Implementation of a New Protocol for High-Risk Patients in the Exercise Physiology Laboratory

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BACKGROUND

- •An unanticipated serious adverse event (USAE) occurred during exercise stress testing (EST) in Children's Mercy's (CM) exercise physiology lab in September 2020
- •At that time, there were no modifications to EST protocols or procedures for high-risk patients at CM
- •Inconsistencies have been noted regarding establishment and practice of high-risk EST protocols at institutions performing pediatric EST
- •Aims: Design and implement a standardized protocol for highrisk EST focused on enhanced preparedness and increased safety over a 12-month time period by establishing criteria for identification of high-risk patients, standardizing processes for enhanced communication, specifying scheduling standards, and ensuring emergency medication readiness

METHODS

- •Project team of exercise physiologists, cardiologists, CM intensive care and resuscitation committee members, and pharmacy designed a high-risk EST protocol (9/2020)
- •Patient safety gaps were identified and guided primary and secondary driver development: lack of IV access prior to EST, insufficient knowledge of EST location by emergency response teams, poor communication within clinic/hospital of high-risk EST, limited practice and familiarity of drawing up emergency medications
- •Process map was developed to visualize current state and delineate future state for the high-risk EST protocol.
- •Multiple PDSA cycles revealed improvement opportunities such as: refining education and communication, defining roles within time-out huddle, establishing pre-defined locations for transport following USAEs

SECONDARY DRIVERS PRIMARY DRIVERS Place IV access in all high-risk patients prior to EST Medication on hand and available to use in USAE AIM STATEMENT 2- dose code medication at bedside for all high-risk ESTs Design & implement a Establishment of multi high-risk standardized protocol for Clear identification of patient definition high-risk exercise stress high-risk patients testing (EST) to reduce unanticipated serious adverse Huddle with team before each events (USAE) high-risk EST Communication with Education with resuscitation team multidisciplinary team on location of exercise physiology regarding high-risk ESTs lab and USAEs with high-risk ESTs Longer appt duration for Adequate time for high-risk high-risk ESTs (2hrs vs 1hr) ESTs with required personnel available Attending provider schedules blocked for high-risk ESTs

High-Risk Exercise Testing Process Inpatient team will pharmacy & Epi brought down with Schedule EST appt Ensure IV access Order 2 code doses patient Patient identified coordinated with prior to testing of Epi (if Attending as 'high-risk' Stress RN to obtain attending MD Attending will order deems necessary) if not already placed Time-out huddle If event occurs, call Follow scoop & go EARS & notify CICU (if Communicate with with Attending, Assign roles to staf philosophy to preactive code, request CICU prior to in case of Communicate with planned location testing/ensure bed ED doc), start CPR, Physiologist, Stress emergency (CICU/ED) use Epi if needed

RESULTS

- •Since 11/2020, 54 patients (10 inpatients and 44 outpatients) were identified as high-risk and underwent EST utilizing the new protocol
- No USAEs have occurred since implementation
- •Balancing measures revealed no change in EST appointment wait times or exercise physiologist workload utilizing the new protocol
- •Unintended consequences of the high-risk protocol revealed longer appointment duration (2 hr vs 1 hr) and increased workload for attending physician
- •There has been positive feedback received from attending physicians and emergency response teams regarding increased communication and awareness of high-risk EST

CONCLUSIONS

- Improvements generated from high-risk EST protocol include increased communication and collaboration throughout the hospital
- Sustaining gains by continual refinement of protocol
- Limitations: no USAEs have occurred since implantation of new protocol but results include enhanced preparedness and increased patient safety
- Future directions could include dissemination of protocol to regional institutions for benchmark standard for high-risk EST



