Title: Customizable Online Platform for Remote Asynchronous Medical Education

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Background
The COVID-19 pandemic created an immediate need for remote learning in medical education. Online question banks are available, however their content is static and not customized to each learner or instructor.

Technology
The website (http://www.pathqbank.org) is deployed on an InMotion Hosting (Virginia Beach, VA) shared server and utilizes a LAMP stack. Yii Framework 2.0 was used as the backbone which contains a model-view-controller style architecture. Development was done using cPanel applications, such as phpMyAdmin (The phpMyAdmin Project), included with the Inmotion Hosting account.

Methods
A custom website was created using freely-available software tools. User access control, image overlays, question and answer feedback, and performance analytics were added using custom programming. The user access portion of the website was developed to allow users to control who has access to their content while at the same time promoting an open access vision. Instructors can add overlays to images, which can be visible all the time or only when a specific answer is selected. The overlays are created using the Imagine php library and are in the form of either an arrow or a circle. In addition to the displayed answer choice text, each answer can be linked with specific text data, which is displayed when that answer is selected as a choice. The intent is for this text to represent an explanation. Instructors can access statistics involving individual student performance and overall performance for each question.

Results
The platform successfully enabled the creation of asynchronous, customized image and problem-based learning activities as well as tracking of trainee performance over time and across keyword-defined topic areas. In addition to student and question specific performance analysis, the keyword search function allows instructors to search for question stems, correct answers, and incorrect answers.

Conclusions
Using customizable problem-based learning such as the platform described here, medical educators can deploy asynchronous remote learning while preserving the individuality of the educational curriculum and tailoring the educational experience to their trainees.