

Why VitalConnect is the present and future of Patient Monitoring



Peter Van Haur
CEO

VitalConnect, Inc.
<https://vitalconnect.com/>

Contact:
Brian Price
bprice@vitalconnect.com

Follow us on:



Interview conducted by:
Lynn Fosse, Senior Editor
CEOCFO Magazine

"The vision of Vital Connect is to be the most sophisticated remote patient monitoring platform in the world." Peter Van Haur

CEOCFO: Mr. Van Haur, the first thing I see on the VitalConnect site is "Welcome to the future of cardiac monitoring." What have you developed at VitalConnect?

Mr. Van Haur: Before we get into cardiac monitoring, I think it is important to answer the question that you asked me, which is; what we have developed at VitalConnect. The answer is that we have developed what is known as the VitalCore[®] Processor. The VitalCore Processor is a patented, home-grown chip that sits inside of our proprietary biosensor, that is capable of monitoring eight unique vital signs, as well as biometric parameters, and it does this simultaneously, 24-hours a day, for a full 7-day wear period, which is unlike any other remote patient monitoring technology that exists today. That is what we have developed. This is the core product, or the core technology, that allows us to bring the future of cardiac monitoring to life. It also allows us to bring additional markets, such as hospital inpatient monitoring, to the next level of patient care.

CEOCFO: What can you tell us about the technology? How is it different from what else is available?

Mr. Van Haur: What is different about this technology is that it is a low power, high frequency, ASIC chip. There are many chips that a company can buy off the shelf, and many of our competitors do buy chips off the shelf. However, to do what we do, one had to create technology with the ability to monitor the human body with a high level of accuracy.

As we sit here today, we are very sedentary. We do not move that much. However, when you think about the human body, it is very active - every breath we take, every heartbeat, every movement, makes it

challenging to accurately measure vital signs. Therefore, when you need to monitor all of these vital signs simultaneously, it draws a lot of power to take those measurements. That is why many technologies, or really any other technology to this point, has not been able to do what we have been able to do, because they cannot figure out how to monitor multiple vital signs without drawing down battery power. The genius of the VitalCore Processor is the ability to stream all of this data while utilizing very limited battery power for a period of 7 days. That is what makes us different.

CEOFCO: Were you sure that you could do it? When did you realize it was possible?

Mr. Van Haur: I will tell you the story of the origination of this technology. The short answer is that you never know if you can do something until you try. However, the individual that actually created this technology is named Dr. Nersi Nazari. Nersi Nazari is a world-renowned chip expert. He was very involved with Marvell Semiconductor, Inc. where he was a founding executive of the organization. Nersi really has a brilliant mind when it comes to the development of chip technology, among many other things. He and a physician, the late William "Bill" New, MD, PhD, once a practicing physician at Stanford and one of the founders of the SPO2 technology, connected in the late 2000's. Dr. New had an idea, which was; can one take the observational capabilities of an intensive care unit, with all of the vital sign measurements and all of the big hardware that is traditionally used in the hospital, and miniaturize it down to a band-aid sized wearable that can stream data from anywhere, from any patient, at any time. Nersi was actually approached as a possible investor, and when he heard the vision, he said, "Not only would I like to invest in this, but I would actually like to help you develop it and build it". Therefore, Dr. Nazari is the one who built this technology, and it was his expertise in the chip industry that enabled us to do this. I would say that his confidence level was high at the time, but what he was trying to do had never been done before, so there was no blueprint or directions to follow. It was his vision, his expertise, his history with other chip manufacturing ventures, that ultimately created the VitalCore Processor and what is now referred to as the VitalPatch®.

CEOFCO: Are hospitals and medical institutions looking for a wireless way, or is it more monitoring outpatients, or both?

Mr. Van Haur: Hospitals are absolutely looking for a way to wirelessly monitor their patients. In fact, that is the second market that we are in commercially today. We are selling our technology for remote patient monitoring inside the four walls of the hospital. There are roughly one million hospital beds in America. Approximately 20% of those beds are what I would refer to as sophisticated beds. They are hard-wired for telemetry, or they have the capability to have telemetry, in ICU units, labor and delivery wards, and so on, which are the high-cost areas of the hospital. That leaves about 800,000 hospital beds that are, what I will refer to as, unsophisticated. The problem that hospitals are faced with today is that if you are a patient and you are admitted to the hospital, you are very sick. The days where a patient gets a traditional total hip replacement and is admitted to the hospital for 4 days are gone. Today, if you get a total hip replacement, you are in and out of the hospital,

