Electronic interactive learning to supplement acute care teaching.

Context and setting
A web-based interactive learning module was developed to supplement a highly rated traditionally taught course (Very BASIC) designed to help students achieve acute care competencies rated as very important in the United Kingdom ACUTE project (http://www.resus.org.uk/acute/welcome.htm). The entire package was delivered to all final year medical students at The Chinese University of Hong Kong over a 2 week period. Each student received 2.5 days of direct tutor contact time.

Why was the idea necessary
Acute care of severely ill patients is often sub-optimal, but may be improved by better acute care training. Barriers to acute care training include insufficient dedicated time allocated to teaching, excessive clinical workload, insufficient staffing and funding. The Very BASIC course was designed to address some of these issues. However despite expanding course duration from the initial 1.5 days contact time to 2.5 days it was still not possible to address all “very important” ACUTE competencies. To rectify this and supplement teaching of competencies already covered, without a recurrent need for more tutor time, a web-based interactive learning module was developed.

What was done
The web-based package consisted of a question and answer forum, narrated lectures, interactive lessons, videos and animations to demonstrate practical procedures and clinical signs and several formative assessments. Topics covered included arterial blood gas sampling and interpretation, acute metabolic disturbances, non-traumatic coma, acute respiratory failure and aspects of sepsis.

Evaluation of results and impact
Over 50,000 student-activities were logged by the 135 students in 2 weeks. 107 students completed an on-line module evaluation. With regard to usability, >60% agreed or strongly agreed that the formative self-assessments and interactive lessons ran smoothly without faults with a corresponding figure of >80% for narrated lectures and ease of browsing. With regard to usefulness, ≥80% agreed or strongly agreed narrated lectures improved understanding of the course material, and that the question and answer forum was useful in clarifying areas of doubt ; >90% agreed or strongly agreed that interactive lessons improved their understanding of how to apply their knowledge, self assessment exercises improved their understanding of the course material, and the content as a whole was useful in preparing the respondent to work as a doctor. A focus group of 4 randomly selected students commented that the web resources were useful for learning, specifically mentioning animations, narrated lectures and the question and answer forum. There was no correlation between the results of the web-based formative assessment and summative assessment but this may reflect the narrower focus of web-based material and the fact that the students were allowed multiple attempts at the formative assessments. Performance in the summative assessment improved compared to 36 historical controls who completed the Very BASIC course with similar contact time but without the web-based module (mean mark 75% vs 67%, p<0.001). These results suggest that the module provided a useful supplement to a traditionally delivered acute care course. Both the module and course are available free to other medical schools (http://www.aic.cuhk.edu.hk/web8/Very BASIC.htm).