

Implementation of an in Situ Mock Codes Quality Improvement Program

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BACKGROUND

According to the American Heart Association's recent quality report, nationwide in-hospital survival rates from cardiac arrest are averaging 18% for adults and 36% for the pediatrics (Meaney, P., et. al., 2023). Survival largely depends on two factors: early recognition of the acute event with immediate activation of the emergency response system and early initiation of high-quality cardiopulmonary resuscitation. Clinical bedside staff, such as nurses and CNAs, who are responsible for early detection and response to cardiac arrest, often feel unprepared and lack confidence in their skills and abilities. UMC's Clinical Education Department was asked to assist clinicians in improving their confidence and competence responding to emergencies and performing necessary life-saving skills. One of the best evidence-based methods to improve staff's confidence and competence is in situ mock code simulations, using high-fidelity manikins as patients in cardiac arrest or other emergencies in the hospital setting.

PURPOSE

To increase confidence and competence levels of clinical staff performance during medical emergencies via in situ simulation. To improve organizational processes that facilitate a prompt and appropriate responses to medical emergencies at UMC.

METHODS

An in situ Mock Codes Quality Improvement Program has been developed and implemented at UMC in order to facilitate consistent practice with quick emergency response, and to improve quality of resuscitation and interprofessional communication. In the last year, the Clinical Education Department has increased the frequency of in situ mock codes to a minimum of every quarter in each area of practice (adults, pediatrics, maternal-child) and collected data to mimic real code blue debriefing quality data measures. Code Blue debriefing data was also analyzed to see if any improvement was made from the beginning of 2022 (quarter 1) to mid-2023 year (Quarter 2). The intent was to demonstrate an overall improvement in skills and competence of staff in response times and code quality measures based on the 2020 American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care to stay in compliance with Joint Commission performance requirements for stroke care, acute coronary syndrome care, and much more.

