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VPTL Submission

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VPTL Grant Submission

Use of immersive learning techniques to observe and teach safe opioid prescribing and management

Abstract

The United States is currently experiencing a public health crisis with regards to opioid analgesic overdose events and deaths. Opioid prescribing practices and their associated ill consequences stems in part from a lack of education at the undergraduate, graduate and continuing medical education level. The goals of the proposed project include: reducing harm to patients and society from unsafe opioid prescribing, observing current opioid prescribing practices in medical trainees, and use of collected data to build future curriculum. The objectives of this project are to assess the ability of medical trainees to gather an appropriate history and physical exam in a standardized patient (SP) at risk for opioid aberrant behavior (OAB) and addiction, apply the Food and Drug Administration Risk Evaluation and Mitigation Strategies (REMS), and develop an accurate pain and opioid related differential diagnosis and safe treatment plan. The design uses an observational, prospective cohort, where each participant will complete a SP based simulation focused on opioid prescribing in a SP with risk factors for OAB. Performance will be scored by the SP with a patient-provider interaction instrument, as well as direct observation by Anesthesiology-Pain Medicine faculty.

Goals

The goals of this project are three fold, and include (i) improving the health of patients and society by using immersive learning to teach safe opioid prescribing practices (ii) utilizing the collected data to better understand current opioid prescribing practices and (iii) create future opioid prescribing curriculum based upon the obtained results. The potential impact of this project is reduced harm and death due to unsafe opioid prescribing practices and formation of new and improved curriculum based upon observed prescribing behaviors. This project reflects the School of Medicine mission statement of improving health through innovative education and research. Additionally, the VPTL aims of innovative and improved teaching and learning, as well as create new learning opportunities are addressed by this proposal.

Rationale

The VPTL grant would provide me with several resources. First, this represents a novel curriculum to address a complex problem. Professional assistance with course design and assessment and outcomes tools construction will be essential. Additionally,

financial resources are important this simulation projects, as the physical space of the Center for Immersive and Simulation Based Learning and associated resources such as equipment and technology, and training of standardized patients (SP) is expensive. The anticipated audiences will be pain medicine fellow physicians, anesthesiology resident physicians, primary care resident physicians, and medical students on their anesthesiology clinical rotation. All of these learning groups represent health providers whom frequently treat patients with opioids, however their training is likely sub-optimal. This learning experience will provide them with the training necessary for safe opioid prescribing practices.

Format

The design for the proposed project will be similar to that of my pilot simulation research. The project will utilize an observational, prospective cohort participants including the above mentioned pain fellows, anesthesia residents, primary care residents and medical students. Each participants will complete an SP based immersive learning experienced regarding an opioid related management topic. Successful management of the SP will require use of a variety of risk assessment tools and treatment strategies. A check list which includes these items is already in use. Two anesthesiology-pain medicine faculty members will be trained to use the check-list, then either watch participant performance live, or retrospectively review pre-recorded performance during the encounter in b-line. Participant written dictations will also be assessed in a similar fashion. An inter-rater reliability with a Kappa statistic will be calculated, with a score of 0.7 being deemed acceptable. As a measure of participant clinical skills, the SP will complete a patient-provider performance index immediately after each encounter. After all data is obtained and reviewed, each participant will undergo a group and individual debriefing to discuss observed versus expected performance. The data will also be used to create future teaching curriculum in the area of safe opioid prescribing. Lastly, participants will complete the above listed anonymous, 10 item Likert-scale for feedback regarding the simulation experience.

Difficulty and limitations of the proposed study would include logistical challenges such as scheduling participants due to competing interests such as clinical duties. Additionally, it could be argued that not all SPs will play the role in the identical fashion, thus leading to changes in participant management. An alternative approach would be to use virtual reality / computer based patients. These virtual patients could be accessed from home, at any time, thus eliminating problems with scheduling. A virtual patient would also have a higher degree of consistency versus a human SP as well as automated data capture. Here at Stanford University under the leadership of Dr. Jeremy Bailenson within the Virtual Human Interaction Laboratory, a virtual human solution could be created.

Evaluation Plan

A number of criteria will be built into the program to ensure success. An important measure will be for each learner at the end of the simulation experience will complete an anonymous, 10 item Likert-scale for feedback regarding the simulation experience. The metrics will include: believability, relevance to practice, SP and faculty feedback,

debriefing process, perceived leaning value, and likelihood experience will change future practice. A score of greater than 4 will be required on all metrics to ensure quality. A knowledge based exam regarding safe opioid prescribing practices will be administered pre and post simulation as another assessment of knowledge and learning.

BUDGET

There are several costs associated with this program:

-->Preparation of scripts and edits, 28 hours per scenario, \$30/hr, 3 scenarios = \$2520

-->Trainer SP training day, 10 hours per scenario, \$30/hr, 3 scenarios = \$900

-->SP training day, 10 hours per scenario, \$25/hr, 3 scenarios = \$750 each, 3 SPs needed = \$2250

-->SP on event day, 4 hours per scenario, \$25/hr, 3 scenarios = \$300 each, 3 SPs needed = \$900

-->Trainer on event day, 5 hours/scenario, \$30/hr, 3 scenarios= \$ 450

-->Proctor on event day, 5 hours/scenario, \$25/hr, 3 scenarios= \$ 375

-->Therefore, total wages = \$ 7395

-->11.9% fringe = \$ 880

-->Wages + fringe = \$ 8275 (i)

-->Parking per person per event day = \$4.50 x 5 personnel = \$22.50 (ii)

-->CISL Facility fee = \$6000 (iii)

-->GRAND TOTAL (i+ii+iii) = \$14,297.50