The Effects of Artificial Tears on Quality of Vision
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BACKGROUND
Artificial Tears are commonly prescribed as a first line therapy to combat dry eyes, but the different brands of tears have different compositions and many have quite variable viscosities that can temporarily impact a patient’s quality of vision following instillation. In the past there has never been an instrument capable of objectively, measuring, quantifying, and demonstrating a patient's quality of vision after instillation of an eye drop. The AcuTarget HD instrument has the ability to objectively assess a patient’s quality of vision at baseline and following eye drop instillation. The AcuTarget HD instrument utilizes a double pass technique to objectively measure forward light scatter, which often reduces quality of vision, acuity, and contrast.

METHODS
Ten eyes were measured on the AcuTarget HD instrument to obtain a baseline Objective Scatter Index (OSI) and Predicted Visual Acuity (PVA). Individually each eye was randomly given either drop 1 or drop 2 of artificial tear. The eye was then measured at intervals of 1 minute and 5 minutes to assess OSI and PVA.

RESULTS
The average OSI and PVA score were lower at baseline indicating a better quality of vision prior to instillation of both artificial tears when measured at one and five minutes post-instillation, but the difference was not clinically significant (p<0.05). Refresh group: 1 min. (p)=0.22, and 5 mins (p)= 0.34. The Systane group at 1 min(p)=0.22, and 5 mins (p)= 0.09. The average baseline PVA for the Refresh group = 1.8 and dropped to 0.9 at 1 min then improved to 1.1 at 5 mins, although this was still worse than baseline. The average PVA at baseline for the Systane group was 1.2 and dropped to 1.0 at minute and 0.9 at five minutes.

CONCLUSION
The artificial tears evaluated during this study resulted in a reduction of subject’s quality of vision and predicted visual acuity that was more significant at one minute following insertion compared to five minutes, yet the results are not considered clinically significant. This study can be expanded to assess other available artificial tears to better understand the effects they will have on a patient’s quality of vision following instillation. In a general clinical setting doctors should avoid instilling drops into a patient’s eyes prior to taking measurements on the AcuTarget HD instrument as it may lead to artifacts in results.