**Development of CEVL NEURAXIAL – A Computer-Enhanced Visual Learning Tool to Augment the Teaching of Neuraxial Procedures**

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Heather C. Nixon, M.D.; Laurie A. Chalifoux, M.D.; Max Maizels, M.D.; Peralta Feyce, M.D.; Wong A. Cynthia, M.D.; Toledo Paloma, M.D., M.P.H.
Northwestern University - Feinberg School of Medicine; Childrens Memorial Hospital

**Objectives:** Traditional methods employed to teach anesthesiology residents include formal didactics, modeling and direct observation. However, because of recent societal changes such as reduced duty hours and heightened awareness of safety and liability issues, we believe new strategies are required. In order to augment resident learning, we created a novel computer-enhanced visual learning (CEVL) module to facilitate the teaching of neuraxial techniques to anesthesiology residents. The CEVL method was chosen because it has already shown success in teaching surgical and obstetrics residents.

**Methods:** The following steps were used to create CEVL NEURAXIAL

1. Content Creation: To create CEVL NEURAXIAL, we deconstructed neuraxial procedures into digestible components (see Figure 1). A PowerPoint platform with video footage, audio description, and animation were created for each component. The tool is divided into the components of preparing for a neuraxial technique, performing the procedure and considerations following the procedure. A script for narration was composed to accompany video footage and slides. In addition, links to procedural pearls and practical advice were devised to provide advanced content. Animations are used to demonstrate concepts difficult to capture via video. CEVL NEURAXIAL was created entirely within our department by the obstetrical anesthesiology attending staff and fellows with the assistance of the CEVL platform creator (MM).

2. Readiness: A “readiness” quiz was developed to test resident knowledge both before and after review of CEVL NEURAXIAL.

3. Implementation: The residents will access CEVL NEURAXIAL via the Internet. In this manner residents may privately review CEVL as often as necessary, at their own pace and anywhere they choose. CEVL Neuraxial may identify gaps in knowledge which residents may then discuss with attending staff.

**Conclusions:** CEVL is a novel teaching tool that responds to societal changes by modernizing the teaching of neuraxial procedures. The e-learning nature of the method allows residents to learn in a controlled environment at their own pace. We plan to study whether CEVL NEURAXIAL improves resident skill acquisition, confidence and ultimately patient outcomes.
Epidural or Combined Spinal/Epidural (CSE)

**Preparation for Procedure**
- Review CEVL
- History and Physical
- Consent
- Expectations for patient
- Discuss case with attending
- Gather Equipment

**Procedure**
- Components:
  - Patient Monitors
  - Time-out
  - Patient Position
  - Sterile Preparation
  - Assembling Kit
  - Neuraxial technique
  - Epidural
  - CSE
  - Securing the Catheter

**Post Procedure**
- Components:
  - Repositioning
  - Monitoring
  - Assess Pain Score
  - Setting up Epidural Pump
  - Charting
  - Patient Education