

A New Hi-Fidelity Online Physiological Simulator

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BACKGROUND

There is increased use of distance learning across healthcare. There are no patient simulators available online.

METHODS

We present a patient simulation which is accessible both online and from within computer applications such as PowerPoint or Acrobat. A mixture of patient exercise and animal data was used to design a complex electrophysiological model which generates ECG signals accordingly. The ECG morphology is then created in real time using an interpretation of reverse fourier analysis.

RESULTS

The program generates a dynamic ECG trace in response to rhythm, drug, fluid, shock and pacing interactions. The ECG morphology can change gradually to demonstrate electrolyte and myocardial change. These interactions can be adapted and recorded as part of an online tutorial or PowerPoint demonstration.

CONCLUSION

We have created a unique online patient simulator which is flexible, interactive and represents a significant advancement in fidelity from current programs. Further formal evaluation is planned to assess its utility as a teaching tool.