Dramatic expansion in optometry laser capsulotomy and selective laser trabeculoplasty following scope of practice legislation

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Background

- In the past two decades, several states have expanded or attempted to expand optometrist scope of practice for laser procedures
- While laser interventions have traditionally been limited to ophthalmology providers, there is limited data on whether legislative changes result in increased optometric volume
- In 2025, thirteen states are pursuing scope expansion, which include laser privileges and ability to prescribe oral medications, and in some cases incisional surgery
- Optometric professional societies advocate that this will result in expanded access to services, especially as the shortage of ophthalmologists continues to grow
- However, this procedural expansion has minimal training requirements and does not assess competence of laser procedures as compared to four years of a traditional ophthalmology residency program
- Optometrists typically do not undergo the same laser training and surgical experience compared to ophthalmologists, which can lead to inadequate management of laser sequelae (e.g. intraocular pressure spikes, retinal tears, lens dislocations, and cystoid macular edema)

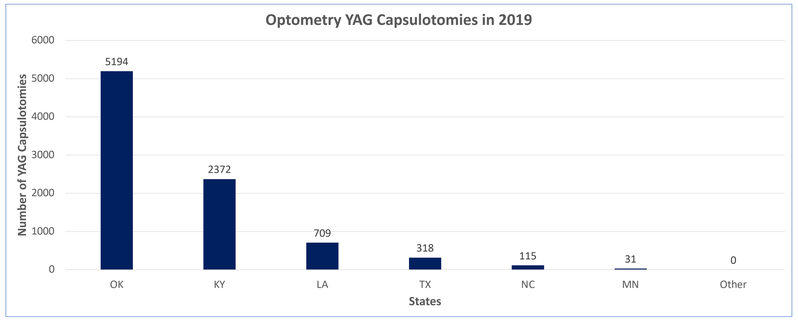
Purpose

- To analyze trends in laser capsulotomies and selective laser trabeculoplasties in states where optometry privileges have expanded to include these procedures

Methods

- Data from from 2013-2021 was extracted from the Centers for Medicare and Medicaid Services by provider using CPT codes for YAG capsulotomy and Selective Laser Trabeculoplasty
- Annual procedure numbers were adjusted for changes in annual Medicare beneficiary enrollment
- To account for co-managed care, cases where the optometrist was not the primary surgeon were excluded. Determination of primary surgeon for each laser procedure was based on reimbursement for the optometrist greater than 80% of the Medicare physician fee (Medicare allows no more than 20% fee for postoperative care)
- To assess for ophthalmologist supervision, optometrists were considered independent if they did not share a practice address with any registered ophthalmologist
- Rural-Urban Commuting Area codes are used to classify areas as metropolitan, urban, or rural and were used to identify where procedures were being performed
- Compound Annual Growth Rate (CAGR) was calculated to represent the average yearly change in adjusted procedure volume between 2013 and 2019. 2020 and 2021 were not included in CAGR due to COVID declines

Results



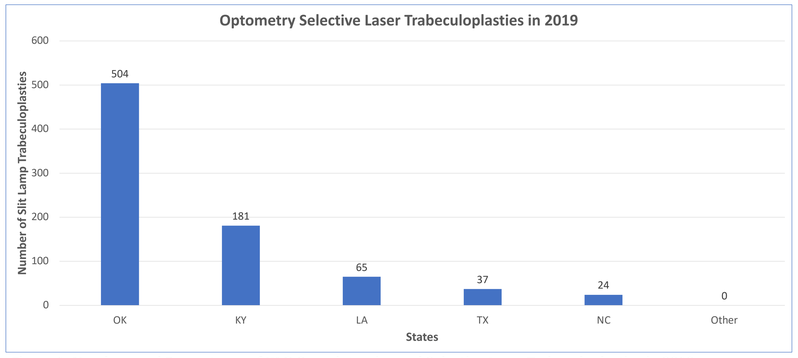
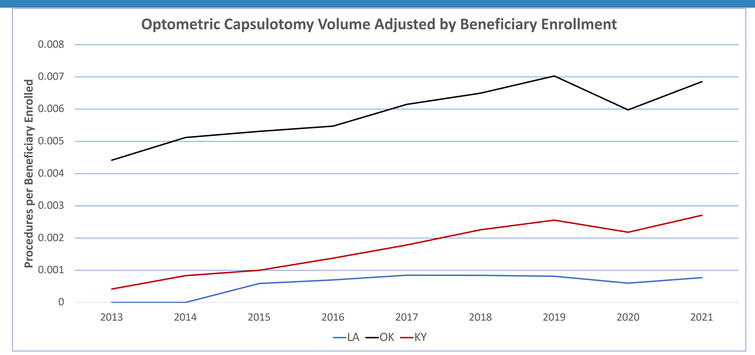


Figure 1: Numbers and Percentages of YAG Capsulotomies and Selective Laser Trabeculoplasties in 2019.
Oklahoma, Kentucky, and Louisiana compromise the majority of anterior segment laser procedures performed in 2019, specifically 94% of capsulotomies and 89% of SLTs. Notably, Oklahoma was the first state to pass legislation for optometrist laser privileges back in 1998.



