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Better Health Through Play By Noah Shachtman

Story location: <http://www.wired.com/news/medtech/0,1286,64939,00.html>

02:00 AM Sep. 15, 2004 PT

Dr. James Rosser is training surgeons, using a GameCube. Dr. Brenda Wiederhold is treating claustrophobics with a modified version of *Unreal Tournament*. And Doug Whatley, a commercial PC game developer, is now designing a game for nurses and doctors to train them in coping with emergency room catastrophes.

For decades, video games have been used for more than just play. Classroom-based games have taught kids how to do long division and where to find state capitals; Pentagon-funded shoot'em-ups have helped convince thousands of young people to join the Army. Now, after more than a decade of stop-and-start experimentation, it's about to be health care's turn, some researchers believe. And that's why Whatley, Rosser, Wiederhold and more than 100 doctors, educators, therapists and game makers are gathering in Madison, Wisconsin, this week for a first-ever Games for Health conference.

"Games and game technology have become much more capable," said Ben Sawyer, a conference co-director. "There is a lot more appreciation in the health industry for what games can possibly do. And there's the money in health care looking to develop games. I think we're beginning to see a critical mass."

Dozens of games have been developed in recent years to train physicians, educate patients, improve fitness and help treat the addicted and the mentally ill. Dozens more are on the way. But these projects have all been "short-term, small-scale and stovepiped," according to Kay Howell, who directs the Federation of American Scientists' Learning Federation, a conference co-sponsor.

There's been no coordination of efforts. And there's no agreement on which health care problems games would be best at tackling. Maybe it's convincing sick kids to take their medicine; maybe games are better at getting hospital administrators to cut costs. No one's sure yet.

"We need a vision or plan as to how to make progress," Howell said in a statement. She and Sawyer are hoping to see the beginnings of such a plan come out of Games for Health, which is scheduled for Sept. 16 and 17.

Rosser, who heads the Advanced Medical Technology Institute at Beth Israel Medical Center in New York City, knows how he'd like to see games used. Since 2001, he's worked with games like *Super Monkey Ball*, for Nintendo's GameCube console, to train doctors in laparoscopic surgery. What Rosser found was that students who had played video games for more than three hours in one week -- even once -- had 37 percent fewer errors during the procedure, and got the operation done 27 percent more quickly.

"If you played in the past, or are currently playing, you're significantly better than the non-players," Rosser said. "Video games were the determining factor -- more than years of experience, gender, dominant/non-dominant hand, all of that."

It's only natural, really, that games would help doctors with laparoscopies -- that's when surgeons use a tiny camera and joystick-controlled tools to cut and sew. It's about as close to gaming as surgery gets.

But there are other, more traditional hospital tasks that games can help medical professionals train for, argues Whatley, head of BreakAway Games. His company, best known for the island simulator *Tropico*, is now working with a hospital chain to build a game that preps doctors and nurses for a "mass casualty event" -- a bomb blast or a big fire, say.

"Organizing an event where you practice mass casualties -- it's enormously expensive. You have to shut down the ER for a day, and take people away from their normal work," Whatley said. "This lets people practice without all the interruptions."

But games only go so far, some doctors warn, in replicating the breakneck twists and turns that are the hallmarks of hospital life.

"For example, the American Heart Association has a video game -- they call it a training program -- for ACLS (advanced cardiac life support). For all intents and purposes, you could be playing Sim-Hospital, including the funky music, or so I remember. It can only prepare you for the 10 or so emergencies it has been programmed for. Anyone who has trained in an ER will tell you that while these are the 10 most dangerous, they are not the 10 most common and if your training only lets you experience those 10, you won't readily approach other diagnoses not in the program. The practical, hands-on experience with real people is vital," Dr. Mark Frankel, a Boston-area psychiatrist, wrote in an e-mail.

Instead, many researchers are focusing on games aimed at the patient, rather than at the doctor. Wiederhold, for example, heads up the Virtual Reality Medical Center, which has used video games and digital worlds to treat more than 400 people with anxiety disorders. Patients there use the games to face their phobias. People afraid to drive play *Midtown Madness*, a racing game; those with fear of heights use a

custom-crafted level from the *Unreal Tournament* shooter game, which features pixelated skyscrapers 50 stories tall.

University of California at Santa Barbara researcher Debra Lieberman spent much of the 1990s building Nintendo games to teach asthmatic and diabetic kids to better care for themselves. The children who kept their digital glucose in check saw dramatic health improvements, Lieberman claimed. Emergency trips to the doctor and to the hospital, for example, dropped among players from two visits per year to less than a half a visit.

"Because they're noninvasive, because you have to rehearse the skill, and because you have to reinforce behaviors to get ahead in a game," Lieberman said, "games are the perfect laboratory for breeding behavior."



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