oftentimes, in 12 hours. Therefore, the hospital has really moved to a place where, if you are admitted, you are really sick, which puts the hospital in a difficult position, because the reality is that these patients need monitoring, but monitoring is very expensive. You need the equipment and you need nurses to monitor this equipment so it is a very expensive endeavor for hospitals to equip their beds with the appropriate technology. With a very inexpensive, band-aid-sized technology like the VitalPatch®, we can easily create sophistication in an unsophisticated environment at an extremely low cost. Hospitals have recognized this. We are commercializing this technology, and I feel like this is the next wave of the future as it relates to monitoring patients in the hospital. We have a unique opportunity to completely transform how patients are managed, resulting in better clinical care and reducing overall healthcare spend.

CEOCFO: What is the device recognizing? What is it picking up?

Mr. Van Haur: The device recognizes the following 8 parameters: It monitors the patient's electrocardiogram, so it is monitoring the heart and the ECG. It is also monitoring the patient's heart rate. It is monitoring the patient's heart rate variability. It is monitoring the patient's respiratory rate. It is monitoring the patient's core body temperature. It is monitoring the patient's activity level in the form of steps. It is monitoring the patient's posture, whether they are lying down or sitting up. It is also monitoring the patient for fall detection, which is very important in the hospital, as you know, with the risk of falls with many of these patients. These eight core parameters are what we monitor using the VitalPatch, and we stream that data to the cloud in real time. Once it is in the cloud, we have the capability of pushing that data through algorithms. One such algorithm that we use detects up to 21 cardiac arrhythmias. It finds things such as atrial fibrillation, as well as other cardiac abnormalities. We have other algorithms that will triangulate our data points, and they will use, for lack of a better word, "if then" statements. For example, if the respiratory rate and the heart rate breach a certain level, then alert the nurse on staff that there is a problem in that particular room, for that particular patient.

We are taking patient data and streaming it to the cloud, where we use software and analytics to analyze the data to provide physicians with what we refer to as actionable insights. We feel as though we have a true end-to-end solution that has use cases across all of healthcare, whether it be the cardiac patient, the patient lying in the bed of a med-surgical unit, the patient in the long-term care facility, the patient in a home environment, or any other patient, anywhere, at any time.

CEOCFO: Is the medical community skeptical? I know it has been tested, but do they believe that it will really be effective?

Mr. Van Haur: The medical community really believes that our technology has been, and will continue to be effective. The area in which we are commercializing our technology, I will refer to for the purposes of this conversation as digital health. It has been exploding, and that pre-dates COVID. However, COVID really put a greater emphasis on, and accelerated the adoption of, digital health which can be referred to as tele-health, or hospital at home, and is the ability to care for patients remotely from a facility. If you look at where the private equity and

venture capital investments have gone, or where big companies like Medtronic are focusing their research and development dollars, a large amount of investment is going to digital health, because they see the hospital environment and the care of patients moving in that direction, and we happen to be at the forefront as it relates to the technology being used. The market speaks for itself.

There are many areas of focus within digital health. Cardiac is a small one. However, when I say small, it is a two-billion-dollar opportunity growing at almost double digits. 6.5 million patients each year will wear a remote device that diagnoses the presence of atrial fibrillation, or other cardiac arrhythmias. We launched our technology in 2021 with a single patient connected. Twenty-two months later, we have experienced more than 7% monthly sequential volume growth on a per day average basis since we launched this technology. That tells me that the market truly believes that 1) there is a need for this technology, and 2) it is significantly different than the companies that came before us trying to solve for this need. We believe the same opportunity with similar growth exists in the hospital inpatient monitoring space as well.

CEOCFO: Do you foresee a time when everyone will wear one of these?

Mr. Van Haur: Our product carries a very low cost as it relates to overall healthcare spending in general. The intention behind technologies like ours, and specifically ours, is the avoidance of cost. The value proposition for Medicare and other commercial insurance carriers to pay for this service is because atrial fibrillation oftentimes leads to stroke, and if you can detect a patient that has atrial fibrillation prior to such an event, you are doing the right thing for the patient clinically, and you are avoiding significant costs to the healthcare system. That is one example, and we can point to many examples, of how our technology avoids clinical problems and reduces cost by looking at the hospital environment. We are picking up signs and symptoms of deterioration for things like sepsis, pulmonary embolisms and GI bleeds by monitoring vital signs. The data will show us if the patient is fighting something. When the heart rate begins to speed up, the respiratory rate becomes labored and when the core body temperature begins to spike or drop, you know that the body is fighting something, and we are alerting physicians before an event occurs and results in a detrimental outcome, possibly even death.

