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#### **Title**

Novel Cost-Effective Model to Simulate Corneal Foreign Body Removal

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strain to the emergency medicine department or curricular adjustments of the school, we were able to establish an early presence of emergency medicine to medical students while simultaneously improving resident teaching skills.

## 45 Novel Cost-Effective Model to Simulate Corneal Foreign Body Removal

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**Background:** Corneal injury from foreign bodies (FB) is a common complaint in the emergency department (ED), but deeply embedded corneal FB are much less common and more challenging to remove. Individual resident experience with corneal FB removal is highly variable. Through simulation, ED residents can practice skills to which they may have limited clinical exposure.

**Educational Objectives:** To teach ED residents several techniques for removing embedded corneal FB using a novel eyeball model to mimic the feel and consistency of the human cornea.

**Curricular Design:** Model eyeballs (Fig. 1) were crafted with gelatin dessert (Jell-O® Jigglers recipe) poured into watercolor trays to make the rounded shape of the cornea and into baby bottle caps to represent the rest of the eye. Prior to cooling, shavings from a metal finger splint were placed into each well. The hardened “corneas” with FB were removed from the molds and easily adhered to the “globe” in the bottle caps.

Thirty ED residents participated in a 1-hour hands-on workshop. After a brief presentation on various methods for corneal FB removal (e.g. using a needle tip on a syringe or with an electric burr), residents paired up to practice these techniques with the eyeball models (Fig. 2). Faculty instructors provided direct observation and feedback. Residents were given a 3-question anonymous survey at the conclusion, soliciting prior experience with corneal FB removal, how realistic the eyeball models felt, and how helpful the session was to their training.

**Impact/Effectiveness:** Prior to this workshop, only one third of residents had removed more than 2 deeply embedded corneal FB. This hands-on approach with the gelatin model allowed all participants to practice until they felt more comfortable. The majority of residents found the simulated experience very realistic, and all participants

found it either very helpful or outstanding to their training.

This novel, cost-effective eyeball model is easily duplicable, portable, and can be easily utilized in large group training sessions. Each model also accommodates multiple corneal FB, giving the learner multiple opportunities to practice various techniques.

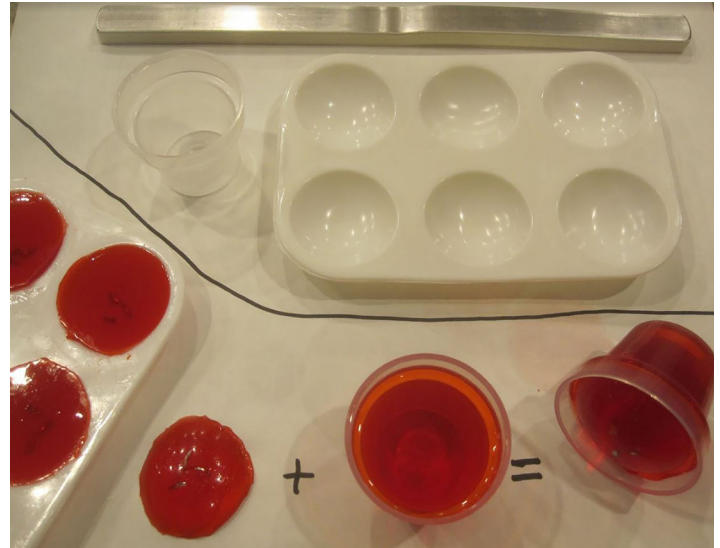


Figure 1.

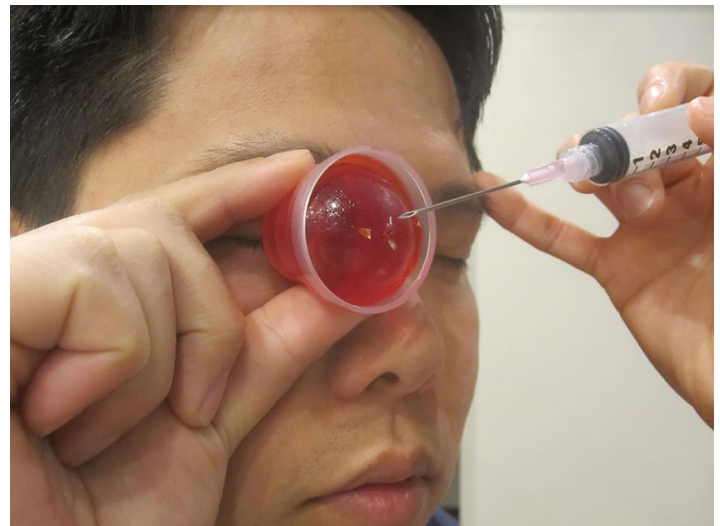


Figure 2.