


Supplemental Digital Appendix 2

Three Surveys Used to Better Understand the Experience of Virtual Resuscitation Room Participants (Students and Faculty Members)


Participant Pre-Survey:	
You are participating in a study titled “Testing the Virtual Resus Room: Engagement level, usability, fidelity, acceptability, and applicability of a virtual simulation alternative for teaching and learning” conducted by Dr. Teresa Chan, Dr. Alim Nagji and Dr. Sarah Foohey.	
Demographic Data	
1	<p>Do you have an area of specialty? (check all that apply)</p> <ul style="list-style-type: none"> • I am still training as a student • Emergency Medicine • Family Medicine • Critical Care • Medical Education Toxicology Ultrasound • Other:
2	<p>Primary type of practice setting: Mark only one.</p> <ul style="list-style-type: none"> • Hospital, University affiliated • Hospital, Community • Outpatient Clinic • I am a student, I do not have a practice yet Other:
3	Number of years in practice (put 0 if still a student or resident)
4	<p>How much experience do you have with in-person Simulation training? Mark only one.</p> <ul style="list-style-type: none"> • Extensive, I have participated extensively in Simulations and/or have acted as a Simulation facilitator. • Moderate, I have participated in several Simulations during my training. • Some, I have participated in one - a few Simulation sessions. • Minimal, I have observed a Simulation but never participated • Inexperienced, I have not observed or participated in a Simulation training session
5	<p>How much experience do you have with virtual Simulation training alternatives?</p> <ul style="list-style-type: none"> • Extensive, I have participated extensively in virtual Simulations and/or have acted as a Simulation facilitator. • Moderate, I have participated in several virtual Simulations during my training. • Some experience, I have participated in one - a few virtual Simulation sessions. • Minimal, I have observed a recorded virtual Simulation but never participated • Inexperienced, I have not watched or participated in a virtual Simulation training session.
6	<p>What is your interest in Simulation training?</p> <ul style="list-style-type: none"> • High, I believe Simulation training is essential to my education. • Moderate, I believe Simulation training can improve my education. • Low, I do not think Simulation training will benefit my education. • Unsure, I do not have enough experience with Simulation to comment.
7	What do you anticipate you might learn from participating in today’s simulation sessions?

Pre-Test	
1	<p>A patient is found to have the following rhythm on telemetry. What is the most important diagnosis to consider?</p>  <ul style="list-style-type: none"> • Atrial Fibrillation • Multifocal Atrial Tachycardia • Ventricular Tachycardia • Supraventricular Tachycardia with Aberrancy
2	<p>Which of the following medications could be used to treat the patient in question 1?</p> <ul style="list-style-type: none"> • Atropine • EpinephrineAmiodarone • Labetalol
3	<p>Which of the following symptoms is specifically listed in the ACLS tachycardia algorithm as a sign of clinical instability?</p> <ul style="list-style-type: none"> • Feeling like their heart is racing • Feeling lightheaded • Feeling chest pain • Feeling dizzy
4	<p>What is the correct ratio of compressions to ventilations for CPR before a definitive airway has been placed?</p> <ul style="list-style-type: none"> • 30:2 • 15:2 • 30:1 • 15:1
5	<p>According to the ACLS algorithm, what dose of energy should be used first when performing a cardioversion for a patient with a narrow, regular complex tachycardia?</p> <ul style="list-style-type: none"> • 25-50J • 50-100J • 100-150J • 150-200J
6	<p>Which of the following is listed in the ACLS cardiac arrest algorithm as an important feature of good quality CPR?</p> <ul style="list-style-type: none"> • Minimize chest recoil • Minimize ventilations • Minimize changes in compressors • Minimize interruptions in compressions
7	<p>What is the best way to describe the rhythm for paroxysmal supraventricular tachycardia?</p> <ul style="list-style-type: none"> • Narrow, regular • Narrow, irregular • Wide, regular • Wide, irregular
8	<p>Which of the following rhythms is described as a regular, wide complex tachycardia?</p>

