



Assessment of a Web-Based Audio-Visual Module for the Education of New Residents in Acute Pain Management

Linda Le-Wendling¹, MD, Baris Ihnatsenka¹, MD, Stephen Lucas¹, MD, Veerandra Koyyalamudi¹, MD, Clint Elliott², MD, André Boezaart¹, MD, PhD, Adam Wendling¹, MD and Patrick Tighe¹, MD

¹Department of Anesthesiology, University of Florida College of Medicine, Gainesville, FL

²Department of Anesthesiology, Ochsner Health System, New Orleans, LA

ABSTRACT

Purpose: To assess the usefulness of an audio-visual, web-based module in the education of basic pain management for surgical and anesthesiology interns.

Methods: Nine interns were given unlimited access to a one-hour, web-based, audio-visual Power Point presentation on Basic Pain Management. Participants were assessed for basic pain management knowledge using open-ended case scenarios prior to, and at one week and one month after access to the web-based module. Responses were graded for thoroughness and appropriateness via a 6-point rating system by faculty members of the Acute Pain Service who were given objective guidelines for rating. Participants were asked to assess the web-based module's effectiveness in education via surveys.

Results: Statistical analysis (Friedman test, SPSS Software) demonstrated an improvement in thoroughness ($P < 0.01$), but no difference in appropriateness ($P = 0.66$) one week after access to the web-based module. The initial improvement in thoroughness was not sustained at one month ($P = 0.4$). In the survey responses, 100% of the participants felt that the web-based module enhanced their understanding of basic pain management as well as changed the way they practice pain management. 87.5% of the participants noted that the ability to access the module multiple times resulted in improved retention of the information.

Conclusion: A web-based, audio-visual module on Basic Pain Management, while teaching the interns more analgesic options available to them, does not affect their clinical judgment. The improvement in thoroughness was not sustained beyond the period of initial access to the module. All participants felt that the module changed their practice of acute pain management.

INTRODUCTION

- Web-based technology is increasingly being utilized in the education of medical personnel in pain management. [1,2]
- Web-based modules allow asynchronous learning, and are particularly useful in an environment where the learner has multiple responsibilities and time constraints. [3]
- Modules also allow for distance learning, with minimal utilization of resources and educator time once the module is created. [4]

METHODS

- Scenarios focused on the importance of multimodal analgesia for management of pain in the acute setting.
- Case scenarios graded for appropriateness and thoroughness of response by the Acute Pain Medicine faculty who did not access the module.

Sample Case Scenario

A 35 yo morbidly obese female, with a BMI of 50, is scheduled to undergo below the knee amputation for gangrene. Her medical history is remarkable for insulin-dependent diabetes with peripheral neuropathy, fibromyalgia, and peripheral vascular disease. Because of her PVD and risk for DVT, she was placed on an IV heparin infusion.

Please list your recommendations for managing her pain (You will be assessed for thoroughness and appropriateness of response):

Survey #1

- Did you learn from this web-based module?
- How many sittings did it take to complete this module?
- How much time was spent on this module?
- Will you use this module more than once to assist in acute pain management of patients?
- Will you change your practice of pain management based on this module?
- What suggestions do you have to improve this module?
- Did you think that the ability to access the module multiple times improves retention of the information?

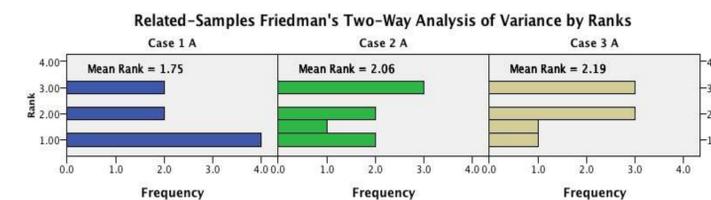
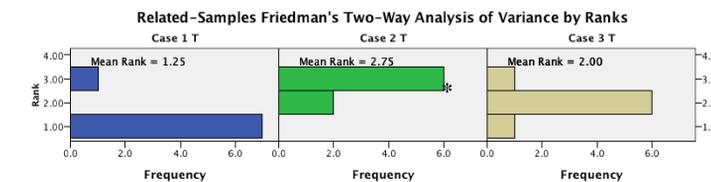
Scoring for Appropriateness

| | |
|---|---|
| 0 | participant response is harmful for patient |
| 1 | participant response is neither harmful nor helpful for pain management |
| 2 | participant response is helpful for patient |
| 3 | participant response will result in a patient with absolutely no pain |

Scoring for Thoroughness

| | |
|---|---|
| 0 | participant did not state any modality for pain management |
| 1 | participant stated 1 mode of analgesia for patient |
| 2 | participant stated 2 modes of analgesia for patient |
| 3 | participant stated more than 2 modes of analgesia for the patient |

RESULTS



* $p < 0.05$

- Despite unlimited access to module, 50% of interns only accessed module once.
- However, 7 of 8 interns stated that repeated access to module may improve retention.
- Suggestions on improving module include:
 - Summary slides or handouts with main points
 - Detailed dosing information on systemic medications
 - Easy maneuverability through audio-visual module (the ability to pause, forward, and rewind)

CONCLUSIONS

- Web-based module allows for an asynchronous modality to assist in the education of Basic Pain Management.
- Web-based modules may not replace training on a rotation in exercising appropriate clinical judgment and effective decision-making.
- Web-based modules can assist in expanding the learner's repertoire of basic pain management techniques.
- Further research on designing web-based modules to assist with improving clinical judgment is warranted.

REFERENCES

- Raffety B, Allendoerfer C, Minstrell J, Chabal C, Dunbar P, Nakamura Y. A facet-based system for computer-assisted instruction in pain management for elderly patients. Proc AMIA Symp 2000;670-4.
- Doyle DJ. Web-based education in anesthesiology: a critical overview. Curr Opin Anaesthesiol 2008;21:6:766-71.
- Burnette K, Ramundo M, Stevenson M, Beeson MS. Evaluation of a web-based asynchronous pediatric emergency medicine learning tool for residents and medical students. Acad Emerg Med 2009;16 Suppl 2:S46-50.
- Lund A, Lam K, Parks P. Disaster Medicine Online: evaluation of an online, modular, interactive, asynchronous curriculum. CJEM 2002;4:408-13.