SEEKING CINDERELLA: MATHEMATICAL MODELS, LIFE SUPPORT, AND MEDICAL EDUCATION

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ABSTRACT

Each year, tens of thousands of patients require life support when seriously ill. The education of those who manage patients during such life support is, in general, more akin to an apprenticeship than a formal curriculum. Using mechanical ventilation as an example, we will demonstrate that mathematical models offer unique advantages for training individuals responsible for critically ill patients. Dynamic microsimulations based on simple mathematical models can be used very effectively for guided learning, self instruction, assessment of practitioner competence, and evaluation of environmental factors on provider performance. The application of mathematical models and simulation techniques for educational purposes is an exciting area offering many near-term benefits and great opportunities for investigation.