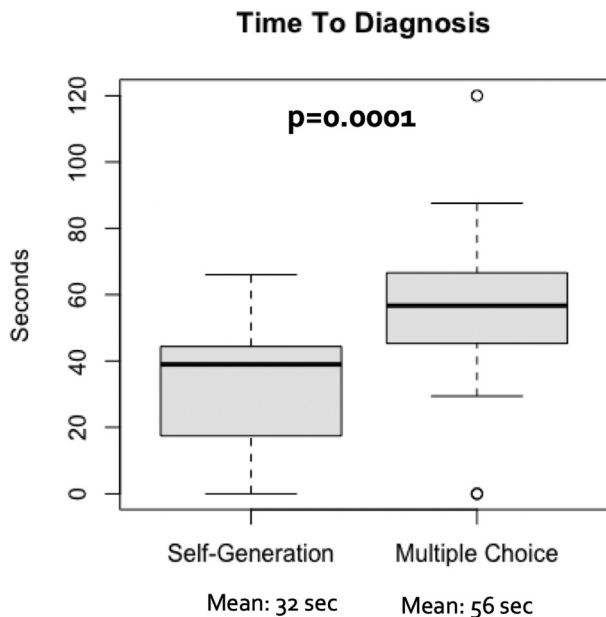




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MULTIDISCIPLINARY SIMULATION TO ENHANCE
SAFE CARE OF CRITICALLY ILL COVID-19
PATIENTS IN THE CORONARY CARE UNIT**

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BACKGROUND: As the COVID-19 pandemic continues and recognition of cardiac complications grows, a proportion of these patients will be cared for in the CCU. CCU staff have less experience than other critical care units nursing staff regarding proper personal protective equipment (PPE) while caring for critically ill patients with respiratory illnesses. During a critical event or cardiac arrest, patient-centered reflexes must be put aside to first ensure personal safety and proper PPE utilization. We hypothesized that multidisciplinary simulations done in the CCU would improve response time, provider safety, and comfort with proper PPE in this setting, as well as uncover practical issues in delivering safe care.

METHODS AND RESULTS: Multidisciplinary scenarios were conducted on a daily basis in our CCU. Scenarios involved the cardiac arrest or pre-arrest in a COVID-19 positive patient. An electronic mannequin that displayed different

cardiac rhythms served as the patient. A brief orientation to local 'Code Blue Protocols' was done pre-simulation. All simulations were followed by debrief and analysis. Simulation experiences were assessed using an unvalidated 12-item questionnaire scored on a 5 point Likert Scale. Unstructured comments were also solicited through questionnaire and debriefing. Daily scenarios involving physicians, nurses and respiratory therapists were successfully introduced and 31 responses to questionnaire were collected. Following the simulation session, responder scores demonstrated significantly increased comfort with ACLS (2.4 ± 1.1 vs 4.1 ± 0.63 , $P < 0.0001$), comfort with proper PPE donning and doffing (2.7 ± 1.1 vs 4.3 ± 0.72 , $P < 0.0001$) and knowledge about local guidelines about COVID-19 resuscitation (2.4 ± 1.1 vs 3.9 ± 0.83 , $P < 0.0001$). Qualitative data revealed that respondents felt strongly that these simulations were realistic, relevant, and should be mandatory for any healthcare professional providing care to a COVID-19 patient. Nurse educators monitoring the scenarios noted faster response times and decreased self-contamination with repeated simulation. Unstructured comments revealed several themes. Thirteen individuals (42%) commented on the importance of donning and doffing PPE in this setting. Seven individuals (23%) identified that communication through a closed door was especially challenging. These unstructured comments led to several new practices including two-way radios to communicate between the team inside and outside the room, laminated instructions inside rooms to enable effective RN-led ACLS and portable drug boxes containing resuscitation medications to avoid contaminating the 'code-blue' cart.

CONCLUSION: This study demonstrates simulation exercises can easily improve multidisciplinary practitioner comfort while caring for critically ill COVID-19 patients. In addition, these simulations highlighted deficiencies and have led to several innovations to improve patient and provider safety.

