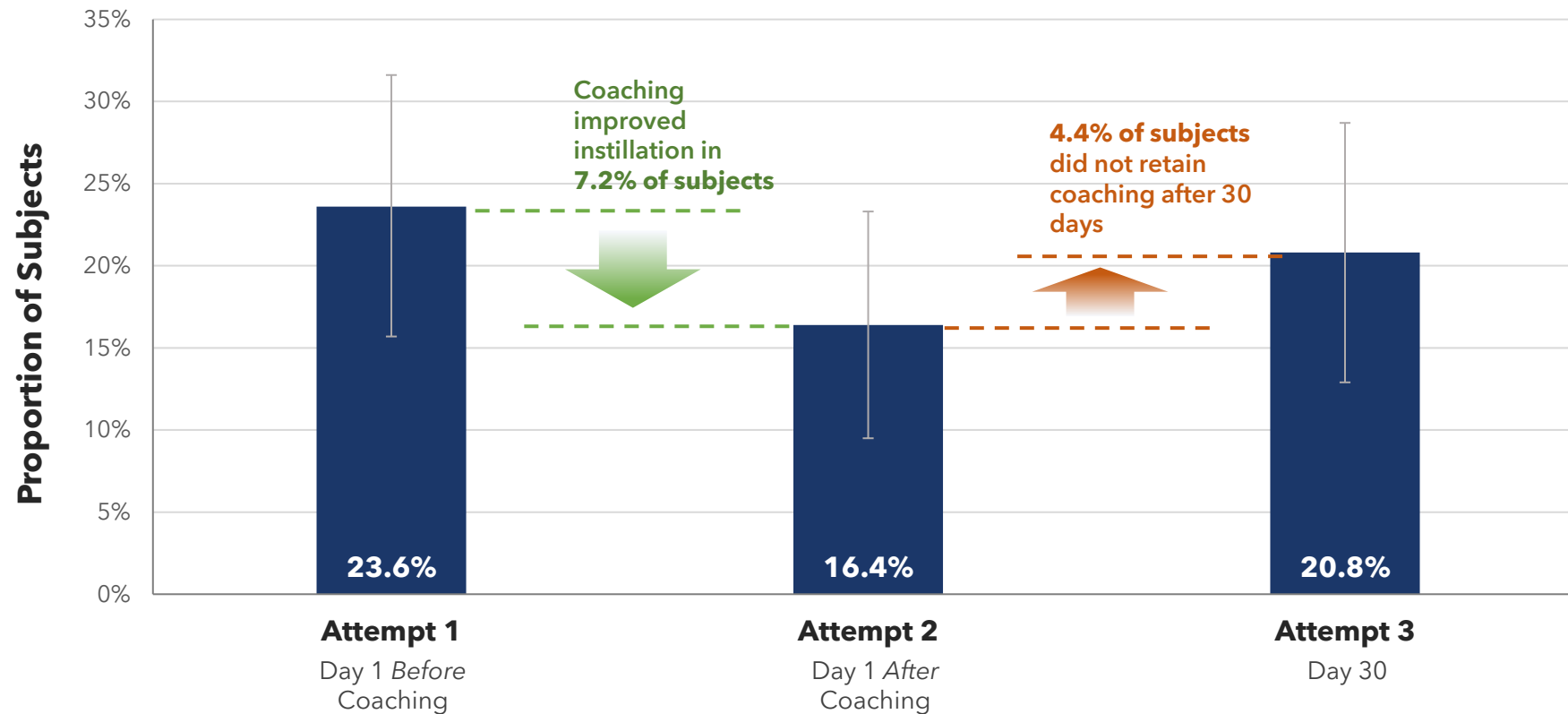
Eyedrop Instillation Success as Evaluated by an Ophthalmologist or Optometrist (N=110 subjects)



Error bars represent 95% confidence interval

Eyedrop Coaching Improved Self-Instillation Technique, However, Retention 30 Days Later was Poor

