The purpose of this study is to use a retrospective cohort study design to compare average times for residents undergoing phacoemulsification cataract surgery performed by a senior (PGY4) ophthalmology resident as primary surgeon, during a 10 month period 09/01/2014 – 06/30/2015. Hines VA Hospital electronic medical records were reviewed to record operative procedural times and total OR room times. The presence or absence of surgical complications or other surgical complexities was recorded. De-identified demographic data including age and gender were collected to allow comparisons between the 2 subpopulations of the study. Recorded data was anonymous, and results were tabulated in an Excel® spreadsheet with no patient identifiers or protected health information (PHI).

Five steps key steps of cataract surgery were chosen for analysis: 1) Incision 2) Anterior capsulotomy 3) Nucleus removal 4) Cortical removal 5) IOL insertion and placement.

Total room time, total operation time, and incision time were all found to be significantly longer in the laser group versus the traditional phaco group (each p < 0.05). The mean difference in total operating time for the FLACS group was 17.6 minutes longer than the traditional group (p < 0.001). Average total room time was 9.0 minutes longer in the FLACS groups (p = 0.02).

There were no statistically significant differences between groups for the individual steps of nucleus removal, cortical removal, or IOL insertion and placement.

Femtosecond laser technology represents an emerging cataract surgery modality, which has been increasingly adopted by residency training programs in recent years. The current study of resident performance found lower efficiency of FLACS compared to traditional phacoemulsification regarding total OR time, total procedural time, and incision time. FLACS showed a small advantage in shorter mean time for manual completion of capsulotomy, and FLACS has also been reported to improve both safety and accuracy of this step. Resident learning curve for the FLACS procedures may partially explain differences of efficiency. Future study might identify barriers to operative efficiency associated with FLACS in a resident teaching setting.

References