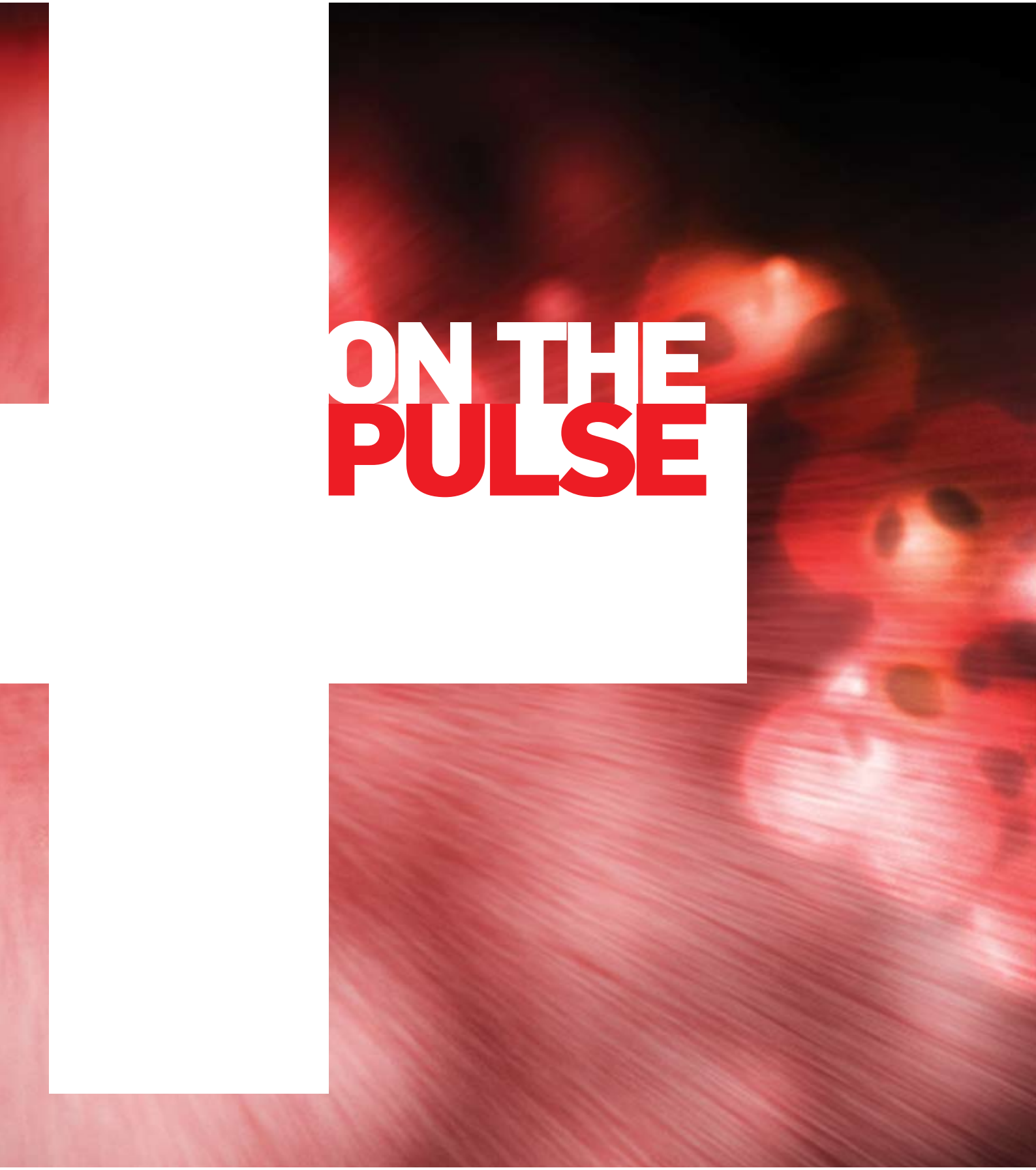

ON THE PULSE

***Claire O'Connell** reports on how an Irish company has developed software for potentially life-saving blood pressure monitoring, now in use in nine countries and growing.*

What tells you more about a person's day - a single, posed snapshot or a series of photographs over 24 hours? The answer is pretty obvious – the more data you have, the better the overall picture you can build up.