	<ul style="list-style-type: none"> • Ventricular Fibrillation • Supraventricular Tachycardia • Monomorphic Ventricular Tachycardia • Atrial Fibrillation
9	<p>How does the Valsalva maneuver work as a management of paroxysmal supraventricular tachycardia?</p> <ul style="list-style-type: none"> • It acts on the sympathetic nervous system • It acts on the parasympathetic nervous system • It acts to increase cardiac output • It acts to decrease cardiac output
10	<p>Which of the following rhythms are classified as shockable?</p> <ul style="list-style-type: none"> • Ventricular Fibrillation, Asystole • Ventricular Fibrillation, PEA • Ventricular Fibrillation, Ventricular Tachycardia • Ventricular Fibrillation, Supraventricular Tachycardia
11	<p>Which of the following is the dose and route of Epinephrine that is given in a cardiac arrest?</p> <ul style="list-style-type: none"> • Epinephrine 1mg IV • Epinephrine 1mg IM • Epinephrine 0.5mg IV • Epinephrine 0.3mg IM
12	<p>How can paroxysmal supraventricular tachycardia be distinguished from sinus tachycardia?</p> <ul style="list-style-type: none"> • A rule of thumb to remember maximum rate of sinus tachycardia is 150bpm – age • A rule of thumb to remember maximum rate of sinus tachycardia is 180bpm – age • Sinus tachycardia shows some variability with respirations, while paroxysmal supraventricular tachycardia generally does not • Paroxysmal supraventricular tachycardia shows some variability with respirations, while sinus tachycardia generally does not
<p>Derive Code: First two letters of your mother's maiden name: _____ What year did you graduate from high school (e.g. 1999): _____ What year did you (will you graduate) from professional school (e.g. med school, nursing school) (e.g. 2017): _____ (Please write this down somewhere for your own records NOW).</p>	

Participant Post-Survey:	
You are participating in a study titled "Testing the Virtual Resus Room: Engagement level, usability, fidelity, acceptability, and applicability of a virtual simulation alternative for teaching and learning" conducted by Dr. Teresa Chan, Dr. Alim Nagji and Dr. Sarah Foohey.	
Purpose and Objectives: The main purpose of this study is to assess user's perceptions of usability, acceptability, and applicability of an online system called "The Virtual Resus Room" for teaching and learning.	
1	What was your participant code? e.g. AB-1234-1234. Hint: It was (First two letters of your mother's maiden name)-(Year of high school graduation)-(Year of Professional school graduation)
Usability & Acceptability	
2	Mark: Yes, No, N/A <ul style="list-style-type: none"> Did you have a chance to review the pre- simulation instructions? If you did, did the pre- simulation instructions make you feel prepared to use the "Virtual Resus Room"?
3	How easy to use was the "Virtual Resus Room" simulation platform? <ul style="list-style-type: none"> 7: Super easy to use, I intuitively knew how to use it right away 6: Easy to use, once I got into it 5: Somewhat easy to use, once someone explained it to me 4: Neutral 3: Somewhat difficult to use, but I eventually figured it out midway through 2: Quite difficult to use, I was pretty lost during the whole session 1: Very Difficult, I was lost and could not participate
4	How easy to use was it to work as a team with your fellow learners using the "Virtual Resus Room"? <ul style="list-style-type: none"> 7: Super easy to work as a team, there were no issues 6: Easy to work as a team, once I got into it 5: Somewhat easy, it was manageable 4: Neutral 3: Somewhat difficult to work as a team, but possible 2: Quite difficult to work as a team, I had significant challenges 1: Very Difficult, I was unable to work with the other learners
5	Mark: Yes, Somewhat, had some difficulties, No, or N/A <ul style="list-style-type: none"> Were you able to drag and drop items without technical difficulties? Were you able to take notes in the "emergency record" without technical difficulties? Were you able to move between slides without technical difficulties?
6	Clarifying Comments: Please expand upon any point that you feel you need to explain or clarify.
Applicability for Learning	

