

Guest Editorial

Is there a role for teaching manual small incision cataract surgery in U.S. training programmes?

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There is a growing interest among recent United States (US) medical school graduates to incorporate a global health curriculum into their speciality training. In addition to learning principles in public health specific to delivering eye care in low- and middle-income countries, residents are increasingly interested in manual small incision cataract surgery (MSICS). However, with advanced phacoemulsification increasingly standardised across US training institutions, is there a role to teach MSICS to US residents?

In short, yes, but it goes beyond the immediate reasons one might think. The efficacy and safety of MSICS with skilled surgeons have been well-established over the past decade. In the US, however, MSICS is typically reserved only for cases that are extraordinarily dense and often with concurrent zonular or corneal pathology. In these circumstances, MSICS has been shown to be a superior option; however, the pre-operative risk factors that often accompany these challenging cases can make surgeons reluctant to attempt a less familiar technique. Given its known efficacy, why are many US surgeons inexperienced with the technique?

For historical perspective, a 2002 a survey across US residency programs found that 73% of residents began learning cataract extraction using the extracapsular cataract extraction (ECCE) technique, while 24% began with phacoemulsification.^[1] By 2010, another survey found that <23% of residency programs were training residents in ECCE.^[2] At that time, there was a concern that familiarity with ECCE and the surgical principles essential for its efficacy would be lost on future trainees.

Now with MSICS having largely replaced ECCE as a superior technique, the importance of reintroducing the technique into residency training is more important than ever. Yet it is still not widely adopted across US training institutions,

nor is it included in the accreditation council for graduate medical education (ACGME) surgical case requirements. Due to a limited number of suitable candidates and a scarcity of experienced MSICS instructors, recent graduates often perform only a few, if any, cases during their training.

How do we get US trainees more comfortable with the technique?

Surgical wetlab training on pig eyes is excellent for practicing concepts in tunnel creation however it falls short on accurately simulating the intraocular steps. The HelpMeSee surgical simulator has taken simulated surgery a step further with the implementation of haptic feedback and accurately reproduces the individual steps of MSICS surgery. Not all US training centers however have easy access to the simulator and the training can be cost-prohibitive for many programs. Some US residencies offer short-term international experiences for trainees to learn from other healthcare systems and to increase surgical exposure. Residents may be granted the opportunity to perform in MSICS; however, it is crucial to ensure that any surgical procedures performed by a US trainee abroad are conducted under the close supervision of an experienced mentor. Despite these efforts, still many graduating residents will not graduate feeling comfortable performing MISCS in independent practice.

How many cases then are enough?

Aravind Hospitals published an extensive review of resident-performed MSICS with analysis on the learning curve of the technique.^[3] Their findings suggest that the number of trainee-performed MSICS surgeries fall below 2% complication rate is 300 cases. That 2% benchmark of intraoperative and immediate post-operative complications was based on the published rate of posterior capsular (PC) rupture for the UK across all surgeons. It is highly unlikely that any US-trained resident will graduate with exposure to 300 MSICS cases

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however trainees do not necessarily need to graduate with a mastery of MSICS. Instead, any introduction to the technique adds depth to surgical training and contributes towards resident education in other less measurable ways.

On appropriately selected patients and with close surgical mentorship, MSICS can be safely taught in US training programs despite low case volume.^[4] Exposure to the technique lends surgical adeptness in tunnel creation, chamber stability and capsulorrhexis. Understanding the fluidics of MSICS and how it differs from phacoemulsification also contributes towards overall surgical awareness and surgical decision-making. Incorporating MSICS into the residency curriculum broadens the skill set of trainees and motivates recent graduates to tackle more complex cases. In less tangible ways, exposure to the technique also imparts an appreciation for the vital role MSICS has played in reversing blindness in the majority of the world. The goal is to teach surgical concepts that are translatable to all the aspects of intraocular surgery and to lay the groundwork for graduates to pursue opportunities for further training. As with

everything, graduating residency is just the starting point of career-long learning.

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