

(tech pioneers)

TING CHOON MENG
HEALTHSTATS
SINGAPORE

A Relentless Watch on Your Pulse

WHIPPET THIN FROM HIS DAILY 2½-MILE walks, Ronnie Ho, 57, doesn't look as if he's suffering from high blood pressure. Nor is he. At its peak two years ago, Ho's blood pressure clocked in at 140/90, slightly above normal but not high enough to elicit a pill or much alarm. But when he went to see Dr. Ting Choon Meng, the Singapore general practitioner decided to monitor Ho's blood pressure with a black plastic wristwatch he had designed and named the BPro. The device, worn for 24 hours, revealed a wave pattern showing how fast and hard his heart was beating, as well as worrying patterns in Ho's pressure. Ting put Ho on blood-pressure-lowering medicine.

Was he being overly cautious? Not at all, Ting says, describing the attitude of doctors who brush off slightly elevated blood pressure as "the fatal smile" syndrome. "Patients get a clean bill of health from such doctors, and the next week they get a stroke," he says. "It's not enough to treat people with very high blood pressure. We're targeting people with no symptoms at all."

He's targeting them with his wrist monitor, which has the potential to not only cut heart attacks and stroke globally but also collect remarkable amounts of data. One in four American adults suffers from high blood pressure, according to the American Heart Association; a third in that group are unaware of having the condition. "One's

body is a very poor monitor of high blood pressure," explains Dr. Philip Wong, research director at the National Heart Center in Singapore, citing the absence of visible symptoms.

One reason high blood pressure is so diabolical, Ting says, is that it seems so simple to understand. "Every doctor takes blood pressure," says Wong, but very few doctors bother to monitor it on a 24-hour basis to detect dips during sleep or spikes in the first hours after waking. That's important, Ting explains, because "nondippers

The BPro tracks critical dips and spikes in blood pressure. It also monitors the heartbeat



“Nondippers have three to five times the risk of stroke.” —Dr. Ting Choon Meng

Ting sold three of his four clinics to get BPro off the ground. "Everyone thought I was mad," he says



have three to five times the risk of stroke" and because strokes often occur within three hours of waking, which Ting traces to a "morning surge" in blood pressure.

Embedded in the BPro is a sensor that picks up pulsations from the artery in the wrist and translates them into blood-pressure readings. Ting leases the BPro to doctors, who charge patients \$80 a day to use it—a fee split with Ting.

Ting's modest credentials did not bowl over the high-flying venture capitalists at the Singapore government's Economic Development Board (EDB), which is seeking to boost the country's biotech industry. "Nobody bet on us from the government," he says, an account that officials confirm. So, to fund the company that would eventually make the BPro, HealthSTATS International, Ting sold three of the four medical clinics he was running. "Everyone thought I was mad," he says. Ting launched the BPro in Singapore last spring, and is readying its launch in the U.S., where it has been cleared for marketing by the Food and Drug Administration.

His skeptics have also come around. Says EDB's Yeoh Keat Chuan of the BPro: "It is a revolutionary device. It has significant commercial potential." In spite of the pressure to sell the BPro and reward his shareholders, what matters most to Ting is patients like Ronnie Ho, for whom this modest-looking black wristwatch is already priceless. —By Neel Chowdhury

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