Do I think that everybody is going to be wearing these ubiquitously? Probably not, but from a healthcare perspective, more emphasis is going to go to preventive care versus care of an issue, and we provide preventive care through the diagnosis of problems that lead to eventual issues such as stroke, cardiac arrest, and so on.

CEOCFO: The Vital Connect site shows, "Easy to apply, Built for comfort, Staying power, and Water resistant." How have you accomplished all of those things and why is it so important for people to wear the Patch when needed?

Mr. Van Haur: As I discussed, the VitalCore Processor is our core technology. It does exactly what I tell you it is going to do, as advertised, in what I will call the perfect environment. Now, in the real world where the biosensor is being worn, is not perfect. It is being worn

by a human and human beings are very active. They have day-to-day activities, moving around, going to work - they are very active while wearing our product. In order for the VitalCore Processor and the biosensor to do what it is designed to do, the VitalPatch has to have wearability that creates a very high level of compliance. Wearability is driven by the comfort of the patch, the softness of the foam, the malleability of the patch to conform to the different shapes and sizes of the human body and the ability to shower while wearing the patch, which allows for patients to go about their everyday life without disrupting monitoring or having to worry about the patch falling off. The intention was to create the world's most sophisticated technology in the VitalCore Processor, but we had to marry that with a wearable device that is highly comfortable, that does not create skin irritation or rashes, and that patients will actually find comfortable enough to forget that they are even wearing it. VitalConnect has a less than 1% complaint rate on our VitalPatch being worn by patients out of a large sample set of over 500,000 VitalPatches being produced and sent into markets around the world. That same thing cannot be said by our competitors who have significantly higher complaint rates per the FDA MAUDE database.

CEOCFO: How often would a patient or physician change the device?

Mr. Van Haur: Each patch has a 7-day life, and depending on the medical necessity of the patient, and depending on the physician's desire, the physician may prescribe that the patient wear the technology as little as 24 hours or they may prescribe the technology to be worn up to 30 days. In the case of 24 hours up to 7 days, we provide one patch, and the patient wears it. At the end of the wear period, they dispose of the patch. If it is a 30-day wear period, we provide additional patches. The patch literally comes on and off like a traditional band-aid. You simply apply it to your chest, and replace it as needed.

CEOCFO: How are you reaching out to prospective customers, to the medical community, as well as the investment community?

Mr. Van Haur: Our technology is commercialized through a traditional medical device sales force. We have individuals that are clinically trained in our technology. Many of these individuals are prior nurses, prior cardiac technicians, and prior cardiac lab representatives, and they are out in the field showcasing our technology to healthcare professionals that are looking for a new way to care for their patients in the cardiac space.

The same is true in the hospital inpatient monitoring side of our business. We have clinically trained individuals that have been in the medical device space for years. They are working with hospital systems from the top of the house down, working with them in terms of integrating our technology into the workflow, into the hospitals' EMRs, and bringing the platform into the true fabric of the hospitals. Therefore, we have a dedicated group of people that are out every day representing our technology from both the clinical value perspective as well as the economic value perspective.

CEOCFO: What, if anything, might people miss or misunderstand about Vital Connect?

Mr. Van Haur: The vision of Vital Connect is to be the most sophisticated remote patient monitoring platform in the world. We believe that we can provide value and utility to any patient from anywhere at any time. Oftentimes, because of the great success and the rapid growth we have been having in the cardiac monitoring space, people believe that cardiac monitoring is the sole environment in which we compete. It is “an” environment where we offer our services, but it is not the only one. We are capable of providing patient care and value across the entire remote patient monitoring marketplace. Cardiac monitoring, which is currently our fastest growing market segment and where we have been in the longest, is just a small piece of the giant landscape where we can provide value. Therefore, I think what people often miss is that we are not simply a cardiac monitoring company, we are so much more than that because of all of the data points, all of the vital signs, our capability of monitoring and streaming data in near real time over an extended period of time. We can expand into so many more markets. I think people often miss this when I talk to them.

