

# MARKETWATCH

Weekly News Bulletin– Issue No.11

April 13, 2018

## In this issue...

April 12 News

### Wireless sensors collect temperature and pressure of bedbound patients

An international team of researchers has developed wireless skin-like sensors for collecting temperature and pressure information from bedridden patients.

The researchers from the US, China and Korea described the small devices, which are about the size of a US cent coin, in the Science Translational Medicine journal and explained the advantages of their product compared to conventional sensors.

They claim that the thin, soft, skin-like sensors are capable of precise, continuous measurements of physiological health and could have a broad relevance within clinical health care. The sensors were tested on human subjects in sleep laboratories and in adjustable hospital beds to demonstrate their functionality, potential to monitor circadian cycles and ability to help to avoid pressure-induced skin ulcers.



The basic functions of the sensors are applicable to numerous medical situations. Hospital patients regularly have their temperature checked as it is a quick way to test for the onset of infection. Testing for pressure in bedridden patients is also important for alerting caretakers of the need to prevent bedsores. This typically involves the insertion of an anal probe. Methods for both these kinds of temperature and pressure tests also only provide information about one part of the body. The new sensors could provide solutions to these problems as they provide constant temperature and pressure readings from multiple sites and wirelessly send the information to healthcare workers. The sensors are designed to be used as part of a set with several sensors applied to the skin of the patient at various sites. The average number of sensors per patient is 65 depending on patient size. Each collects information and sends the data to a near field communication (NFC) transmitting coil under the patient's bed. The coil device is also the means of power for the sensors and sends the data it receives to a computer that monitors the information and can send alerts to the healthcare providers. Each of the sensors contains its own pressure sensor, temperature sensor and NFC system.

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### Singaporean scientists develop microfluidic device for cancer test

April 8, 2018

Researchers from the National University of Singapore (NUS) have created a new microfluidic device to carry out a cell-based test for the diagnosis, monitoring and customised therapy of cancer.

Intended to grow personalised cancer cell clusters, the device is designed to facilitate precise control of fluids and the culturing of circulating tumour cells (CTCs), which are to be obtained from a patient's blood through liquid biopsy.

The device is expected to serve as an alternative option for tumour tissue biopsy procedures that are considered invasive and painful.

While standard CTC expansion techniques require about six months or more, the new device takes less than two weeks for cluster formation. "The device is expected to serve as an alternative option for tumour tissue biopsy procedures that are considered invasive and painful." The CTCs grow in the microwells embedded into the device and can be assessed to obtain real-time disease information.

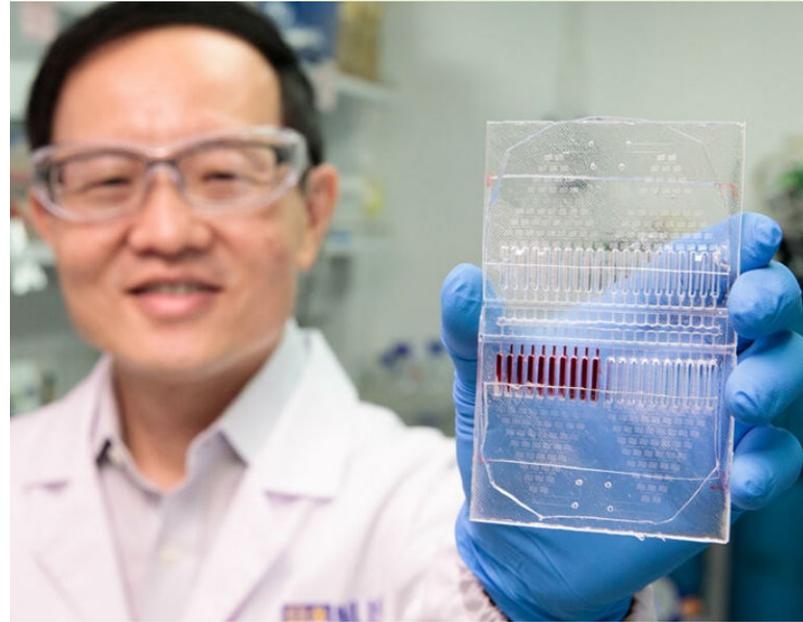
NUS Biomedical Engineering department professor Lim Chwee Teck said: "Tumour biopsies involve highly invasive procedures that can cause great discomfort and can also be expensive. Hence, tissue biopsies are generally used as a diagnostic tool only before and after cancer treatment. "In contrast, the evaluation of CTCs from liquid biopsies can provide regular, ongoing information for assessing metastatic risk, prognosis and treatment efficacy."

The researchers believe that the ability of the CTC clusters to 'closely mimic' the actual cancer cells can allow evaluation of the effectiveness of various anticancer therapies. In addition, the device enables simultaneous testing of two or more drugs at different concentrations, and is expected to pave way for the development of tailored treatments for individual patients.

Lim added: "A critical advantage of our approach is its potential to predict a patient's response to therapeutic treatment by performing tests on their own cancer cells." The researchers further hope that the device can be a cost-effective and less-invasive option for routine disease progression monitoring in hospitals. Currently, they are evaluating the assay with breast cancer cells, and plan to use other types of cancer cells as well.

