



# BIOFEEDBACK GAME FOR

# PATIENT SAFETY

A NEW GAME BY PSYCHOLOGIST PAMELA KATO HELPS YOUNG DOCTORS REDUCE STRESS AND THUS SAVE LIVES BY... **TAKING A DEEP BREATH.**

**P**lease raise your hand if you have ever played a video game." Pamela Kato gazes into the crowd and sees only a few hands raised. It's clear that among the medical professionals attending this convention on quality and safety in healthcare in Amsterdam there aren't many gamers. Targeting this particular group with a game looks like a mission impossible but Kato doesn't seem the least bit worried. "Okay, let's get started", she says smiling.

It took the American psychologist Pamela Kato three years together with a team of medical researchers in Utrecht, The Netherlands, and Colorado based gamestudio Visionshift to create Air Medic Sky 1. It's a game specially designed to train young doctors. Despite their high level of training, almost all doctors, at some point in their career, will be involved in harming a patient.

The numbers are staggering: up to five percent of all patients admitted to a hospital suffer 'unintended harm'. Kato is quick to dismiss the image of 'young and inexperienced': "It's not a lack of education or knowledge, the main problem is pressure. Young doctors are put through the test and pushed to -and over- the limit by the older staff. They work long hours in stressful conditions." Stress is one of the most important catalysts for wrong decision making and therefore cutting back on stress is the central theme of the game.

The premise of Air Medic Sky 1 (or AMS, the airport code for Dutch airport Schiphol Amsterdam) is simple. Expose the players to a high level of stress in the game and let them diagnose and treat patients. Since it's all within the safe virtual environment of the game, doctors are free to make mistakes. Virtual patients don't die. A lesson well learned

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from aviation simulations. "The game helps doctors to recognize stressful situations", says Kato. "The next step is to teach them how to stay cool and focused when these situations occur." How does AMS1 do that? The game is a biofeedback game.

Back in the conference hall in Amsterdam, a volunteer is called up on stage. A young British doctor is cheered on by his colleagues as he takes center stage. Sensors are applied on three of his fingers. They measure heart rate and skin conductance - or sweat response- which gives a good indication of stress levels. As the numbers on the screen indicate, standing here in the limelight doesn't leave the man unaffected. He starts playing the game. A fireman is rushed

in with signs of exhaustion. The doctor asks questions and talks to colleagues and family members. He decides to start an IV drip. This decision triggers an interesting gameplay mechanism. To get the needle in the patients arm, the player has to relax and get his heart rate down to a certain level. No easy feat, especially when you're on stage with hundreds of onlookers watching you. But with a couple of breathing exercises Kato manages to calm the young doctor down and the needle starts moving towards the vein. The crowd erupts in heated chatter. Pamela Kato smiles. She just converted this bunch of non-gamers and she knows it.

Kato is no stranger to game development. She created Re-Mission, a groundbreaking video game shown to increase treatment adherence for young people with cancer in a clinical trial. Results have been remarkable. Playing Re-Mission led to more consistent treatment adherence, a faster rate of increase in both cancer knowledge and self-efficacy in young cancer patients. With her new game AMS1 now completed she feels the most important part of her job has just started: "We need to do research to see just how effective this game really is. Once the data is validated we can launch the game internationally." But research takes time and money, both of which are running out so Kato is looking for partners now.

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