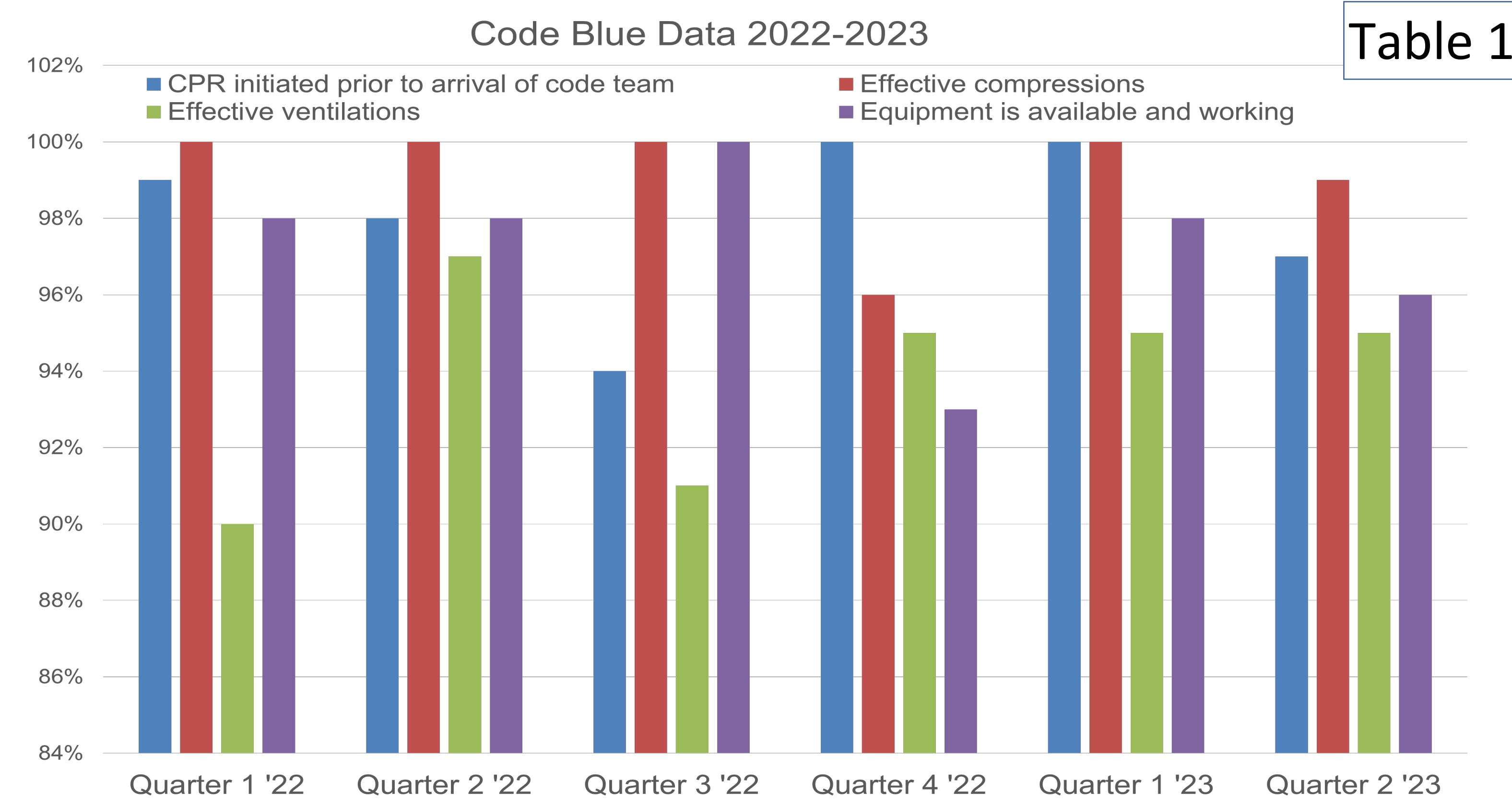


Table 1



IN SITU MOCK SIMULATIONS

- Adult ER (top left)
- Trauma Room (right)
- NICU (bottom left)
- PICU/CT (middle)