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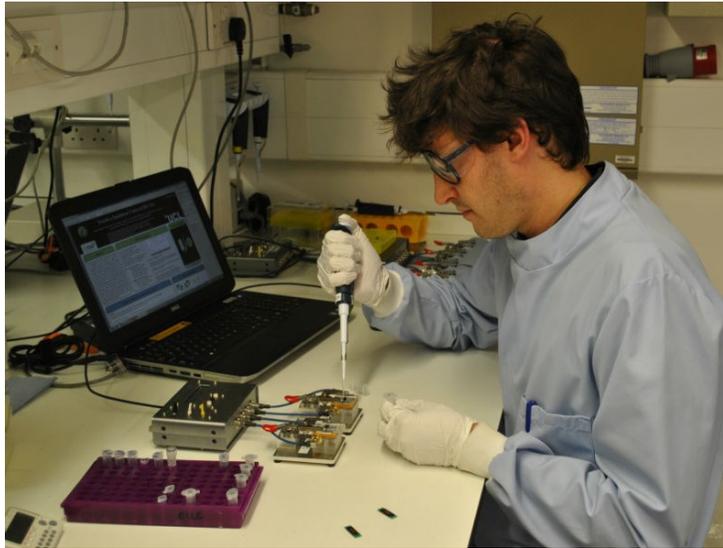
Intended to grow personalised cancer cell clusters, the device is designed to facilitate precise control of fluids and the culturing of circulating tumour cells (CTCs), which are to be obtained from a patient's blood through liquid biopsy. The device is expected to serve as an alternative option for tumour tissue biopsy procedures that are considered invasive and painful.



*Biosensor market estimated to reach \$21.17bn by 2020*

The global biosensor market is estimated to be worth \$27.1bn by 2020 according to a market research report by Million Insights. Biosensors are analytical devices that are used to measure analytes such as gasses, bacteria and organic compounds. They provide results by changing biological reactions into electrical indicators.

The devices include a biological component that works as a sensor and an electrical element which, when combined, can distinguish and pass on signals. Glucose biosensors, for example, are now commonly used to measure glucose concentrations in a patient's blood, which is essential for diabetes management. The main factor contributing towards the expansion of the industry is the increasing number of patients suffering from diabetes worldwide. Other key factors include the growth of technically-advanced products, an increasing demand for small and non-invasive products, and increasing patient awareness levels. However, other existing diabetes management options are predicted to confine market expansion.



The current market can be separated into the sections of home care diagnostics, hospital use and other. The home care diagnostics section is expected to grow rapidly over the forecast period due to increasing demand and technological innovations which are making home devices more accurate. However, the hospital sector is predicted to capture the maximum share of the market growth.

North America is expected to gain maximum revenue over the forecast period due to the increasing cases of diabetes in this region along with technological advancements in the area. Europe could capture the second largest revenue and the revenue for the Asia Pacific region is expected to grow rapidly

due to an ageing population and increasing consumer awareness of the home use of medical devices. Carbon nanotubes are an important focus for the industry for use in nanoelectronic equipment. This is due to their chemical, physical and electrical properties, such as their superior electron transfer properties, which make them efficient electrochemical sensors. Carbon nanotubes could offer good support for the control of enzymes and combining them with glucose biosensors can offer quick detection rate and high accuracy. A number of R&D initiatives are being taken by active players in the market as they aim to get maximum revenue from new developments and offer highly precise devices.

Some of the main companies currently in the biosensor market are Roche, Abbott, Siemens Healthcare Diagnostics, Nova Biomedical Corp, Animas Corporation, M-Biotech, LifeScan, AgaMatrix and Medtronic Diabetes. The global biosensor market is estimated to be worth \$27.1bn by 2020 according to a market research report by Million Insights.

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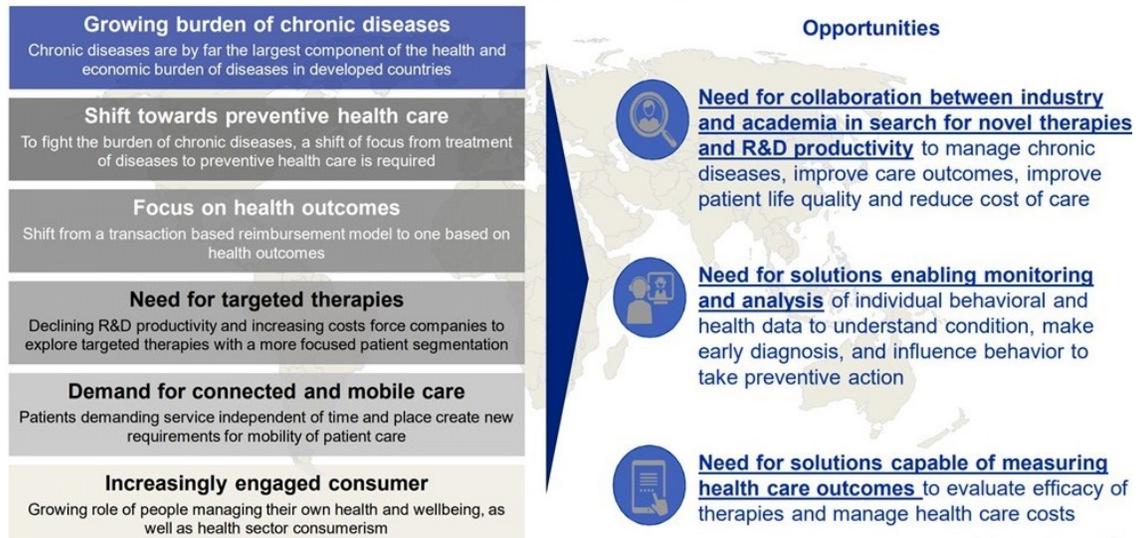
Some of the main companies currently in the biosensor market are Roche, Abbott, Siemens Healthcare Diagnostics, Nova Biomedical Corp, Animas Corporation, M-Biotech, LifeScan, AgaMatrix and Medtronic Diabetes. Medical Devices Directive (MDR) with stricter demands for clinical evaluation.

