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hear the beat

3M Canada's Littmann Electronic Stethoscope

In 1973, violinist David Harrington formed the now-renowned Kronos Quartet. It grew from his childhood love of hearing the violin being played. It grew, too, from his fascination with listening to his grandmother tell stories of great violinists from the early 20th century. By age nine, Harrington found himself playing the violin, and he has been at it ever since.

The Kronos Quartet has collaborated widely with performers and composers as disparate as ying and yang, performed thousands of concerts worldwide, and released some 45 recordings of works for string quartet.

Harrington once described a project by saying, "We wanted to go from the most intimate sound to the largest, in the space of a heartbeat."

3M had a similar idea.

For the past two decades, there have been a number of electronic stethoscopes on the market but they just never caught on. The sound quality was mediocre and some amplified ambient room noise at the same level as the heartbeat. Doctors couldn't adequately isolate the sound they wanted to hear, which was probably a good thing, since the early electronic stethoscopes' sound didn't always resemble the heart sounds doctors were trained on.

"Those electronic stethoscopes didn't sound exactly like mechanical stethoscopes," says Jackie Allan, Marketing Supervisor, 3M Canada's Healthcare Division. "If they were left on, the power would drain and doctors didn't like turning them on and off 20-to-30 times a day."

3M's Littmann Electronic Stethoscope Model 3200 is a state-of-the-art electronic stethoscope. The previous model (3000) with ambient noise reduction technology has held the number one position worldwide for electronic stethoscopes.

"This—the 3200—is a step beyond," she says.

The Littmann 3200 is enabled with Bluetooth wireless technology, on-board recording, and ambient noise reduction. In fact, she says, it eliminates an average of 85 per cent of distracting ambient noise. There

are eight levels of sound, offering up to 24X sound amplification. It reduces frictional noise, created by moving the stethoscope on the body.

The scope comes packaged with a Bluetooth dongle, like a USB flash drive but with a Bluetooth signal. It pairs the stethoscope with the physician's computer.

"The new Littmann 3200 Stethoscope has onboard recording capability, so clinicians can record sounds for playback later or, with the stethoscope's Bluetooth wireless feature, they can send sounds real-time to their laptops," says Allan. "If a physician visits a patient at home, they use the on-board recording to store the heartbeat and then transmit it to their computer back at the office. In the office, the physician has the ability to view heart and other body sounds on a computer in real-time while the stethoscope is still on the patient."

The Zargis StethAssist software included generates a phonocardiogram, a visualization of the sounds. Physicians can see a graph of the heartbeat — email it to a cardiologist or colleague for a second opinion or just store it for later review.

Optional software includes the Cardioscan Heart Sound Detection Software from Zargis Medical, which helps the physician analyze cardiac sounds for heart murmurs, and decide if a referral to a cardiologist is necessary.

The bigger picture, she says, is because it is Bluetooth-enabled, the stethoscope opens the door to future software development.

The Littmann 3200 shows huge promise for telemedicine applications. Physicians or nurses practicing where no cardiologist is available can email the heartbeat to the cardiologist or, in the very near future, even have him or her listen in real-time while the patient is in a remote location.

Battery life is a lesser issue as the Littmann 3200 goes into sleep mode after three minutes of non-use, saving batteries and saving physicians from turning it on and off; something they need do only once in



the morning.

It even looks the same. There's nothing wrong with the design of a traditional stethoscope so why change it? It still has two ear pieces and one chest piece, but the technology has revolutionized its functionality, including a frequency button and volume control. And because it's wireless, there's nothing to impede a physician's movement around the patient.

The technology allows doctors to catch sounds they may have otherwise missed with a mechanical stethoscope.

"It gives better sensitivity and more confidence in decision-making," says Allan. "Physicians can catch someone who may not have been referred, or stop needless referrals. They save time, reduce unnecessary tests. Patients also like that the physician is recording their heartbeats for comparison."

It's designed to work with patients of all ages and sizes, an important consideration with the growing obesity epidemic. Powered by a single double AA battery, the Littmann 3200 allows doctors to hear potential heart problems.

"If they don't hear it," says Allan, "they don't know they're missing it. The Littmann 3200 completely redefines what a stethoscope is capable of." ●