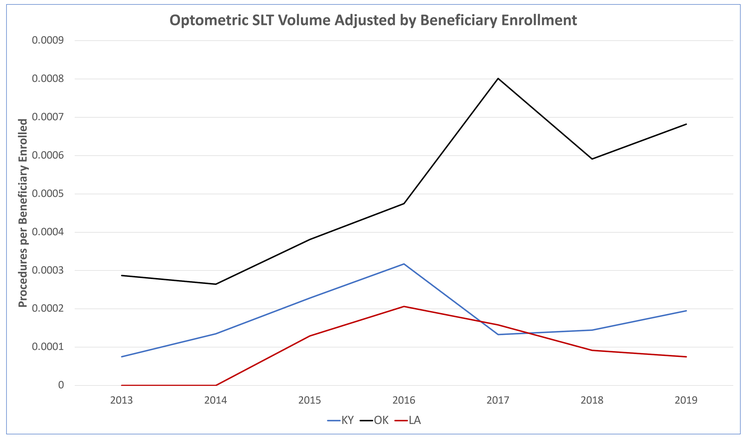
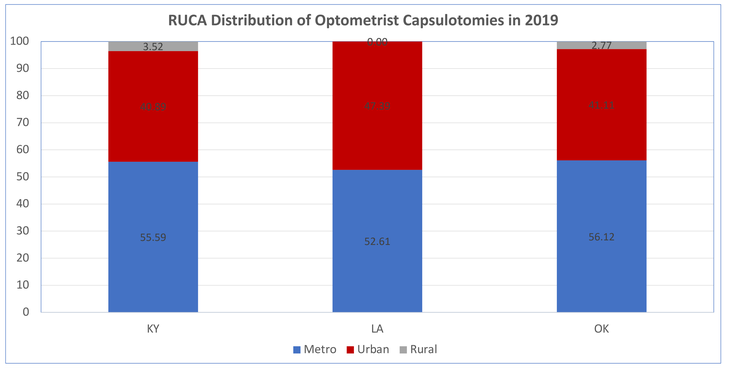


Figure 2: Annual Adjusted Number of Laser Procedures by Optometrists
While formal time-series statistical testing is limited by sample size and autocorrelation, we noted increases in optometrist-performed capsulotomies after adjusting for each state's annual Medicare enrollee numbers. This trend is observed as well in Oklahoma for SLTs, with fluctuations observed in Kentucky and Louisiana. COVID resulted in decreased volumes in 2020.



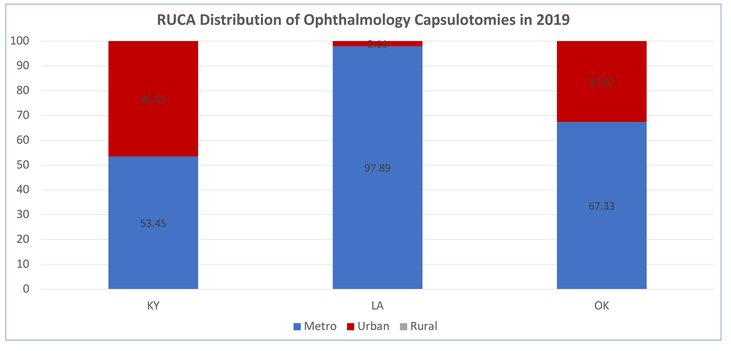


Figure 3: RUCA Distribution of Capsulotomies between Optometrists and Ophthalmologists
In 2019, the distribution of optometric laser procedures was significantly greater in non-metropolitan regions (versus metropolitan regions) compared to ophthalmologic lasers in Louisiana ($p < 0.001$, OR = 41.7) and Oklahoma ($p < 0.001$, OR = 1.61). No significant difference was found in Kentucky ($p = 0.15$).

