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New technology

Scrub robot transfers to CS department

Penelope, the first surgical robot able to hand instruments and assist at surgery is transferring to another department—central sterile reprocessing—and her name will be Penelope CS.

Penelope, named for Ulysses's wife in the mythic *Odyssey* by Homer, was invented by Michael R. Treat, MD, associate professor of clinical surgery in the College of Physicians and Surgeons of Columbia University in New York City.

Penelope's software brain allowed her to focus on surgical instruments, count them, know where they were, and hand them to the surgeon. Penelope also could unpack instruments, arrange them, pick up an instrument, and put it back.

Thus, it wasn't much of a stretch to move Penelope into CS and use her to clean, sort, inspect, and count instruments and repack them to go back to the OR.

Penelope the robot may be able to assemble and take apart trays.

A 'brain transplant'

Penelope CS's arm can be heavier and more versatile than the OR robot's because she won't have to work so closely with people. Instead, Penelope will be in a 5 feet-square Plexiglas enclosure surrounded by stations for cleaning, inspecting, counting, and repacking instruments. The cubicle has a panel door that can be lifted to push in dirty instrument trays and retrieve clean ones.

"Penelope CS is more of a manufacturing process that doesn't involve a lot of sensitive issues. We designed Penelope's OR robotic arm to be extremely lightweight so it couldn't hurt you if it bumped into you," Dr Treat told *OR Manager.*

With the help of robot manufacturer Adept Technology of Livermore, California, Penelope CS is a combination of a stockier robot with a heavier arm plus a magnetic hand and software brain with some adjustments.

"We are doing what I call a brain transplant," says Dr Treat.

Doing the dirty work

Penelope CS will not need Food and Drug Administration approval because "she won't be working among people," says Dr Treat. "Unlike the original Penelope, this one you might say is just a sophisticated dishwasher."

Dr Treat and his colleagues at Robotic Systems & Technologies Inc, a company he founded in 2002 to develop smart medical devices, are in the process of completing the transplant of Penelope's OR software brain into the heavier armed Adept robot.

There will be some tasks Penelope CS won't be able to do right away, like take apart a trumpet valve, but if she can do the bulk of the work, like minor, major, and orthopedic trays, that's already a good thing, he says.

Less worry about splashing

One of Penelope's champions is a pediatric orthopedic surgeon at New York's Hospital for Special Surgery who believes a robot will be accurate in making sure all of the screws, spacers, and inserts are always on his trays.

"A robot is capable of putting together a tray of instruments perfectly, just as a robot puts together our cars that we drive," says Dr Treat.

Another plus is that Penelope CS can take the worry of splashing and blood-

borne pathogens away from humans who now clean instruments.

"We're using a machine to do the dirty work and also maybe do it faster and more accurately. It is a winner for everybody," he says. ❖

—Judith M. Mathias, RN, MA