

Pillbot

By: Rapid Access International, Inc.

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Traditionally, the endoscope has been used to obtain imaging inside the human body. There have been disposable pill cameras, including Medtronic's PillCam platform, and single-use robotic pills, including Rani Therapeutics' RaniPill. But, a new device called the PillBot has been gaining a lot of attention because of its unique propulsion system that enables the device to be directed by a Microsoft Xbox controller (likely to be replaced by a smartphone app).

Following months of negotiations, further development of the PillBot stomach camera is about to accelerate. Endiatx, the maker of PillBot, has reached a co-development agreement with the Mayo Clinic in exchange for an equity stake in the company. According to Endiatx co-founder and CEO Torrey Smith, the company is "not having [the Mayo Clinic] develop intellectual property, but what we are doing is having them coach us clinically. Basically, this is a chance to make sure that the tech that we are developing is exactly what gastroenterologists actually need."¹

Apparently, Mayo Clinic's head gastroenterologist – Dr. Vivek Kumbhari – has been a close collaborator with the company, and the agreement ensures that this relationship with Dr. Kumbhari is maintained. This includes continued use of the PillBot in the Mayo Clinic's cadaver studies and access to a scientific advisory board established by Dr. Kumbhari that Smith describes as "a who's who of the world's leading voices in gastroenterology."²

PillBot's Advantage

Torrey Smith describes PillBot as a means to facilitating "hardcore telemedicine": "What we're really building is the concept of normalcy of what we call hardcore telemedicine. We want a reliable platform where you can swallow a pill in your living room, but a doctor anywhere on the planet — or off-planet — controls it remotely."³ In other words, the device is a 'cheap mass-market screening tool' that could help to facilitate a simpler process for diagnosis and treatment, faster, less expensive and available outside of a medical facility.

Beyond Imaging

If PillBot can succeed, there is a large and growing market. The global endoscopy market is expected to grow substantially this decade. Demand is driven largely by GI diagnosis and surgery. And, Endiatx is expected to compete not with passive pill cams but with in-person endoscopies.

¹ Hammerand, Jim. "How Mayo Clinic will accelerate Endiatx's PillBot development". Medical Design & Outsourcing. January 4, 2023. Available at: <https://www.medicaldesignandoutsourcing.com/mayo-clinic-endiatx-pillbot-know-how-development-deal/>. Accessed on January 6, 2023.

² Ibid.

³ Hammerand, Jim. "Endiatx's pill-sized robot sees and swims inside the stomach". Medical Design & Outsourcing. March 11, 2022. Available at: <https://www.medicaldesignandoutsourcing.com/endiatx-pillbot-stomach-cam-swims-torrey-smith/>. Accessed on January 6, 2023.

Of course, PillBot only addresses the needs associated with one part of the market: GI diagnosis. Endiatx, though, also has its eye on the surgery market. The next step for the company is a product called Pill Surgeon.

According to Smith, Pill Surgeon will involve “putting on the robot arms and the little snippers and tools and needles.”⁴ *Simple tissue biopsies would likely come first, though there’s also demand from doctors for ways to mark tissue so they can locate it later for reexamination. Other ideas range from bleed cauterizing to microbiome sampling in the GI tract and voyages through bile ducts to search for early signs of pancreatic cancer.*⁵

The move to non-invasive imaging has resulted in technologies that may become the basis for far less invasive forms of diagnostics and surgery, such as that envisioned by Endiatx with the Pill Surgeon. It’s hard to say what companies and products will benefit, but Endiatx is making some serious headway with through their relationship with the Mayo Clinic.

⁴ Ibid.

⁵ Ibid.