

## LEARNING OBJECTIVES

1. Demonstrate the creation of an e-learning module with an integrated, fully functional PACS system.
2. Describe a new way to deliver didactic material to residents in a succinct format which can be completed at their discretion.
3. Show how the use of a fully functional online PACS creates a more realistic feel to unknown cases, thus mimicking real-life practice.

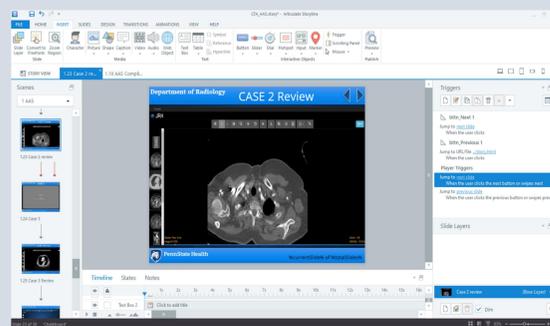
## BACKGROUND

A flipped classroom approach to learning increases knowledge acquisition and retention<sup>2</sup>. It has also been demonstrated to increase learner engagement<sup>4</sup>. An easily accessible, online e-learning module with a fully functional zero footprint PACS was created with the intention of introducing an alternative, modern and effective way to educate radiology residents. Acute Aortic Syndrome (AAS) is the focus of the introductory module due to its high impact factor for residents on call.

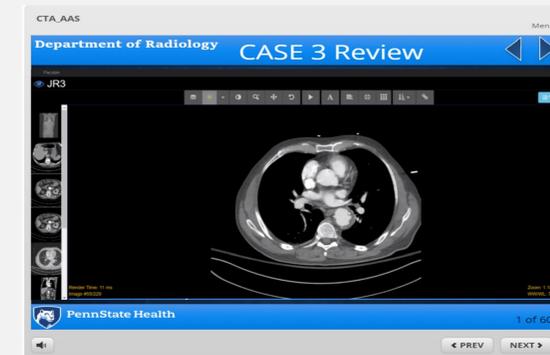
## MODULE CREATION

Articulate Storyline 3 is software designed to create e-learning courses. It was used to construct an interactive module consisting of educational slides, unknown cases, quiz questions and instructive videos. A zero footprint PACS is integrated into the module to more accurately simulate the radiology on-call experience of unknown cases. This effectively eliminates “key-image” type cases. After each unknown case, a narrated video concisely guides the learner through the imaging by describing relevant findings. At the end of the module is a quiz using various interactive formats. Cases for the module were obtained from the institution, de-identified, and easily uploaded. Notably, the module is widely accessible via any HTML5-capable web browser and is optimized for viewing via tablet, phone, desktop, or laptop.

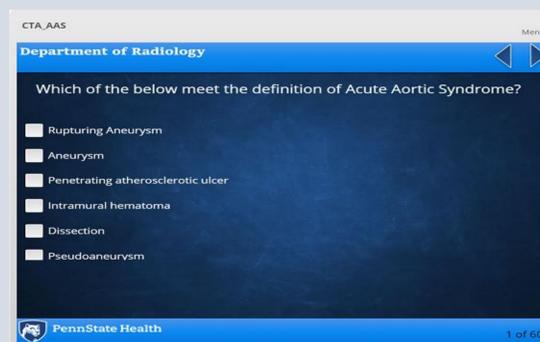
A familiar software interface lends itself to an easy learning curve for the module creator.



After each case, a narrated video clearly and concisely guides the resident through the imaging findings.



## BACKGROUND



- The module begins with a pretest question.
- This allows anticipation of the module's contents, thus priming the user.



- The module concludes with additional questions to assess knowledge-recall and help solidify the covered concepts.
- Various interactive question formats are available including multiple choice, matching, true-false, and hot-spot.

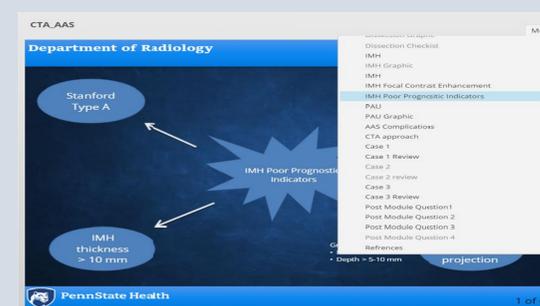
## CONCLUSION

The flipped classroom approach to learning is effective. This approach combined with e-learning modules provides an opportunity for information sharing and collaboration.<sup>6</sup> Creation of e-learning modules with a fully integrated online PACS is easily achievable. An integrated PACS eliminates key images and allows trainees to visualize and appreciate the entire extent of AAS pathology. The flipped classroom utilizing this type of learning module should be a staple of radiology resident education.

## REFERENCES

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An interactive menu allows residents to easily navigate through the module.



- Zero Footprint PACS is fully integrated into the module.
- Residents are able to window/level, zoom, scroll, and annotate.
- All reconstructions are available for viewing by the resident.