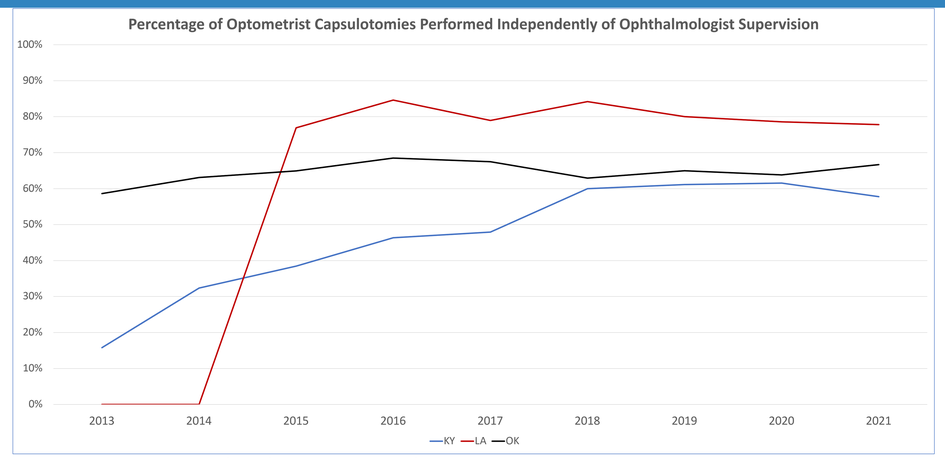


Figure 4: Drastic Increases in Independent Optometry Capsulotomies
Nationally, as of 2021, an average of 48% optometrist performed capsulotomies were completed independently of any ophthalmologist. Kentucky, Louisiana, and Oklahoma had notable percentages of optometrists performing capsulotomies independently of ophthalmologists with an initial sharp rise after legislation. Not depicted in this graph is Indiana, which had a significant number of capsulotomies performed, which were all performed in association with an ophthalmologist.

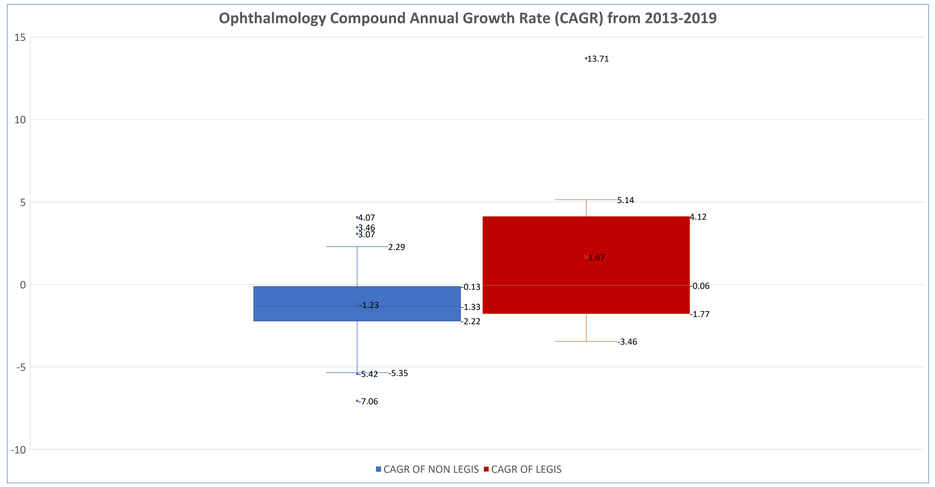


Figure 5: Annual Growth of Ophthalmology Capsulotomies in States with and without Optometry Expansion of Scope of Practice
Between 2013–2019, states with optometric laser legislation (n=8) saw a modest annual increase in ophthalmologist capsulotomy rates (+1.67%), whereas other states (n=43 including Washington DC) saw a slight decline (–1.23%). This difference was not statistically significant ($p = 0.18$).

Discussion/Conclusion

- The introduction of legislation for optometry laser privileges has led to a dramatic increase in the number of anterior segment lasers performed optometrists, especially in states where legislation has been passed for a period of time
- Optometric laser procedure numbers continue to grow, with a significant proportion of lasers completed independently of ophthalmology supervision
- While optometrists provided some rural care, the majority of optometric laser procedures are still mostly performed in metropolitan or urban settings, suggesting limited increased access to care in states despite significant time since expansion
- While optometry laser volume continues to grow, ophthalmology laser growth rates in those states do not appear to be affected, although this may change as additional states continue to expand optometry scope of practice
- This study was limited by national drops in volume during the COVID in 2020 and insufficient data from states with newly introduced legislation, which should be addressed in future studies
- Future studies should also aim to include efficacy and complications of optometric lasers, especially when performed independently of ophthalmology