Similarly, a single blood pressure reading in your doctor's office can miss out on important clues about how your body is (or isn't) working. That's why Irish company Dabl has come up with software to rapidly analyse and report data from monitoring systems that track a person's blood pressure at several points during a normal day. Knowing those readings can offer important insights into a person's health, explains Bill Rickard, a co-founder and managing director of Dabl.

"Blood pressure is between 40 and 50 per cent of the risk factor in a range of conditions including stroke, heart attack and failure and diabetes, and it's recognised there is a link there with dementia too," he says when we meet at the company's office in Blackrock, Dublin. Yet many people are walking around with undetected or uncontrolled high blood pressure, and the common practice of taking a single blood pressure reading in the clinic doesn't always nail down an accurate picture.

"The one-off blood pressure [reading] has about a 40 to 45 per cent inaccuracy rate and all the research shows now that the most accurate form is 24-hour blood pressure measurement," Rickard says. Sampling over a day and night can account for effects such as the 'white coat window' (where a person's blood pressure reading could be affected by being in a clinical setting) and usual fluctuations like the 'morning surge' when we wake up. And importantly, the 24-hour readings cover the night time, when the normal pattern is for blood pressure to dip. Maintaining high blood pressure during slumber is a red flag, explains Rickard, who explains the process for tracking the data over a day and night. "It's very simple: you put a small device on the person's waist, there's a tube and a cuff on the arm and it takes a reading every 30 minutes. This produces about 48 to 52 readings. Then we have the issue of interpreting the data."

GENESIS OF THE IDEA Making sense of those numbers has seen Dabl expand from small, clinic-based settings to rolling out the system in hospitals, clinics, research centres and pharmacies both in Ireland and internationally. It all started when Rickard was talking to his neighbour, consultant cardiologist Prof Eoin O'Brien, at a party back in 1999. O'Brien had developed the initial analysis system with statistician Neil Atkins and had been using it to assess patients in a nurse-led clinic at Beaumont Hospital.

"They were finding that about 40 per cent of patients were referred unnecessarily," recalls Rickard. Because Rickard has a background in finance, marketing and information technology, O'Brien asked him to scope out the commercial potential of the system back in 1999.

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He soon spotted a gap for better data management in disease prevention, and the company was founded in May the following year.

The first steps involved re-engineering the system, making it browser-based and eventually putting it online. And all the while, the company was building up links with experts in the field who used the system for their own research and fed back information with which Dabl could annually update the software.

Those links with clinicians and medical centres have been a linchpin of Dabl's growth and reputation because the company has quickly been able to incorporate best practice into the product, according to Rickard. "We don't issue beta versions because people's lives are at stake so we go through a very rigorous QA process," he says. "And we have the leading experts in the world using the system, checking it all the time."

A head-to-head study to be published this summer compared human and Dabl analysis of 24-hour blood pressure readings and found the humans were sometimes failing to pick up some important features, says Rickard. "Some were missing the white coat window or the morning surge or the amount of dipping," he notes. "Whereas if you apply the data to a computer system such as ours that has the expertise, if it sees it, it will record it."

The computerised approach can have a strong impact on patient care too, he adds, describing the effects of a project that linked several GP clinics with Beaumont Hospital and facilitated 'virtual consultations' using Dabl's data analysis system.

"Because the doctors were able to monitor the patients, they were able to prescribe more aggressively and the average patient medication went from about 15 per cent to about 64 per cent," says Rickard. "You might say that's an additional cost but the net resul, the clinicians maintained, was that if you could extend this countrywide, we could reduce stroke and heart attack by about 50 per cent, and, in today's terms, that's a saving of about €450 million." As well as expert validation and research, another keystone in the company's strategy has been to only link with validated devices for measuring blood pressure, notes Rickard.

"The big problem with the hardware is that internationally about 50 per cent of the devices are non-validated, in other words, they have not gone through a proper validation process," he says.

To highlight the issue, Dabl set up the Dabl Educational Trust, which receives input from experts around the world. Their website has grown to occupy an important niche, explains Rickard. "It's now used by a number of governments around the world to decide whether a device can be sold in their market, and we have distributors ringing us saying how much does it cost to be listed on the Dabl website. We say it's not a matter of cost, there is a certain procedure you have to go through," he says.