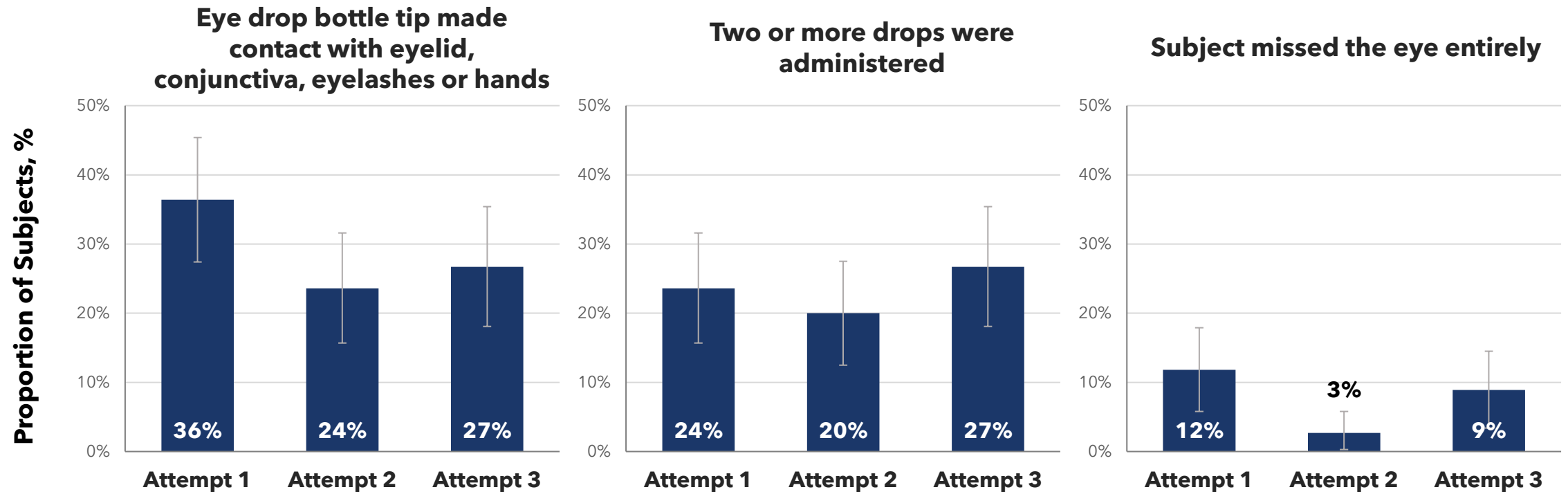
Proportion of Subjects Who Met Two or More Failure Criteria by Visit (N=110 subjects)



Error bars represent 95% confidence interval

Most Common Reason for Improper Drop Self-Instillation was Contact with the Eye Dropper Tip

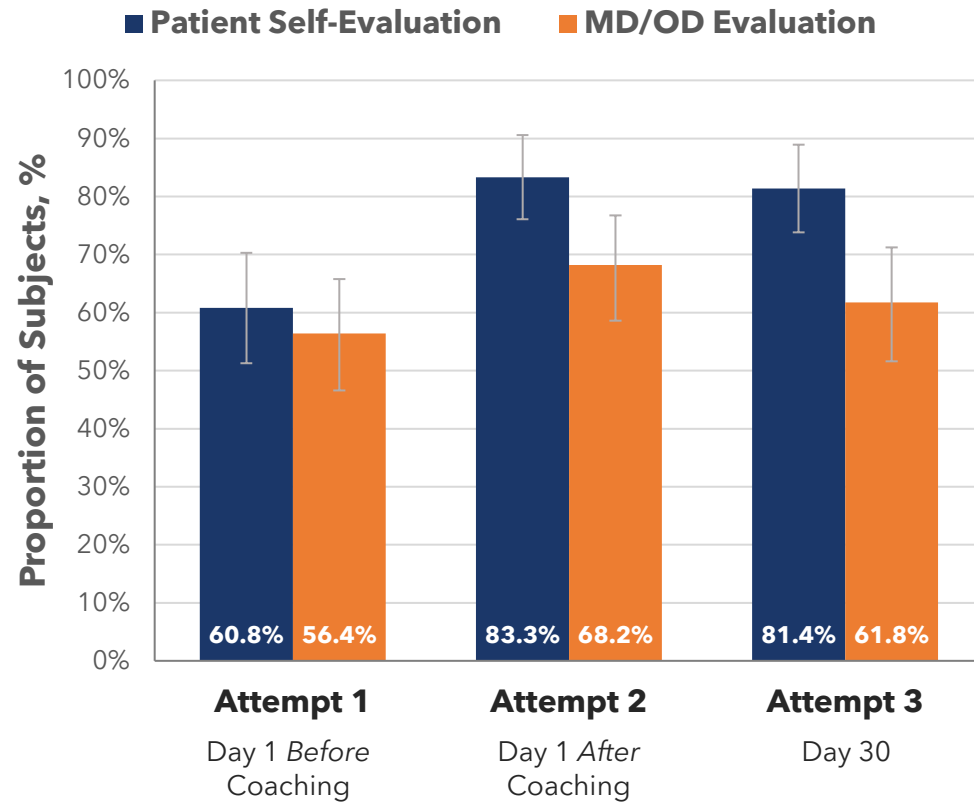
Reasons for Eye Drop Instillation Failure at Each Visit (N=110 subjects)



