

# InstyMeds

Lauran Neergaard The Associated Press  
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It looks like a giant ATM machine, but instead of cash the contraption at a Minneapolis pediatricians' office spits out prescription drugs.

No more treks to the drugstore for a 45-minute wait with a sick child: Just insert the prescription and a credit card, and out pops the medicine.

InstyMeds is the first automated prescription drug dispenser to hit a doctor's office, the latest in a trend toward computerizing prescriptions to cut not just drugstore lines but dangerous errors.

So far, InstyMeds is a pilot project. But pharmacy regulators in Minnesota have just approved its use anywhere in the state, and the inventor hopes eventually to place the dispensers in doctors' offices and emergency rooms around the United States.

Dr. Ken Rosenblum, a former emergency room physician, had the idea while hunting in a late-night pharmacy for antibiotics for his 5-year-old's ear infection.

"I thought, 'This is crazy. Why do we get our health care at two places?'" Dr. Rosenblum said. "If you went to a restaurant and the waitress gave you an order slip and said, 'Now drive 2 miles away and wait an hour for your food,' we wouldn't do it."

Americans have doubled prescription drug use since 1989, yet the number of pharmacists remains about the same. Drugstores report about 12,000 unfilled pharmacist positions.

Many hospitals now use bar-coded drug stocks for inpatients to ensure they get the right drug. And about 4 percent of doctors use Palm Pilot-like electronic prescription pads, eliminating handwriting problems and allowing a quick records check to ensure that a new prescription will not interact dangerously with a patient's current drugs. InstyMeds combines those computerized safety systems with push-button convenience.

A South Lake Pediatrics branch in suburban Minneapolis was the first to use the system. Dr. Keenan Richardson and five colleagues write e-prescriptions. They type in the child's weight and the pad automatically calculates the right dosage, eliminating another opportunity for an error. Parents get a prescription printout with a security code to type into InstyMeds. The computer verifies the prescription and checks insurance records. The parents then swipe their credit card to pay.

Inside the machine, a bar-code reader picks a bottle with the right dose and amount of medicine, slaps on the instruction label, and out it pops.

Within 12 weeks, InstyMeds was dispensing half of all prescriptions at the clinic.

The system is not perfect. Some patients may not have credit cards, and InstyMeds can only stock as many as 80 different medications. Plus, pharmacists have special expertise in counseling patients on safe drug use - and drugstores can track prescriptions from different doctors to block dangerous interactions, said Matthew Grissinger of the watchdog Institute for Safe Medication Practices.

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# Dose of Efficiency

## Children's Hospital gets robot to package, pull medications.

By Jim Steinberg

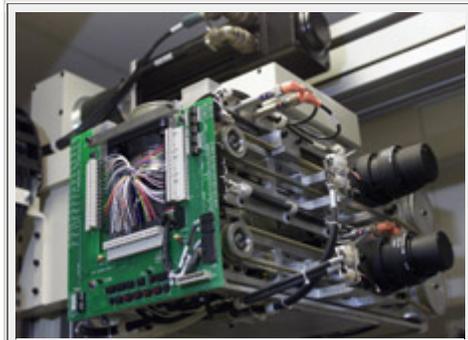
The Fresno Bee

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Pharmacy director Richard Sakai has a new 7-foot assistant who reads, selects and delivers hundreds of medications at Children's Hospital Central California, works 24 hours a day, never takes coffee breaks and never complains.

It's a robot.

Children's Hospital is the first pediatric hospital in the western United States to adopt a robot system to package, read and pull medications. The robot improves accuracy and saves pharmacy labor, Sakai says.



A close-up of part of the Children's Hospital pharmacy robot. The \$1 million device packages, reads and pulls medications. (Richard Darby / The Fresno Bee)

The automated service will free up time for pharmacists so that they can visit patient floors and discuss and check medications with doctors and nurses.

The new automaton does not come cheap. It cost about \$1 million, says hospital spokeswoman Micheline Golden, but the efficiencies it delivers should allow it to pay for itself in two years.

Pharmacists are in short supply in the San Joaquin Valley, and the hospital will be able to hire at least one fewer. The new machine, which will receive a pet name soon, has been on the job more than a month and already seems to know the routine.

