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Low-cost Priapism Model for Emergency Medicine Simulation: Detumescence using Intracavernosal Suction (DICS)

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Table 1. Applying Kirkpatrick’s Learning Evaluation to Learners on a Sample Project Challenge: “Assisting Patients with Improved Provider Identification” from “Innovation per DIEM” course. Source: Kirkpatrick Partners. (2009-2016). The Kirkpatrick Model. Retrieved November 17, 2017 from <https://www.kirkpatrickpartners.com/Our-Philosophy/The-Kirkpatrick-Model>

| Sample Project Challenge: | Innovation per DIEM | | | |
|--|---------------------|------------------------|--|--|
| Measurement of Evaluation | Who is Evaluated? | Evaluation Description | Method/Tools | |
| <p>Empathize: Patients do not recognize their providers in the Emergency Department (ED).</p> <p>Problem Definition: How can we keep patients better informed about their providers during their ED stay?</p> <p>Ideate: Creating a feasible interface with real-time updates on the patients’ providers during their care including their name, face, and role.</p> <p>Iteration and Prototyping: Constructing low-technology prototype (i.e. role-playing a patient-physician scenario with polaroid photographs of providers on the wall) with formative feedback from design course faculty and members.</p> <p>Testing: In-situ ED studies on provider recognition based on polaroid photographs of the ED providers with user-interface feedback.</p> | Level 1 – Reaction | Learner | Measuring the degree to which participant reacted to the training. | Daily evaluation Post-event evaluations |
| | Level 2 – Learning | Learner | Measuring the degree to which participants acquire knowledge, skills and attitude from the training. | Reflective essay of design thinking Survey of self-perceived skills Oral presentation |
| | Level 3 – Behavior | Learner | Measuring the degree to which learners apply what they learn | Longitudinal post-course survey for utilizing design thinking in clinical environment. |
| | Level 4 – Results | Learner & Patient | Measuring the effect of the targeted project outcomes on healthcare delivery | Patient satisfaction survey (i.e., Press Ganey) Staff satisfaction survey (i.e., AHRQ Patient Safety Survey) Learner-based reflective surveys for future design projects |

represent the space occupied by the corpus cavernosi. Once cured, the penises were removed and the dowels were extracted. The corpus cavernosi were made from balloons with tubing from posterior nasal packing that was inserted and tied shut. These balloons were inserted into the spaces left by the wooden dowels. Priapism was replicated by insufflating “blood” (water/corn starch/red food coloring mixture) from a syringe through the tubing. This is then detumesced via manual needle aspiration after a penile nerve block has been performed.

Impact/Effectiveness: Currently, there is a lack of readily available task trainers for male urologic emergency procedures. For the cost of less than \$15 per model, our device provides a surprisingly realistic trainer for these rare procedures. Each model is reusable, as only the “corpus cavernosi” balloons need to be replaced per learner. Additionally, each one can be used for myriad urologic procedures.

8 Low-cost Priapism Model for Emergency Medicine Simulation: Detumescence Using Intracavernosal Suction (DICS)

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Background: Priapism is a relatively uncommon ED complaint. However, it is imperative for an ED physician to know how to rapidly relieve this painful threat to male genitourinary health. Providers must ask personal, and sometimes uncomfortable, questions to their patients to determine the etiology (low-flow vs high flow) and then conduct the proper procedure. Having familiarity with the steps involved and practicing the procedure in a simulated environment aids future providers when they will one day be tasked with treating a priapism without immediate urologic backup.

Educational Objectives: To construct a low-cost, realistic model of a human penis that can be used in emergency medicine simulation to teach residents penile nerve blocks, priapism cavernosal aspiration, and other minor procedures (i.e.: zipper entrapment).

Curricular Design: Plaster of Paris molds were made using a commercially available phallic model. Flexible silicone was dyed with flesh-colored pigment and poured into the molds. Two wooden dowels were inserted to

