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Hospital drug errors far from uncommon

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The case of actor Dennis Quaid's newborn twins, who were reportedly given 1,000 times the intended dosage of a blood thinner at Cedars-Sinai Medical Center, underscores one of the biggest problems facing the healthcare industry: medication errors.

At least 1.5 million Americans a year are injured after receiving the wrong medication or the incorrect dose, according to the Institute of Medicine, part of the National Academies of Science. Such incidents have more than doubled in the past decade.

The errors are made when pharmacists stock the drugs improperly, nurses don't double-check to make sure they are dispensing the proper medication or doctors' bad handwriting results in the wrong drug being administered, among other causes.

The events over the last few days at Cedars-Sinai, and a case in Indiana last year in which three babies died after receiving an overdose of the same drug, offer a vivid illustration of the problems hospitals face.

In both cases, nurses mistakenly administered a concentration of heparin 1,000 times higher than intended, giving the patients a dose with a concentration of 10,000 units per milliliter instead of the correct dosage of 10 units per milliliter.

The packaging of the 10,000-unit dose of heparin looks very similar to that of the 10-unit dose. In both cases, each hospital received the drug from Illinois-based Baxter Healthcare Corp., one of seven companies that manufacture heparin, a generic drug.

Repackaging effort

But last month, in the wake of the Indiana deaths, Baxter began repackaging heparin to make the different doses more distinct, including adding a large "red alert" symbol on the more concentrated dose.

Even with the change, many hospitals are still working through the last of the old vials — and in some cases have not yet received the new ones. A source close to the matter, who spoke on the condition of anonymity, told *The Times* on Wednesday that Cedars-Sinai was still using the old vials.

Richard Elbaum, a Cedars-Sinai spokesman, said Wednesday that the hospital had received Baxter's warning about medication errors after the Indiana incident, but he could not confirm whether the hospital had received the newly labeled vials.

"Healthcare is just beginning to realize how big a problem it has with patient safety," said Albert Wu, professor of health policy and management at Johns Hopkins University in Baltimore. "Errors are disturbingly common. The healthcare system has to take a step back and invest more in research and improving patient safety. Until it does, these kinds of incidents will keep happening."

Serious injuries associated with medication errors reported to the U.S. Food and Drug Administration increased from about 35,000 in 1998 to nearly 90,000 in 2005, according to a

report published in the Archives of Internal Medicine. Of those cases, more than 5,000 deaths were tallied in 1998, but in 2005 more than 15,000 deaths were reported.

Heparin is one of five drugs most commonly associated with errors in hospitals, along with insulin, morphine, potassium chloride and warfarin, another blood thinner. The five drugs account for 28% of all errors that resulted in extended hospitalizations, according to a 2002 study by United States Pharmacopeia. All carry a high risk of injury if administered incorrectly.

The problem is causing so much concern that the Joint Commission, which accredits 85% of the nation's hospitals, has made the safe use of anticoagulants like heparin one of its top national patient safety goals for next year.

SIDEBAR:

The Quaid newborns

Dennis and Kimberly Quaid's twins were born Nov. 8 in Santa Monica to a gestational surrogate. The couple are the babies' biological parents. The children are in stable condition. A spokesperson for the actor and his wife has said the parents hope to maintain their privacy.

Three Cedars-Sinai patients — reportedly including the newborn twins of actor Quaid and wife Kimberly — had their intravenous catheters flushed Sunday with the high dose of heparin.

Hospital staff members identified their error by quickly testing the blood-clotting function of the patients, and two of the patients were given protamine sulfate, a drug that reverses the effects of heparin and helps bring blood-clotting function to normal. The celebrity-news website TMZ.com said the twins were in stable condition in the hospital's neonatal intensive care unit.

There are parallels to the problems involving the Quaid twins and a fatal heparin overdose last year at Methodist Hospital in Indianapolis. Officials there said a technician in the pharmacy mistakenly placed the more concentrated dose of the drug in a location designated for the less concentrated dose. The nurse was accustomed to only one dose being available in the neonatal intensive care unit and administered the incorrect dose.

Erin Gardiner, a Baxter spokeswoman, said that at both hospitals, "it appears that our product was misadministered."

After the Indiana deaths, Baxter and the FDA issued a statement warning "of the potential for life-threatening medication errors involving two heparin products," according to the agency's website. The statement said both concentrations came in similar-sized vials that "use shades of blue as the prominent background color on the label."

Last month, the company altered the label on its dose with a concentration of 10,000 units per milliliter, changing the background color from blue to black, increasing the font size by 20% and adding a large "red alert" symbol on the vial, Gardiner said. Such changes, however, don't "replace the value of clinicians carefully reviewing and reading a drug name and dose," she said.