7	<p>Mark: Yes, No, or I don't know</p> <ul style="list-style-type: none"> • Did you learn something during your "Virtual Resus Room" simulation session? • Do you feel this simulation session made you better understand something that might influence your present or future clinical training/practice? • Do you think the "Virtual Resus Room" would be useful as a teaching tool? • Did you feel the "Virtual Resus Room" simulation session offered a different learning experience than other online teaching sessions you have participated in? • Did you prefer the "Virtual Resus Room" simulation to other formats of online learning?
8	<p>Clarifying Comments: Please expand upon any point that you feel you need to explain or clarify.</p>
9	<p>Think back to your LAST online simulation experience (prior to the virtual simulation you just completed) and please rate it on a scale of 1-7.</p> <ul style="list-style-type: none"> • 7: Completely useful, learned a lot of new material relevant to my future clinical work • 6: Mostly useful, learned some new concepts relevant to my future clinical work • 5: Somewhat useful, learned a bit of new material relevant to my future clinical work • 4: Neutral • 3: Somewhat useless, hardly learned anything relevant to my future clinical work • 2: Mostly useless, didn't learn much relevant to my future clinical work • 1: Completely useless, didn't learn anything relevant to my future clinical work • N/A
10	<p>Think about the "Virtual Resus Room" simulation that you just experienced. Please rate it on a scale of 1-7.</p> <ul style="list-style-type: none"> • 7: Completely useful, learned a lot of new material relevant to my future clinical work • 6: Mostly useful, learned some new concepts relevant to my future clinical work • 5: Somewhat useful, learned a bit of new material relevant to my future clinical work • 4: Neutral • 3: Somewhat useless, hardly learned anything relevant to my future clinical work • 2: Mostly useless, didn't learn much relevant to my future clinical work • 1: Completely useless, didn't learn anything relevant to my future clinical work
11	<p>How does the "Virtual Resus Room" model of online simulation compare to other styles of online teaching?</p>
<p>Fidelity</p>	
12	<p>Mark: Yes, No, or I don't know</p> <ul style="list-style-type: none"> • Does the "Virtual Resus Room" accurately replicate real life scenarios? • Does the interaction between learners participating in the simulation reflect the urgency of the case? • To the best of your knowledge, did the sequence of events that occurred in the simulation reflect what might actually happen in a real case? • Are the cases reflective of the patients you see in the ED?
13	<p>Clarifying Comments: Please expand upon any point that you feel you need to explain or clarify.</p>
<p>Additional Thoughts</p>	
14	<p>What did you learn or confirm during the "Virtual Resus Room" simulation?</p>

15	What changes to your practice are you planning to make as a result of this?
16	Mark: Yes, No, or Unsure <ul style="list-style-type: none"> Would you be interested in participating in another virtual simulation using the "Virtual Resus Room" model in the future?
Post-Test	
1	A young woman with palpitations with no other medical conditions presents with the following rhythm on telemetry. What diagnosis is most likely?  <ul style="list-style-type: none"> Atrial Fibrillation Ventricular Tachycardia Supraventricular Tachycardia Multifocal Atrial Tachycardia
2	Which of the following medications could be used to treat the patient in question 1? <ul style="list-style-type: none"> Atropine Epinephrine Adenosine Amiodarone
3	Which of the following signs is specifically listed in the ACLS tachycardia algorithm as a sign of clinical instability? <ul style="list-style-type: none"> Hypoxia Tachypnea Hypotension Bradypnea
4	What is the correct depth for chest compressions in an adult? <ul style="list-style-type: none"> 3cm 5cm 8cm 10cm
5	What dose of energy should be used when defibrillating a patient? <ul style="list-style-type: none"> 25J 50J 100J 200J
6	Which of the following is listed in the ACLS cardiac arrest algorithm as an important feature of good quality CPR? <ul style="list-style-type: none"> Avoid excessive ventilations Avoid inadequate ventilations Avoid changes in compressors Avoid chest wall recoil

