Background
The costs of the manikins, and the time, manpower, training and maintenance required to sustain them are high and should be weighed against meaningful and measurable student learning outcomes. Few studies have addressed the question of how much fidelity is actually needed to impact measurable learning outcomes. Exam grades stand in partial proxy for competence in measurable learning outcomes. Exam grades stand in partial proxy for competence in measurable learning outcomes.

Methods
One hundred three nursing students on two campuses were randomized by clinical group to one of two treatment groups, for simplicity and minimal disruption. The main campus was randomized by clinical group to one of two treatment groups, for simplicity and minimal disruption. Two instructors with the same script and experience with 15-minute debrief. Students arrived and 15-minute high fidelity Sim Man® simulation experience with the VitalSim® manikin with a 15-minute immediate posttest and current article reading. All students received a multiple-choice pretest.

Results
There was no difference in student satisfaction scores or comments between the VitalSim® and SimMan® groups. Posttest knowledge scores were significantly improved over pre-test scores for each of the groups, including the control group. A repeat posttest six months later revealed no difference in knowledge scores between the three groups. These scores were still higher than pretest scores but lower than the initial posttest scores.

Conclusions
There was no difference in student posttest satisfaction scores between the VitalSim® and SimMan® groups. Faculty may be comfortable knowing that learning and satisfaction is equivalent between different medium fidelity ($15K) and high fidelity ($55K) simulation levels. The use of simulation manikins for measuring learning outcomes measured by pencil and paper exams was not supported by this study. The use of simulation manikins to measure learning with test scores for novice students requires further study. In retrospect, we realized that this was the first scenario experience for this large group of students.

Additional experiences with simulation lead us to believe that students need experience with simulation “to learn how to learn” with simulation.

COMMENTS
I liked the realistic nature of the simulation and the fact we were on our own like real life, was great learning tool. Using our own knowledge is so effective.

It was pretty realistic and frightening (in a good way). I feel a little bit more prepared now. A lot of equipment was available. This made it less intimidating.

I've felt intimidated by cardiac materials so knowledge is so effective.

I liked how closely it related to class material. I've felt intimidated by cardiac materials so knowledge is way different than sitting in a class. Everything else was great learning tool.

We had to think for ourselves and use our knowledge is so effective.

It made students realize that doing what you know is way different than sitting in a class.

It showed me how prepared I need to be if I am in a real hospital situation where I may not have much help.

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