Since the accidents occurred, Cedars-Sinai has taken several immediate steps to ensure they do not reoccur, Elbaum said.

The hospital has removed all heparin used for peripheral IV flushes from the pediatric unit and will instead use only a saline solution for flushes for both pediatric and adult units, he said.

In addition, all heparin with the higher concentrations of 10,000 units per milliliter has been placed in a separate location in the pharmacy from the lower concentrations.

The hospital is continuing to retrain its 1,800 nurses and 200 pharmacy staff members in medication administration, requiring the refresher course before any of them treat patients, he said.

Cedars-Sinai has long used a “double-check system” requiring two licensed healthcare professionals to verify independently any medication before administering it, Elbaum said.

Wu of John Hopkins said medication errors are common because the United States is a “medication society,” where four of five Americans take a medication at least once a week. Overall, more than 6 billion prescriptions are written in the U.S. annually, the highest number in the world, said Wu, who also serves as a senior adviser in patient safety to the World Health Organization.

Hospital administrators and healthcare officials have been talking in recent years about different ways of improving the situation.

Bar codes considered

One of them is considering placing bar codes on all medications and swiping them into a computer programmed with information to confirm whether the proper medicine in the proper dosages is being given to the right patient. The FDA has ordered all drug manufacturers and marketers to place bar codes on their products, and the majority have done so, according to Allen Vaida, executive vice president of the Institute for Safe Medication Practices in Pennsylvania.

But Vaida said less than 20% of the nation’s hospitals have installed the costly bar code systems to read them.

Cedars-Sinai does not currently use a bar code system but is considering introducing one, along with other potential measures, Elbaum said.

Other measures that hospitals are exploring involve placing what Wu called “look-alike, sound-alike” drugs in conspicuously different packaging.

“If you design things so they look similar, it’s just inevitable that somewhere in the U.S., someone is going to slip up,” he said. “It’s a booby trap. You can see that it’s an accident just waiting to happen.”

Wu said hospitals should also eliminate highly concentrated medicine from wards to reduce the risk that someone could accidentally dispense it. Concentrated potassium chloride, which is used in IV solutions, has been virtually eliminated from hospital wards in recent years, he said, because too many patients were accidentally being given undiluted concentrations — causing heart stoppages.

Similar measures were undertaken at the Indianapolis hospital where the three infants died last year. Hospital officials have since replaced vials of the most concentrated heparin doses with preloaded syringes, making the difference between the least and most concentrated doses more distinct, said James Wide, a spokesman for Methodist Hospital.

In addition, officials now require two pharmacy technicians to verify whether the correct medication is being loaded into the proper spot, and two nurses in the neonatal and pediatric intensive care units to verify medication before administering doses.

The hospital has also accelerated its efforts to require every drug to be checked with a bar code scanner as it is being stored in the pharmacy, when it is dispensed to the patient and immediately before it is given to the patient, Wide said.

Ellen Venditti, director of corporate risk for Cape Cod Healthcare in Massachusetts, said that “computerized physical order entry” systems would also minimize risks. Under such systems, doctors type their prescriptions directly into a computer, which is programmed to raise a red flag if the prescribed doses are abnormal. The direct data entry also avoids misreading handwritten prescriptions, she said.

Experts also said patients, nurses and others should take care to double-check all medications before taking them.

When his wife was hospitalized for nine days, Wu said, he moved her into a room and checked every medication given to her. He caught three errors, he said, including the wrong concentration in one case and medicine meant for another patient in another.

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SIDEBAR:

What recourse do victims of medication errors have?

Unless there is proof of injury or death, patients and their families have no legal recourse said Dr. Bruce G. Fagel, who is also a Los Angeles-based medical malpractice attorney. It is possible that injuries could show up much later; therefore in cases involving newborns, like the one at Cedars-Sinai Medical Center, the victims have up to eight years to sue, he said.

Even if no civil case is brought against a hospital and its employees, state licensing agencies can still take action because they only require evidence of negligence that could “potentially cause a life-threatening injury,” Fagel said. The state Department of Public Health is investigating the Cedars-Sinai incident.

But Fagel pointed out that the hospital issued a statement stating that the drug overdoses occurred “as a result of a preventable error, involving a failure to follow our standard procedures and policies.”

So it will probably be up to the state Board of Registered Nursing to conduct its own inquiry and take appropriate action against the individual or persons involved, Fagel said.

“It is the nurse who is the final authority, whose job it is to protect the patient,” he said. “Even if the bottle is in the wrong drawer, the nurse has the responsibility to look at the drug they are injecting.”

Source: Times staff reporting