7	<p>What is the best way to describe the rhythm for monomorphic ventricular tachycardia?</p> <ul style="list-style-type: none"> • Narrow, regular • Narrow, irregular • Wide, regular • Wide, irregular
8	<p>Which of the following rhythms is described as a regular, narrow complex tachycardia?</p> <ul style="list-style-type: none"> • Atrial Fibrillation • Multifocal Atrial Tachycardia • Paroxysmal Supraventricular Tachycardia • Ventricular Tachycardia
9	<p>What is the best way to describe a Valsalva maneuver?</p> <ul style="list-style-type: none"> • It involves a rapid forced inhalation • It involves a rapid forced exhalation • It involves a forced inhalation against a closed glottis • It involves a forced exhalation against a closed glottis
10	<p>Which of the follow rhythms are not shockable?</p> <ul style="list-style-type: none"> • Asystole, PEA • Asystole, Ventricular Fibrillation • Asystole, Ventricular Tachycardia • Asystole, Supraventricular Tachycardia
11	<p>Which of the following is the first dose of Amiodarone that is given in a cardiac arrest?</p> <ul style="list-style-type: none"> • Amiodarone 150mg IV • Amiodarone 200mg IV • Amiodarone 250mg IV • Amiodarone 300mg IV
12	<p>How can paroxysmal supraventricular tachycardia be distinguished from atrial flutter?</p> <ul style="list-style-type: none"> • Atrial flutter typically has no p waves visible while paroxysmal supraventricular tachycardia typically has a sawtooth p wave morphology • Paroxysmal supraventricular tachycardia typically has no p waves visible while atrial flutter typically has a sawtooth p wave morphology • Atrial flutter almost always has a rate of 150bpm or higher, while supraventricular tachycardia generally has a much lower rate • Atrial flutter almost always has a rate of 200bpm or higher, while supraventricular tachycardia generally has a much lower rate

Facilitator Survey:	
You are participating in a study titled "Testing the Virtual Resus Room: Engagement level, usability, fidelity, acceptability, and applicability of a virtual simulation alternative for teaching and learning" conducted by Dr. Teresa Chan, Dr. Alim Nagji and Dr. Sarah Foohey.	
Demographic Data:	
1	<p>Do you have an area of specialty? (check all that apply)</p> <ul style="list-style-type: none"> • I am still training as a student • Emergency Medicine • Family Medicine • Critical Care • Medical Education • Toxicology • Ultrasound • Other:
2	<p>Primary type of practice setting:</p> <ul style="list-style-type: none"> • Hospital, University affiliated • Hospital, Community • Outpatient Clinic • I am a student, I do not have a practice yet Other:
3	What year did you graduate medical school?
4	<p>How much experience do you have with teaching in-person Simulation?</p> <ul style="list-style-type: none"> • Extensive, I have facilitated Simulations extensively and/or have attended specific Simulation courses. • Moderate, I have facilitated several Simulation sessions. • Some, I have facilitated in one - a few Simulation sessions. • Minimal, I have observed someone facilitate a Simulation but never facilitated independently. • Inexperienced, I have not facilitated a Simulation session.
5	<p>How much experience do you have with virtual Simulation training alternatives?</p> <ul style="list-style-type: none"> • Extensive, I have facilitated extensively using virtual Simulations. • Moderate, I have facilitated several virtual Simulations. • Some experience, I have facilitated one - a few virtual Simulation sessions. • Minimal, I have observed someone facilitate a virtual Simulation but never facilitated independently. • Inexperienced, I have not facilitated a virtual Simulation training session.
6	<p>What is your interest in Simulation training?</p> <ul style="list-style-type: none"> • High, I believe Simulation training is essential to medical education. • Moderate, I believe Simulation training can improve medical education. • Low, I do not think Simulation training will benefit medical education. • Unsure, I do not have enough experience with Simulation to comment.