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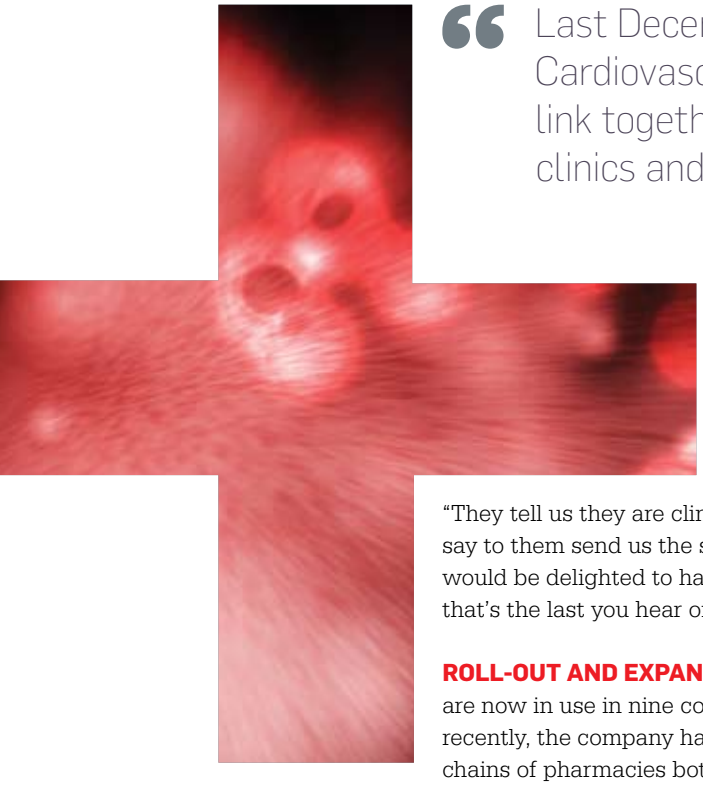

> Last December, Dabl launched its National Cardiovascular Shared Care System in Ireland to link together hospitals, primary and community care clinics and pharmacy outlets.

"They tell us they are clinically validated and I say to them send us the scientific papers and we would be delighted to have a look at them, but that's the last you hear of them."

ROLL-OUT AND EXPANSION Dabl systems are now in use in nine countries, and, most recently, the company has been linking in with chains of pharmacies both in Ireland and abroad. Again the local experts have played a key role in that expansion, according to Dabl sales and marketing executive Paula O'Sullivan.
"Before we enter any market, we would do our research and see if it's a viable market, but we would also have relationships in a lot of markets with the specialists, so that's our first port of call," she says."We are very lucky that the specialists see the benefit of the system and rolling it out in the community and making it more available in the general practices and the pharmacies." And even in markets where telemedicine is already well established, she believes the Dabl system is innovative enough to break in.

But with so much invested in the area, how does the company stop others from poaching their approach and running with it themselves? "We have copyrighted the software, the code," says Rickard, explaining why they chose not to patent. "One of the difficulties about patenting is that you really have to bare your soul to the world, and there is a downside – you are showing everybody how to do it and then you have to defend it and that can become extremely expensive. So we keep quite secret what we do, and, working with the experts, we keep well ahead of the competition."

Those close ties with clinical experts also help to keep competitors at bay, he adds. "All of the device manufacturers have reporting software but none of them have it to this level. We have the international credibility and by continuously updating the system with the research, that's how we are going to stay ahead - our possible competitors have told us that they would like to copy us, but that we have all the experts."

In Ireland, last December, Dabl launched its National Cardiovascular Shared Care System to link together hospitals, primary and community care clinics and pharmacy outlets. So as it continues to roll its systems closer to the patient, where to now? "I suppose we are fortunate there's a huge growing market and a need because the population is outstripping the physical resources of doctors and nurses that are available," says Rickard, who welcomes the growing acceptance both of disease prevention and of electronic records for patients. "The first 10 years have been a struggle but now I think our timing is good."

DABL PRODUCTS INCLUDE:

Dabl ABPM: Offers accurate diagnosis, management and reporting of 24-hour ABPM (Ambulatory Blood Pressure Measurement). Used by GPs, pharmacists, hospitals and health-screening centres worldwide.

Dabl Cardiovascular: Provides a quicker diagnosis, reporting and better management of patients with cardiovascular problems.

Dabl Anticoagulant: Used to manage and report on patients on anticoagulant (warfarin) treatment.

Dabl Research solutions: Comprehensive analytical and statistical services for research projects and clinical trials.