The robot system works in two crucial areas, and both rely on computerized bar codes like those found in supermarkets.

In one function, operated with a separate machine, the system reads specific bar codes attached to identify medicines. Instead of peanut butter at the supermarket, the code may identify a specific antibiotic, for instance.

The pharmacy measures out the prescribed amount, attaches an identifying bar code and puts an individual medicine dose into a plastic bag, which it seals under the eye of a pharmacy technician.

In the second function, the robot retrieves the packaged doses. It slides along a track in a storage area until it finds each prescribed dose, identified by its bar code. The robot makes

a huffing sound as a robotic arm pulls out the bagged dose, using four tiny cups that suck onto each plastic bag.

Then the robot disgorges its load of medication bags into a hopper. Human pharmacy technicians cull outdated drugs, and the dose bags are sent by delivery tube to proper nursing stations.

"The accuracy of the bar codes is critical," Sakai says.

The robot reads bar codes mechanically, and cannot spot an incorrect medication if it carries a bar code the robot is looking for. But the all-human medications system was never 100% accurate either at Children's Hospital or other hospitals. Sakai estimates that Children's Hospital's old system was 90% accurate, but says that "virtually all" mistakes were caught by further checking.

In a few months, nurses in the hospital will be equipped with hand-held bar code scanners, which they will use to match medication bags with child patients' wristbands. They will log in each dose given to each child with the medicating nurse's identification card.

The Robot-Rx is a trademark of UDL Laboratories Inc., a subsidiary of Mylan Laboratories Inc. The automated pharmacy system was developed by McKessonHBOC Automated Healthcare Inc. of Pittsburgh.

The new system serves patients staying in Children's Hospital, not at its outlying locations. Children's Hospital's average patient population is around 180, Sakai said, but stood at 167 Tuesday morning. Most patients receive at least one medication. Many children have not mastered the knack of swallowing pills, so the new system handles liquid doses, too.

The seemingly simple act of getting a doctor's prescribed medicine to the intended child in the hospital is more complicated than it seems, Sakai says.

From doctor's order to child, the process involves 16 steps.

"It is highly complex," he said. "It is not as easy as going to your medicine cabinet at home and giving yourself the right dose."

The hospital pharmacy is monitoring every dose now, and Sakai says the new system has a perfect record so far.

# The Pod

Automobiles that can react to your moods  
posted 10/29/01

In these troubled times, I think it's important that people spend more time with their car. Cars are not only ideologically neutral, they will seldom if ever send you a contaminated letter. Words like "jihad" and "dead or alive" are lost on a car, which basically exists for the sole purpose of serving its master, no matter what his or her religion or nationality.

I understand that some people have trouble warming up to their cars. This emotional distancing can occur for many reasons, not the least of which is breaking down at 3 o'clock in the morning in a bad part of town or malfunctioning in a way that allows your mechanic to stock a better brand of champagne on his yacht.

Japan's Toyota Motor Corp. and electronics giant Sony Corp. understand that cars can win back trust by putting more into the car/driver relationship. Today's drivers, or at least some of today's drivers, want something more from their car than simply a means of getting from point A to point B. (A good CD player and cup holders apparently don't score as many points as they used to.)

Toward that end, Toyota and Sony have developed a concept car called the "pod." It looks like a cross between the ugliest minivan you've ever seen and a Volkswagen Beetle. Fortunately, the pod has other things going for it.

For starters, it can smile, frown and cry. Big deal, you say. I can accomplish that by taking the wife and kids on 500-mile car trip without making a rest stop. True, but will your wife and kids also take your pulse and measure your sweat? Would you want them to?

The pod does this and more. Driven with a joystick-type controller, the pod has sensors to detect your emotional state and give driving advice. I hear what you're saying. You're saying, Dave, I can also accomplish this by having my wife and kids in the car. True, but your wife's advice is pretty much limited to, "So, when we see our first polar bear will you admit we missed the Disney World exit and stop and ask directions?"

Presumably, the pod's advice has more variety. ("When we see our first alligator will you admit we're not in Canada anymore?")

Personally, I am most excited about the feature wherein the pod can tell when you're in a hurry by measuring the degree of acceleration, the distance between you and the car in front of you and your pulse and perspiration.