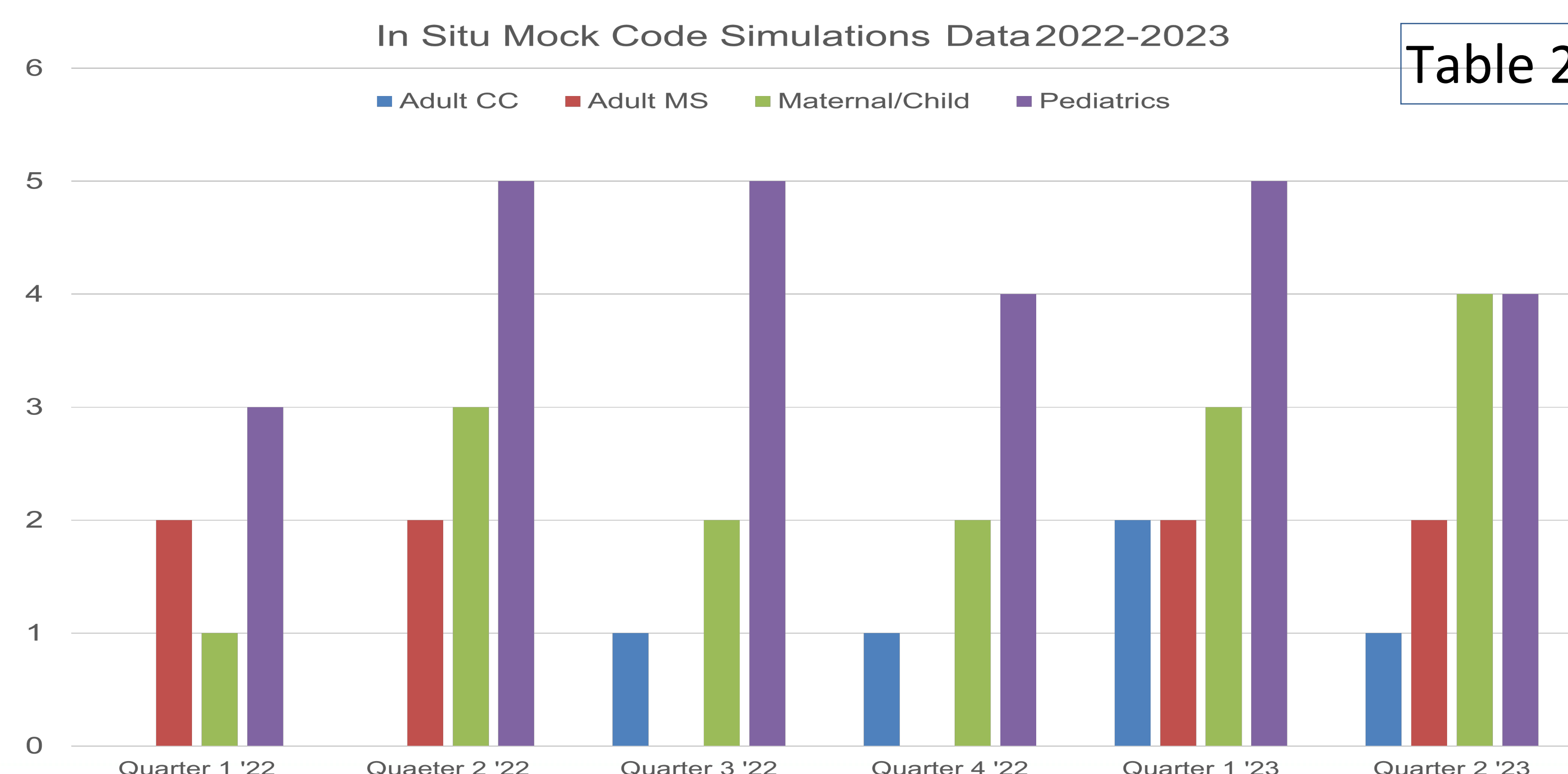


Table 2

RESULTS

In the last year, UMC Code Blue debriefing forms revealed that the staff response to calling for help and initiating CPR prior to the arrival of the code team went up by 1.25% from 96.75 to 98.5%. The overall quality of CPR had also improved, increasing the effectiveness of ventilations and compressions by 1.75% from 93.25 to 95% (see Table 1). In addition, clinical instructors running simulations were able to identify and address with UMC administration, any workflow and equipment concerns that facilitated the development of organization-wide improvements for better response to medical emergencies. Data shows an increase in the availability and performance of equipment by 3%. UMC Code Blue data also revealed that the patients' survival rate post-cardiac arrest to discharge is averaging 70%, which is 25% higher than the national average of 45% for in-hospital arrests (Quazi, et al., 2020). In summary, data analysis revealed improvement in staff timely responsiveness by staff, prompt initiation and better quality of CPR (chest compressions and ventilations). UMC's Clinical Education team has also kept records of all mock codes from 2022-2023, conducting on average 4-6 in situ simulations per quarter all throughout the hospital (see Table 2).

CONCLUSIONS

In situ mock code simulations is an evidence-based method to improve the quality of emergency response and preparedness. UMC's Clinical Education Department has shown an increase in both confidence (responsiveness) and competence (quality of CPR) of clinical staff during medical emergencies. Due to short-term data analysis, it may be difficult to see the significance of the increase in improvement. The Clinical Education team will continue ongoing efforts using quarterly in situ mock code simulations and further evaluate data on an annual basis for quality improvement.

In the next year, the goals are to see further improvements in resuscitation efforts and to conduct a staff survey to obtain qualitative analysis on staff confidence level when responding to code situations.

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