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Robot to Mix Chemotherapy Drugs at U.S. Hospital

By SHARON GAUDIN, [Computerworld](#), IDG

The [University of Colorado](#) Hospital is about to start using a robot to mix chemotherapy drugs for patients, which its developers say will eliminate human error and protect technicians from potentially dangerous drugs.

This is the first time the chemotherapy compounding robot will be used in the United States, according to Shawn Riley, vice president of Primus Innovations Inc., which is collaborating with robot developer Health Robotics to distribute the technology. He noted that the technology is being used in Europe.

"The robot eliminates calculation errors," said Nancy Stolpman, director of pharmacy at the University of Colorado Hospital in Denver, which administers chemo to 80 to 100 patients a day. "[Mistakes] happen. Pharmacists and technicians are no different than any other human. They make errors. Just one decimal point [off in calculation] can be a 10-fold overdose for a patient. It can be very dangerous," she said.

And Stolpman, whose organization is set to begin using the robot this month, said she's quite confident that the stationary machine can accurately read the orders for the chemo, which often are a mixture of several different drugs. The machine uses its robotic arm to mix the compounds and deposit them in IV bags, vials or syringes. The robot then drops any articles, like used vials and syringes that are no longer needed or contaminated, into a waste container, so technicians never touch them. The machine even alerts someone when the waste container is nearing full and then closes and seals it.

Riley said the robot, which is called CytoCare, is a third-generation machine that was approved by the federal [Food and Drug Administration](#) at the end of 2006. About 50 CytoCare robots have been sold worldwide to date, he said.

Stolpman said they've been testing the robot and have really run it through its paces. "We've tried to get it to make something wrong and we can't trick it," she added. "It adds several safety checks."

She explained that the machine weighs the drugs before and after they're mixed to confirm the dosage, and it checks bar codes on the drug packaging to make sure it has the right drug. To double check that, the machine places the drug on a platform and rotates it 360 degrees, taking images of the drug and comparing them to images stored in its database. "It knows what it should look like and it will reject it if it doesn't match," said Stolpman. "I think we definitely need the extra safety checks."

And that added layer of safety also goes for the technicians and pharmacists, who normally mix up the chemo compounds. If the drugs come in contact with skin, they can cause burns, and there can be serious health risks for people handling these medications over the long-term.

"Chemo is biohazardous," said Stolpman. "You don't want to come in contact with it. You don't want a spill. You don't want it touching your skin because it could cause pretty hefty burns. It's made to kill bad cells but it sometimes doesn't know the difference."

Riley said the Baylor Health System which in Dallas and Forth Worth area, also bought the robot and are about two weeks behind the University of Colorado Hospital in deploying it.

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