

Anesthesia Spaced Learning Initiative

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Introduction: It is time honored that medical trainees cram the night before exams. While useful for the purpose of passing exams, it does little in facilitating long term recall. An exponential loss of recall usually occurs with time. In fact, a long-held hypothesis called Ebbinghaus' forgetting curve first noted in 1885 readily explains the transience that occurs.

As educators, how does one teach students to think critically with a mastery of knowledge? An interesting thing about Ebbinghaus' hypothesis is that better memory representation combined with spaced recall results in better overall retention (Fig 2). Technology affords educator's an unbelievable opportunity to disseminate large amounts of information to learners who can then go through a spaced learning process to master information. Preliminary findings by Kerfoot and others has shown promise in this arena specifically with medical knowledge.

We developed a technology based platform for smartphones and tablets to disseminate and test anesthesia residents on medical knowledge via this spaced learning concept and tracked retention rates with utilization of this program.

Methods: We approached anesthesia training programs and requested voluntary participation from trainees. 170 enrollees from September 2015 to January 2016. 39 multiple choice questions were written and designed to assess learner comfort on a broad range of general anesthesia topics. Questions were grouped into blocks of three and sent out to smart phones every three days with initiation of the program. Questions answered correctly were resent after 6 days while questions answered incorrectly were resent after 3 days. All resent questions had their answer sets randomized. Questions were retired when answered correctly twice on consecutive attempts. Immediate feedback with correct answer resource as well as a distribution chart from those who answered the question would be displayed.

Results: We had over 4850 responses to the anesthesia question bank. 1st attempt success averaged 43% for all learners. Success rate improved to 72% through use of the program. Roughly 68% of learners participated in the project to varying levels. 32% did not.

Discussion: Regardless of training center or baseline didactic program, regular and spaced intervals of questions tied to key words with answers attached allowed for comparison to different cohorts which resulted in consistent engagement and retention of the information when tested. This provides a potential avenue for technology aided resident engagement as well as feedback to training programs on information that might be overlooked.

