# Ultrasound eLearning Module Courseware Development Project

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## Objective

- To develop an eLearning courseware module to deliver teaching material in an electronic format.
- To introduce abdominal ultrasound teaching to students in the CUHK Medical Programme Radiology Teaching curriculum
- To allow students to develop an understanding of clinical ultrasound, including the typical clinical indications for ultrasound and the sonographic features of common clinical pathologies

## eLearning Module Development

The project comprised of the following components:

### Academic content development

New teaching material was created which focused on a case based approach for common clinical pathologies. Each case portrayed a clinical scenario, followed by basic clinical questions designed stimulate thinking on the topic. Videos showing abnormal radiological findings were included, allowing students to learn to recognize abnormalities from real clinical cases. Relevant features were pointed out to students as students are guided through each case. Learning occurs as the case unfolded. An online image library for each case was included. Each case concluded with interactive MCQs to allow the student to evaluate their own learning of the topic.

### Electronic module development

eLearning development was with Adobe Articulate. Video clips and radiological images of the ultrasound cases were embedded directly into the module. Blackboard hosting of the module allows student access to the module at their leisure. Students benefit greatly by having access to the learning material anytime and anywhere.


## Design and Features

**Case Based Learning:** A case-based approach engages students in the learning of specific conditions typically encountered in clinical practice. The module acts to facilitate the student in building their knowledge around the case.


**Digital videos of real clinical cases:** To provide students with relevant practical experience and allow them to appreciate theory in practice.

**Interactive Quizzes:** Initial clinical questions have been designed stimulate thinking on the topic. An additional bank of end of case questions are included for each case to allow students to test their knowledge and verify their understanding before moving on to the next section.

**Medical illustrations and animation:** The interactive function of the module has been enhanced with original medical illustrations and animation. The use of multiple content formats (informative text, illustrations, animations, video, etc.), allows students to interact with the material with different learning styles.

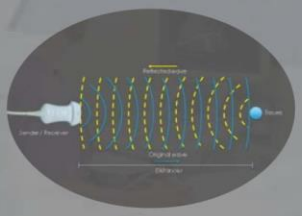
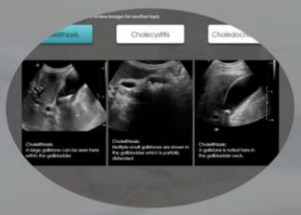
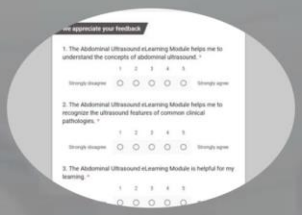


**Image library:** A collection of digital images relevant to each case have been collected and presented. Students can use these images to gain an appreciation for the spectrum of radiographic findings related to each condition.



**Feedback:** An end of module feedback feature allows students to complete an evaluation survey and send comments regarding the material to the project team.

## Future Directions

eLearning enhances student learning to make it more easily accessible, relevant and effective. This Ultrasound eLearning Module Courseware Development Project has served as a beginning in changes to the Radiology Teaching Program. A focus on eLearning will form a part of the Radiology Teaching Program for the next generation.

## Acknowledgements

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