# The Future Healthcare Innovation Environment of Finland

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### Executive summary :

Global transformation of the health sector provides an opportunity for Finland to build a globally recognized health care innovation hub .Health sector is shaped by global trends which drive the need for new approaches for care, opening new commercial opportunities for the industry and for countries to create development hubs which combine several key competencies. Ecosystems which are able to advance translational medicine, conduct health data based R&D and develop new health technology solutions in collaboration between care providers and companies are well positioned to react to the sector trends and capture the commercial opportunities. Hence, Finland should focus on building a hub for health care innovation by advancing the four identified health ecosystem assets that Finland has in medical research, health technology, health data and clinical co-creation. Finland should leverage on its key advantage in... 1. Top-class disease pathways expertise to translate scientific discoveries into commercial development projects 2. Technological know-how and engineering capabilities to provide innovative digital health technology solutions 3. High quality health data for health data based R&D investments 4. Strong collaboration environment between care providers and the industry for effective co-creation.



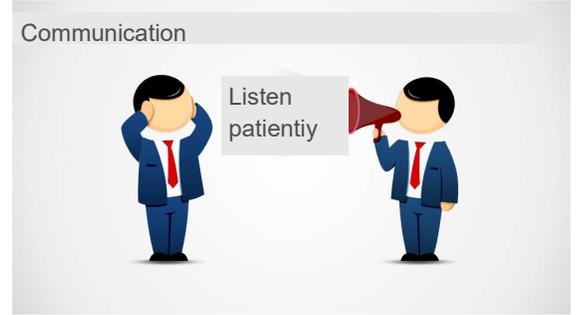
***At the event on Wednesday, the presentations and the amount of innovation was amazing. They are truly focused on innovation. One thing they are weak about is "marketing themselves"! The presenters were weak and the messages were weak...But they are really good and have a lot of start ups we can thing about partnering especially on digital healthcare. They do focus strongly on digital healtcare. They have highly ethical business habits. Finding a partner from that country can be a great asset". Furthermore, one company we talked to was Lojer and he was sitting at the desk with their Turkish distributor and it was great partnership with each other".***



Finnish government backs national AI development strategy. For Finland's economic planners and industrialists, AI has become the new internal combustion engine, or electric light, with infinite unexplored uses and commercial frontiers. At a more fundamental level, Finland is looking to unearth the next-generation tech star – an innovator that will put the country firmly on the world AI map, just as Nokia did when it emerged from virtual obscurity in the 1980s to become a global powerhouse in mobile communications.

## Observations About the Summit (Communication)

First of all thanks to you all of you for contributing to the efforts to make the 1st Summit a success. It worked out well and created our first corporate communication bridge as Bıçakcılar to the Distributors. I listened to all of you very carefully. You all spoke well on your expertise area, had convincing arguments and also proved our knowledge on what we do.



However, I would like to bring your attention to two points:

1. Getting feedback from our customers can not be achieved effectively when we ask the question “do you have any questions?”. This is not the right question because basically what we are asking is whether there is something you could not understand and would like to clarify. Instead let us use questions like, “What do you think? Would that benefit you? What are your applications on this? What is the most important criteria on partnering with you? etc....” Do you have any questions phrase can be asked in a training by the teacher to assure the students understand everything. That was not our aim and they are not our students.
2. We are impatient for the questions to be finalized and rush to give an answer. That also needs to change. Furthermore, the best way to respond to a question to get feedback is responding back with another question. Example: The person asks, “Do you have any plans to introduce new products?”, one way answering that can be, “Yes, but can you please tell me first a little about the requirements of your customers?”.
3. Communication is the main artery of relationships. If we do not get the desired response, then it means we did not use the right words, in the right context, at the right time, and with the right channel. The responsibility is on the person who initiates the communication. Perception is the only reality and we create that with communication.

Thanks for your attention.

## Wireless Communication in Healthcare...



### Contact Us

If you have any specific area that you need information on, please contact Corporate Marketing so we can focus on the specific areas to research to speed up your efforts.

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Corporate Marketing