A Transformational Health Approach to Evaluation of the Virginia REVIVE! Course in the Training of First Year Medical Students in Rural Virginia

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References and E-copy of Poster

Introduction and Objectives

- In 2016, the Opioid Crisis was declared a public health emergency in Virginia[1].
- REVIVE!, Virginia's opioid overdose and naloxone education program, educates the public on the recognition and naloxone-centered response protocol for an opioid overdose emergency[2].
- Since its inception, the REVIVE! course has been taught in either a lecture, or rapid training format without a formally integrated assessment.
- Additionally, integrated simulation has previously not been assessed; although, simulation use in education has been shown to improve student comfort and performance in procedural skills, while emphasizing the importance of teamwork and communication[3].

The primary aims of this research are to:

- Evaluate simulation based training and real-time decision making models within the REVIVE! curriculum.
- Compare the effectiveness of simulation based training in comparison to the traditional REVIVE! curriculum.
- Assess six month retention of learning objectives and naloxone response protocol.

Methods

139 first-year medical students were randomly divided into 2 groups. The first, consisting of 67 students, received the traditional didactic only REVIVE! course. The second, consisting of 72 students, received the didactic REVIVE! training plus the simulation-based training (**Figure 1**). Every participant took a post-assessment questionnaire and will take the same post-assessment evaluation at the 6 month mark (**Table 2**).

Simulation training:
Following the didactic portion of the training, students in the experimental group were taken into the simulation room and presented with either an opioid case or non-opioid case (**Table 1**). Students were then assessed based on their ability to: 1. Recognize whether their case was an opioid overdose or not, and 2. Administer accurate and effective treatment to the patient (**Figure 2**). Following their case, each student was asked to rate themselves 0-100 on both how confident they were in their performance and how confident they would be in performing this in the real world.

Opioid Overdose		Non-Opioid Overdose	
Vital Signs:	Physical Findings:	Vital Signs:	Physical Findings:
SpO2 <80%, room air	Pinpoint pupils (<2 mm)	SpO2 >98%, room air	Normal pupils (2-4 mm)
Respirations absent (0 breaths/minute)	Unresponsive to painful stimuli (sternal rub)	Respirations slow (<12 breaths/minute)	Responsive to painful stimuli (sternal rub)
HR 45 beats/minute	Deep snoring or gurgling (death rattle)	HR 80 beats/minute	

Table 1. Case parameters with prototypical patient characteristics.

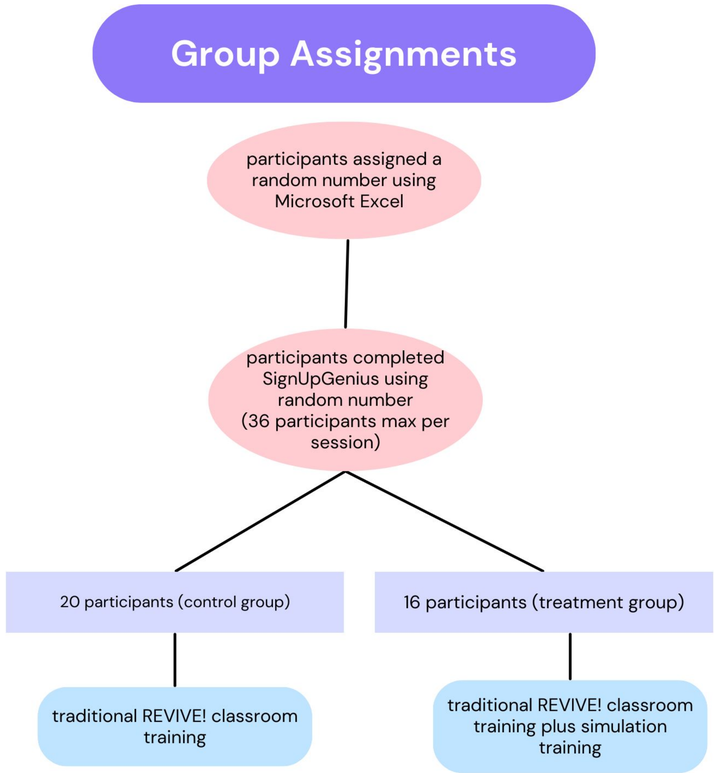

Figure 1. Group assignments diagram.

1. Check responsiveness by
   a. Performing sternal rub, OR
   b. Attempting to rouse with yelling, OR
   c. Attempting to rouse with a similar technique to either of the above
2. Call 911
3. Provide two rescue breaths via bag valve mask
4. Administration of naloxone
5. Continue rescue breaths via bag valve mask
6. Assess and respond based on outcome of first naloxone administration
   a. If overdose relapse occurs, readministration of naloxone is necessary

Figure 2. Opioid overdose simulation protocol.

Results and Discussion

As our data was not normally distributed, and the groups were independent of each other, we applied the unpaired two-samples Wilcoxon test, which resulted in W = 2476 and a p-value of 0.9018, which is not statistically significant. Additionally, filtering for a difference in median scores between the control and experimental group was not statistically significant at this time.

Preliminary results have shown no significant difference in written knowledge of the learning objectives in the standard REVIVE! course in comparison to the standard REVIVE! course plus simulation. An assessment will be given to participants in both the experimental group and control group six months after the initial training to evaluate for material retention (**Table 2**). Further statistical analysis will be performed in May 2024 when all data has been collected. The study should either reinforce the current method in which the REVIVE! course is delivered or open the discussion for simulation included courses.

What is REVIVE?
What is the Good Samaritan law?
What is the definition of addiction?
What causes an opioid overdose emergency?
What are signs of an opioid overdose emergency?
What is the mechanism of action of naloxone?
What are the risk factors that make someone more susceptible to an opioid overdose emergency?
What is NOT a common myth about how to reverse an opioid overdose?
What are the steps for responding to an opioid overdose emergency with the administration of naloxone, in the correct order?

Table 2. Post-assessment questionnaire. Answer choices were presented in multiple choice fashion.

Conclusions

Final conclusions will be available in May 2024, when all data has been collected from the 6 months post assessment (**Table 2**). Further comparison between the experimental and control groups will be completed to determine retention of course material in each group. Looking forward, the team expects to find a statistically significant difference in juxtaposition of the control and experimental groups regarding performance in the simulated experience. This study is significant as the first evidence-based evaluation of the Virginia REVIVE! educational material, these findings will be further provided as a recommendation to continue the current course as developed or to begin exploring the addition of simulation.