CENTER FOR HEALTHCARE ENGINEERING & PATIENT SAFETY
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Use of Simulation to Assess Surgical Training Opportunities

William Pozehl B.S.E., Amy Cohn Ph.D., Rishindra Reddy M.D., F. Jacob Seagull Ph.D., Mark Daskin Ph.D.

Problem Statement

How can residency programs predict or assess their capacity to provide adequate training opportunities to their trainees?

Answering this question requires knowledge of:

- Resident certification requirements
- Nature (frequency and randomness) of training opportunities
- Assignment of training opportunities

Resident Certification Requirements

The 24 Member Boards of the American Board of Medical Specialties (ABMS) set "educational and professional standards for certifying doctors in medical specialties."

These standards include minimum case numbers determined by the Accreditation Council for Graduate Medical Education (ACGME).

Nature of Training Opportunities

Many procedures are emergent or scheduled with little notice, leading to unpredictable training opportunities.

Program directors cannot be certain that a sufficient number of opportunities will be equitably distributed amongst the trainees.

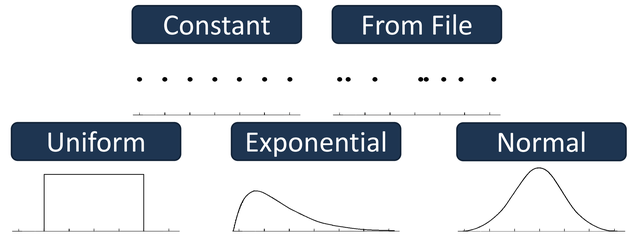
Assignment of Training Opportunities

Because only one trainee may receive "credit" for any training opportunity, choosing the right person for each case is an important and complicated decision.

Solution Approach

We designed a simulator that enables prediction of program performance according to resident certification requirements, nature and assignment of training opportunities, as well as additional simulation settings.

TIME BETWEEN OPPORTUNITIES

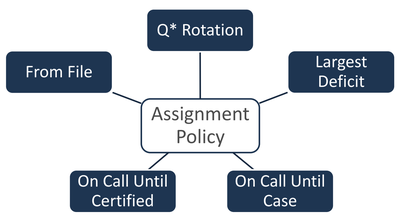


The input options for the time between opportunities enables accurate modeling of the fixed or random nature of training.

RESIDENT CASE MINIMUMS

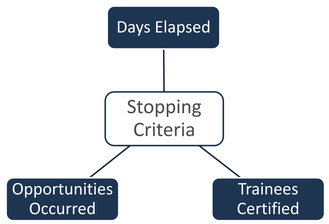
The simulator enables us to predict the opportunities provided to each trainee and assess how equitably the opportunities were distributed.

WORK SCHEDULE



The user may also set whether to allow multiple trainees to work each day and how many training opportunities can be handled per trainee per day.

SIMULATION DETAILS

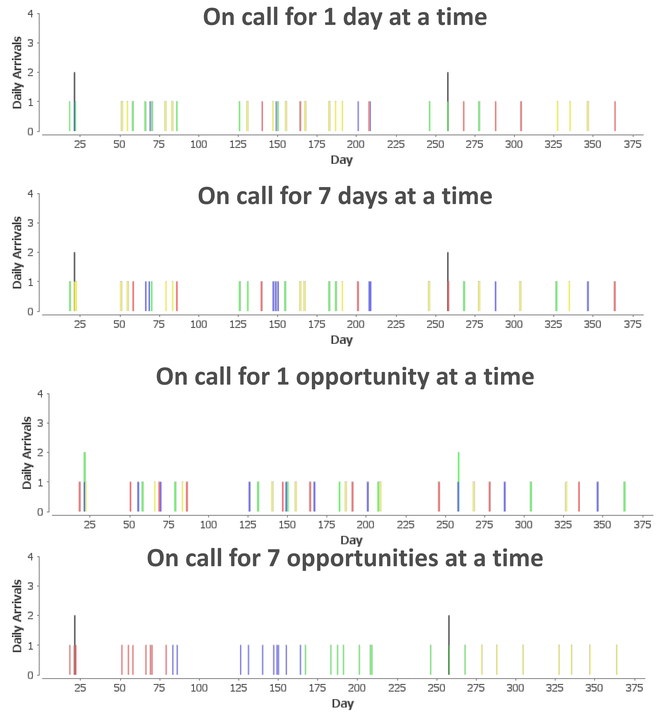


The user must also choose whether to conduct a single- or multi-repetition simulation, which provide different outputs for program assessment.

Impact/Results

Applications

Our collaborators have used the simulator to assess performance for multiple residency programs at the University of Michigan Health System, including the effects of changes to program size, case volume, certification requirements, and assignment policies.



Dissemination

The simulator is available for free download at:

http://bit.do/TrainingSimulator

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