Implementation of an In Situ Mock Codes Quality Improvement Program

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BACKGROUND

- American Heart Association's recent quality report, nationwide in-hospital survival rates from cardiac arrest average 24% for in-hospital cardiac arrests and 10% for out-of-hospital arrests (AHA, 2020).
- 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 responsible for early detection and response to cardiac arrest often feel unprepared and lack confidence in their skills and abilities.
- In situ mock codes are an evidence-based method to improve the quality of emergency response and preparedness (Goldshtein, 2020).
- UMC's Clinical Education Department developed a mock code program to aid clinicians in improving their confidence and competence responding to emergencies and performing necessary life-saving skills.

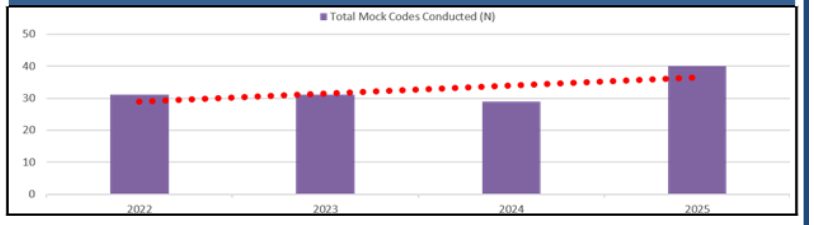
PURPOSE

To increase confidence and competence levels of clinical staff performance during medical emergencies, improve organizational processes that facilitate a prompt and appropriate responses to medical emergencies at UMC, and improve patient outcomes with increased ongoing practice using in situ mock codes.

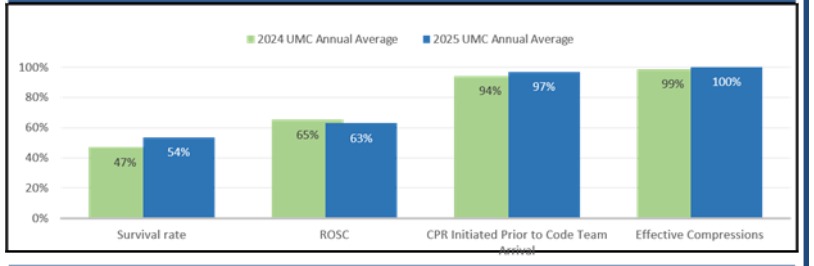
METHODS

- An in situ Mock Codes Quality Improvement Program was developed/implemented at UMC to facilitate consistent practice with quick emergency response and improve the quality of resuscitation and inter-professional communication.
- The Clinical Education Department increased the frequency of in situ mock codes to a minimum of 2 every quarter in each area of practice. (Graph 1)
- Code Blue debriefing data was analyzed and compared with the National data.
- The 2020 American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care were used for metric comparison.
- Achievement of ROSC and patient survival to discharge rates at UMC were compared to national statistics.

GRAPH 1: MOCK CODES 2022-2025



GRAPH 2: UMC CODE BLUE DATA



GRAPH 3: UMC VS NATIONAL AVERAGE

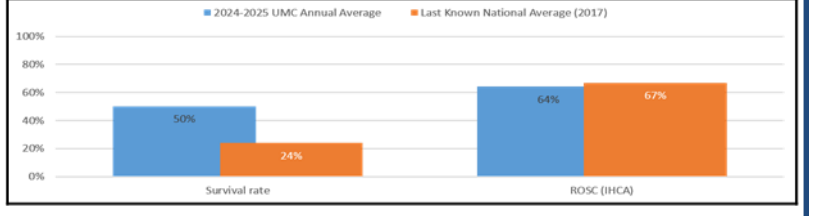


TABLE 1: UMC IMPROVEMENTS FROM MOCK CODES

Item	Department	Description
Initiated overhead announcements of Code Blue for Pediatric patients	Hospital-wide	Announcing all code blues overhead (including pediatrics) outside of areas with code blue team to facilitate better response
Updated paging system to alert Code Blue team	Pediatrics	Use of paging system for code blue activation outside of emergency and critical care areas to alert code blue team and facilitate prompt response even in areas overhead announcements are not heard
Adapt Broselow code carts for Pediatric patients	Hospital-wide	Standardized color-coded system is evidence-based practice to standardize emergency equipment storage and ease of retrieval of appropriate sizes for pediatric patients based on estimated weight
Added more crash carts and updated their locations	Radiology	More code carts added and locations updated to facilitate prompt retrieval of equipment/supplies during code blue
Facilitated interdisciplinary code blue drills	Hospital-wide	Promoted involvement of physicians and other professionals (RTs, SW, Pharmacy) during in situ mock codes
Included stroke and cardiac center specialists to mock codes	Hospital-wide	Stroke and cardiology specialists involve in all mock drills related to MI and stroke conditions to ensure UMC meets standards of cardiac center care

RESULTS

- Average UMC Code Blue 2024-2025 survival rate post-cardiac arrest to discharge averages 50%. The national average is 24% for in-hospital arrests (AHA, 2020). (Graph 3)
- Overall survival to discharge increased from 47% in 2024 to 54% in 2025, and ROSC remained relatively the same averaging 64% for the same time period. (Graph 2)
- UMC Code Blue data showed the staff response initiating CPR prior to code team arrival was 94% in 2024 and increased to 97% in 2025. The overall quality of CPR improved as well, increasing the effectiveness of compressions from 99% in 2024 to 100% in 2025 (Graph 2).
- Increasing the frequency of mock codes increased confidence (responsiveness) and competence (quality of CPR) of clinical staff during medical emergencies (Graph 1).
- Clinical instructors running simulations were able to identify and address workflow and equipment concerns that facilitated the development of organization-wide improvements for better response to medical emergencies. (Table 1)

CONCLUSIONS

- UMC has demonstrated greater survival-to-discharge compared to the national averages, highlighting better patient outcomes.
- Consistent practice of emergency response via in situ mock codes increases staff confidence and competence.
- The Clinical Education team will continue ongoing efforts using in situ mock code simulations and further evaluate data on an annual basis for quality improvement.

REFERENCES

PATHWAY DESIGNATED