When the pod senses you're driving aggressively, it will display a warning. (I'm not sure what kind of warning this would be, but an upraised middle digit would probably be in keeping with the warnings you're getting from your fellow drivers.)

The pod will also try to calm you down by playing relaxing music and blowing cold air in your face. (This might not be such a good idea. Fishtailing through rush-hour traffic is stressful enough without having to change stations on the car radio and fiddle with the air conditioning at the same time.)

The pod also has sensors that detect when you and your passenger (possibly your spouse) are sharing a happy/intimate moment by the tone of your voices.

The pod will then take your picture, badly startling the driver and resulting in a wrenching crash. Actually, that last part is not supposed to happen, but you might want to disconnect the camera, just to be on the safe side.

If you want a car that's part support group, part mother-in-law, part doctor and part voyeur, the pod may be for you.

Personally, I think I'll just stick with my used Ford. It runs OK and best of all, it keeps its opinions to itself.

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## Japan engineers focus on bottom line

by James Brooke - N.Y. Times October 2002

NARA, JAPAN -- The toilet wars started in February, when Matsushita engineers introduced a toilet seat with electrodes that send a mild electric charge through the buttocks -- and take a digital measurement of body-fat ratio.

Engineers from a rival company, Inax, countered in April with a toilet that glows in the dark and lifts its lid after an infrared sensor detects a human being. When in use, the toilet plays any of six soundtracks, including chirping birds, rushing water, tinkling wind chimes or the strumming of a traditional Japanese harp.

In a Japanese house, "the only place you can be alone and sit quietly is likely to be the toilet," said Masahiro Iguchi, marketing chief for Inax.

This may be one explanation for the ferocious toilet research going on in Japan. While the nation is famously addicted to gadgetry of any variety, its population is peaking and the number of households is expected to start declining by the end of the decade.

Some money can be made by exporting toilets to countries with comparatively primitive toilet cultures, but the real sales growth will be found by adding exotic features.

In May, Matsushita introduced a \$3,000 throne that greets a user not only by flipping its lid, but also by blasting its twin air nozzles -- air-conditioning in the summer and heat in the winter. Patting this Cadillac of toilets, chief engineer Hiroyuki Matsui said, "You can bring a bathroom temperature down by 7 degrees Celsius [44.6 degrees Fahrenheit] in 30 seconds."

In June, Toto, Japan's toilet giant, came out with Wellyou II, which automatically measures the user's urine sugar levels by making a collection with a little spoon held by a retractable mechanical arm.

Whether a home medical center or a Zen space for meditation, the toilet of the future probably will emerge from laboratories like the ones in Nara at the Matsushita Electric Industrial Co.

Users of the Matsushita toilet can program it to preheat or precool a bathroom at a specific time at a set temperature. For owners who may not be so regular, it allows users to set the temperature and pressure of a water jet spray used to wash and massage the buttocks, an enormously popular feature in Japan.

Toilet jet sprays, which sometimes confuse foreign visitors with disastrous results, are now in nearly half of Japanese homes, a rate higher than that of personal computers.

In a country with the demographics of Florida, the real growth will be medical toilets linked to the Internet. "You may think a toilet is just a toilet, but we would like to make a

toilet a home health measuring center," Matsui, the Matsushita engineer, said in a lecture in Nara. "We are going to install in a toilet devices to measure weight, fat, blood pressure, heartbeat, urine sugar, albumin and blood in urine."

The results would be sent from the toilet to a doctor by an Internet-capable cellular phone built into the toilet. Through long-distance monitoring, doctors could chart an elderly or invalid person's physical well-being. "We will have this within five years or so," said Harry Terai, director of home appliances research for Matsushita.

With nursing homes largely full in Japan, the number of older people under home care is rising fast, jumping by nearly one quarter just last year.

In Japan, most people see the doctor after they become ill," said Hironori Yamazaki, a Toto engineer. "With an eye to our demographic change, we are setting out to make the toilet a space for the early discovery of disease."

But some civil libertarians are having nightmares about "smart toilets" running amok, e-mailing highly personal information hither and yon.

There are also Big Brother nightmares about master computers monitoring millions of bowel movements, checking around the clock to see who is constipated, who is not eating his peas and who is drinking too much.