7	<p>What level of learners did you teach using the "Virtual Resus Room" interface? (select multiple where applicable)</p> <ul style="list-style-type: none"> • Medical Students • Junior Residents • Senior Residents • Staff Physicians • Other:
Overall Impression	
8	Describe your experience using the Virtual Resus Room as a tool to teach virtual simulation.
Usability and Acceptability	
9	<p>Mark: Yes, No, N/A</p> <ul style="list-style-type: none"> • Did you have a chance to review the pre- simulation facilitator instructions? • If you did, did the pre- simulation instructions make you feel prepared to teach using the "Virtual Resus Room"? • Did you have a chance to participate in a facilitator introduction meeting to the "Virtual Resus Room" interface? • If you did, did the facilitator introduction meeting make you feel prepared to teach using the "Virtual Resus Room"?
10	<p>How easy it to explain how to use the "Virtual Resus Room" simulation platform to your learners as a facilitator?</p> <ul style="list-style-type: none"> • 7: Super easy to explain, very little instruction required for the learners to understand completely. • 6: Easy to explain, with minimal instruction the learners mainly understood how to use it. • 5: Somewhat easy to explain, with lengthy instruction the learners mainly understood how to use it. • 4: Neutral • 3: Somewhat difficult to explain, but I felt the learners understood enough to make it work. • 2: Quite difficult to explain, I felt the learners' difficulty understanding how to use it interfered with case. • 1: Very Difficult to explain, I felt the learners could not use interface. • Not applicable - another facilitator did the introduction
11	<p>How easy to use was the "Virtual Resus Room" simulation platform as a facilitator?</p> <ul style="list-style-type: none"> • 7: Super easy to use, I intuitively knew how to use it right away • 6: Easy to use, once I got into it • 5: Somewhat easy to use, once someone explained it to me • 4: Neutral • 3: Somewhat difficult to use, but I eventually figured it out midway through • 2: Quite difficult to use, I was pretty lost during the whole session • 1: Very Difficult, I was lost and could not participate
12	<p>Mark: Yes, Somewhat had some difficulties, No, N/A</p> <ul style="list-style-type: none"> • Were you able to update vital signs using the textboxes without technical difficulties? • Were you able to move between slides without technical difficulties? • Were you able to delete the grey boxes to "reveal" hidden investigations without technical difficulties?

13	Clarifying Comments: Please expand upon any point above that you feel you need to explain or clarify
14	When you have run in-person simulation sessions in the past, how much time did you spend for each of the following: Mark: 0min, 15min, 30min, 45min, 1 hour, 1hr15min, 1hr30min, 1hr45min, 2hr, 2hr15min, 2hr30min, 2hr45min, 3+hr <ul style="list-style-type: none"> • Getting to location where you ran in-person Simulation? (commute time to Sim Lab)? • Preparing for in-person Simulation? • Running the in-person Simulation? • Cleaning up equipment/environment after the in-person Simulation?
15	When you ran this Virtual Resus Room simulation session, how much time did you spend for each of the following: Mark: 0min, 15min, 30min, 45min, 1 hour, 1hr15min, 1hr30min, 1hr45min, 2hr, 2hr15min, 2hr30min, 2hr45min, 3+hr <ul style="list-style-type: none"> • Getting to location where you ran virtual Sim? • Preparing for virtual Simulation? • Running the virtual Simulation? • Cleaning up equipment/environment after the Simulation?
Applicability for Teaching	
16	Mark: Yes, No, or I don't know <ul style="list-style-type: none"> • Did you feel the participants learned something during your "Virtual Resus Room" simulation session? • Do you feel this simulation session made your learners better understand something that might influence their present or future clinical training/practice? • Do you think the "Virtual Resus Room" would be useful as at teaching tool? • Did you feel the "Virtual Resus Room" simulation session offered a different learning experience than other online teaching sessions you have taught? • Did you prefer teaching using the "Virtual Resus Room" simulation to other formats of online teaching?
17	Clarifying Comments: Please expand upon any point above that you feel you need to explain or clarify
18	How does teaching use the "Virtual Resus Room" model of online simulation compare to other styles of online teaching?
19	Mark: Yes, No, Unsure <ul style="list-style-type: none"> • Would you be interested in teaching another virtual simulation using the "Virtual Resus Room" model in the future?
Fidelity	
20	Mark: Yes, No, or I don't know <ul style="list-style-type: none"> • Does the "Virtual Resus Room" accurately replicate real-life scenarios? • Does the interaction between learners participating in the simulation reflect the urgency of the case? • Did the sequence of events that occurred in the simulation reflect what might actually happen in a real case?

	<ul style="list-style-type: none"> Are the cases reflective of the patients you see in the ED?
21	<p>Clarifying Comments:</p> <p>Please expand upon any point above that you feel you need to explain or clarify</p>
Additional Thoughts	
22	From your experience, what are limitations that could or did result from using the Virtual Resus Room platform?
23	Do you have suggestions for improvement regarding the interface and/or how it can be used for virtual simulation education?