NEW ORLEANS — Pharmacists can play a central role in reducing the frequency and impact of medication errors during code situations, according to research presented here at the American Society of Health-System Pharmacists (ASHP) 2015 Midyear Clinical Meeting.

"Medication errors are probably more common than we think they are in code situations, and these put patients at risk for adverse effects," said Alexander Flannery, PharmD, a critical care pharmacist in the medical intensive care unit at the University of Kentucky HealthCare in Lexington.

"It's easy to see how the chaos of these situations can create issues, and pharmacists need to be ready for circumstances that aren't necessarily in the guidelines," he explained.

According to MEDMARX, an anonymous medication-error-reporting program, code-related errors are 39.0 times more likely to result in patient harm than errors not related to codes, and 51.5 times more likely to result in death. And of all the errors reported to the American Heart Association's Get With the Guidelines – Resuscitation national registry, 42.5% were medication errors.

Simulation studies and prospective observation have shown that these types of errors are pervasive.

Chaos of Emergency Situations

"When you look at the anesthesia literature from the OR, there are 41 steps from when you start preparing an infusion to when you actually get it ready for the patient," said Dr Flannery. "So that's 41 places that have the potential for error."

Some studies have demonstrated the protective effect of having a pharmacist present, and the ASHP and the Institute for Safe Medication Practices recommend the presence of a pharmacist in code situations.

"The ASHP has a guideline on minimal requirements for hospitals, which states that pharmacists should be members of the cardiopulmonary response resuscitation team," said Asad Patanwala, PharmD, from the College of Pharmacy at the University of Arizona in Tucson. "If institutions don't have pharmacists, they should," he added.

According to Dr Flannery, human error can be caused by a number of factors, including nerves (often caused by the chaos of the situation), the sheer intensity of the care required, the presence of numerous healthcare professionals, and inexperience or knowledge deficits.
"It's really difficult to stop, step out of the room, and look something up during a code, so if you're not prepared, it makes things very difficult," he explained.

System-based errors can occur because of poor communication, a lack of standard procedures, medication being prepared by someone unfamiliar with the process, deficits in drug information and dissemination, and a lack of access to references at the time of need.

Dr Flannery said he urges pharmacists to read back verbal orders — including the drug name, dose, and route — and to clarify incomplete orders upon preparation or before administration.

Postcode Huddle and Simulations

"As we take larger roles in training, the role of the postcode huddle and simulations is certainly key in educating providers who are running codes by showing them these kinds of errors and saying these absolutely can't happen," he said.

"Simulations are really beneficial in enhancing competence through practice," said Dr Patanwala. "They also help pharmacists to realize the areas they need to work on."

Dosing errors can occur when units of measure or commonly used systems are confused, such as pounds vs kilograms, micrograms per kilograms vs micrograms per kilogram per minute, and dilution ratios or percentages vs mass concentration. "And I don't even need to tell you that asking for the 'normal dose' of something is error-prone," said Dr Patanwala.

The use of reference cards with dosing and titration can mitigate some of these errors, and Dr Flannery said he also recommends using strength instead of dose on labels to prevent labeling mistakes.

Separate carts for adults and children can also reduce the occurrence of errors, as can the use of ready-to-use syringes and premixed infusions. "An illustration of code-cart contents can also be very helpful in the heat of the moment," he pointed out.

Communication about drug shortages can minimize the potential for medication errors during emergent scenarios. "As drugs change and drug shortages become more and more common, communication also becomes increasingly important," he said.

"Announce yourself," Dr Flannery advised. The clarification of roles in a code scenario can lessen confusion and the occurrence of errors.

"Expand your boundaries; become comfortable with lines and pumps, and know the cart in your institution," he added. "Standardize doses and concentrations as much as you can, and always think ahead."

"Medication errors in codes are more common than you may expect," he said. "But pharmacists can play a key role in individual patient management and institutional processes."

Dr Flannery and Dr Patanwala have disclosed no relevant financial relationships.