Attempt 1: Day 1 Before Coaching; Attempt 2: Day 1 After Coaching; Attempt 3: Day 30
Error bars represent 95% confidence interval

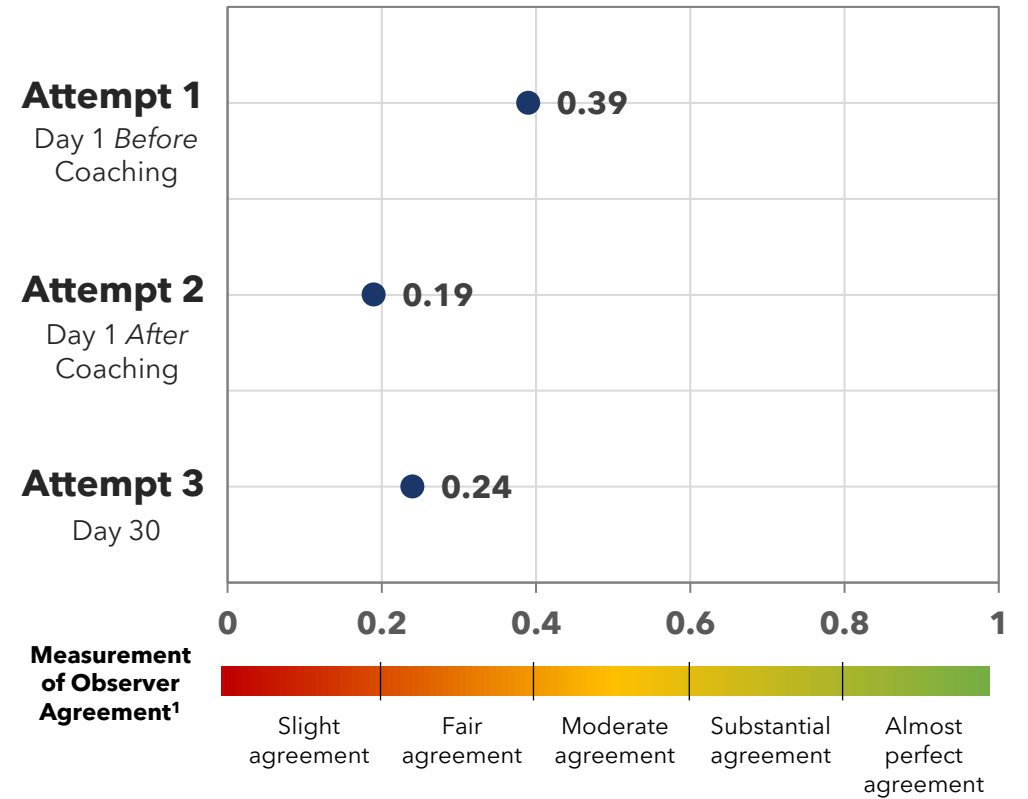
Majority of Subjects Considered Eyedrop Self-Administration was Successful Following Coaching which was Incongruent with Grader Evaluations

Eyedrop Self-Instillation Success as Evaluated by Subjects (N=110 subjects)



Error bars represent 95% confidence interval

Agreement Between Graders and Subjects on Eye Drop Self-Instillation Success (N=110 subjects)



Reference: 1. Landis JR, Koch GG. *Biometrics*. 1977;33(1):159-174.

Conclusions

- **Results demonstrate nearly 1 in every 2 people self-administer eye drops incorrectly in the real-world.**
- **Eyedrop coaching improved self-instillation technique, however, coaching may have limited value in sustaining proper techniques in the long term.**
- **Majority of subjects considered eyedrop self-administration was successful which was incongruent with grader evaluations suggesting patients may be receiving suboptimal doses of medication by instilling eyedrops themselves**
- **Ophthalmic therapies which reduce or eliminate reliance on self-administration of eyedrops could potentially be beneficial to the real-world population.**