

# Google eyes nanoparticle platform as part of health rethink

January 31 2015, by Nancy Owano

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Google likes taking on big problems and that's no secret. Transportation. Communication, and now Health. *The Atlantic* has posted a video and it is all about Google's attempt to redefine how we manage our health.

"Over the last three years, Google has quietly built a cutting-edge health care [facility](#)," said the magazine video. Google's facility employs over 100 doctors and scientists. James Hamblin, senior editor at *The Atlantic*, sat in Mountain View, California, and spoke with Andrew Conrad, head of Google Life Sciences. Conrad told him that the group is trying to change medicine from being episodic and reactive (like going to the doctor because your arm hurts) to proactive. Google is working on a

wristband that can detect [cancer cells](#) when they first appear. That would be possible in a system where they would be designing tiny magnetic particles to patrol the human body for signs of cancer and other diseases. "So imagine that you swallow a pill [You would take a pill maybe twice a month] and that pill has small things called nanoparticles in it, decorated on their surface with markers that attach to cancer cells, We have them circulate through your whole body, and we collect them in the vasculature of the arm with a magnet, and you ask them what they saw."

In brief, Google is designing a system where tiny magnetic particles patrol the human body for signs of cancer and other diseases. UPI's Brooks Hays said that "the pill would [release](#) nanoparticles into a patient's bloodstream; the magnetized particles would tour the body seeking out cancer cells to bind to. A wearable monitor would attract and count the particles, pulling information as to what the particles had detected." Cancer cells, for example, would light up. How does light pass through skin? To understand that, Google started to make synthetic skin. For their arm model, they had to use materials that behave like skin with biocomponents of real arms. Also, Google is monitoring 175 healthy volunteers, collecting physiological data frequently,. The goal is to understand what defines a "healthy" person, to know what 'normal' is. They need to understand the baseline. In the video, Conrad, had a memorable reply when his interviewer asked if some people would feel weird having nanoparticles floating through their body as trackers. "It's way weirder," said Conrad, "to have cancer cells floating through your body that are constantly trying to kill you."

In November, Conrad also talked about Google's health explorations at the WSJD Live conference. As a complex system, a reactive, episodic paradigm for a health system makes little sense, said Conrad. "Can you imagine," said Conrad, "changing the oil in your car when the engine is broken?" Yet that is what we do in health care. We wait and go to the mechanic when we are broken. He talked about the use of [magnetic](#)

[nanoparticles](#) to monitor for signs of cancer and other diseases. He said the goal was to functionalize these [nanoparticles](#), the nexus between biology and engineering, to make them behave the way they wanted. The idea, he said, was to swallow a [pill](#) and one could call them somewhere, trap them and then can [ask](#) them what they saw.

"Imagine you want to explore Parisian culture and you do it by flying a helicopter over Paris once a year. That's what doctors do now. What we're hoping to do is that these little particles go out, mingle with the people, we call them back to one place, and we ask them, hey what did you see?" Did you find cancer? ... Too much sodium?"

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