INSIDE

GLOBAL VACCINES
A SHOT OF GROWTH FOR GSK AND PFIZER?

Recent M&A activity in the vaccine industry has narrowed the pool of players. For companies that remain, the opportunity to reshape their positions in the global market comes with an even greater responsibility to contribute meaningfully to continued advances in global public health.

BY MICHAEL THOMAS AND WILLIAM TAM
Connected Health Care

Hitachi Takes The Fast Track To A Data-Driven Future

If a Hitachi train has never broken down, why can't the same principles that are used to keep rolling stock and engines on the move be applied to the way that individuals receive their health care?

BY ASHLEY YEO

“...you have to be brave and make the changes that are needed or you will fail your community.” So says Adrian Conduit, director and lead of the health care practice for Hitachi Consulting Corp. in EMEA within Hitachi Ltd. The Japanese group’s medical technology and systems business (Hitachi Medical Corp.) has global reach, reporting sales of Yen 160 billion ($1,340 million) in FY2013 (before it became a wholly owned subsidiary of Tokyo-based Hitachi via a share exchange in January 2014).

The quality of services delivered is challenged if you can’t meet the needs of the population using conventional models, Conduit tells IN VIVO. In turn, conventional models of care delivery are increasingly unable to cope with both the needs of patients and the expectations of payors and providers. Little wonder, when typically 70% of a health care system’s spend now goes toward chronic disease.

That was not foreseen when these systems were first set up, but the typical trend of silo working has led to fractured care with the result that health care outcomes can remain static, despite continued investment being made. The big step forward is the use of information. “It’s data that is already there; we just need to find safe ways to access it better, and turn it into useful information,” says Conduit.

The solution is the “Big Data” approach, as we’ve come to know it. “But it’s not new thinking, just a different way of packaging existing thinking,” he adds. It might not even need new informatics structures, simply a new approach to how information is created, used, and shared.

That has been the experience of Hitachi Consulting, as it has developed its approach to new opportunities for projects combining new system architectures, hardware, and software for a UK cardiology project in conjunction with an NHS Trust, and a program aiming to transform the histology service in Sweden.

“The change in thinking is already there, and the skill is to make the best use of stored data, provide a seamless service to the patient, and avoid delays and unnecessary costs,” says Conduit.

ALL ABOUT THE DATA

Leveraging Big Data is the key to transforming services for better outcomes, management, and thus efficiencies, although “big” is rather more “complex,” “sensitive,” or even “disparate,” in a health care...
context, in Conduit’s view.

He explains: “Health care data have been collected and saved in different ways, and the systems were not necessarily originally designed with the idea of being linked. The sector didn’t start with the end in mind, but simply with the aim of meeting a local need. It turns out that this has made creating a unified view of the patient or the service more difficult, but we don’t need to be critical with ourselves – we just never knew this is what we wanted to do with it.” Now there is a chance – or rather a need – to combine these disparate sources, break down walls and silos, integrate hospital records, and follow the patient.

After all, other industries are already doing what health care still seems to be vacillating over. Conduit draws on an example near home, the railway industry. “There has never been a Hitachi train that has broken down in the UK, and that is all because of Big Data. Sensors located on all of the systems of each train alert engineers to problems before they happen, and this constant monitoring allows failure to be predicted rather than fixing a failure after it occurs or relying on planned routine maintenance to prevent failure.”

The logical next stage is to move to prescriptive analytics, that is, optimizing future situations by knowing what could happen. The result is a seamless experience for the passenger, lower maintenance, and lower costs.

**SWEDISH PLAN**

Improved outcomes are possible for the passenger, read patient, because in Conduit’s view, the model applies just as readily in health care. At present, Hitachi (Hitachi Consulting and Hitachi Data Systems Corp.) is part of a multi-member consortium bidding for a 10-year end-to-end project to transform the pathology service in a region of Sweden. The project focuses on changing the histology service from analog to digital, with the new service scheduled to start later this year.

The subtext of the project is to improve outcomes from the four major cancers in Sweden. “The value is in being able to create a digital image and make the diagnosis process independent of time and location using a range of technologies, many of which are well tried and tested. One or more consultants can look at an image at the same time, without having to be in the lab or even in the same part of the country,” says Conduit.

The key is to change referral patterns and make them uniform by regularizing inputs and outputs. The Hitachi consortium uses a work flow engine and a “medical information object” – also known as a “bright object” or the Hitachi clinical repository, which will allow users to “look forward and back”, that is, scrutinize post-diagnosis referrals and outcomes. This will enable patterns to be established between the referrals and the quality of the outcomes.

Together with outcomes optimization, the system will provide insight into how best to design the whole pathway with the aim of reducing, in the case of cancer, the overall cost of care by 10%. Early input monitoring, for instance around prescribing antibiotics, will likely provide crucial new advantages. “This is not simply a supplier/buyer contract. We aim to provide the business intelligence platform, while the bright object gathers and keeps the data in a vendor agnostic, open source system,” explains Conduit. The result is a total picture of the patient. Another outcome might be availability of new information that leads clinicians and researchers to ask new questions from the existing information.

In addition, the work flow engine that underpins the approach records the level and type of ongoing patient activity in the system, knows the capacity available, with the overall effect being that the best use is made of the available resources through active and integrated planning. The net result is to significantly reduce the number of process steps and speed up the time from referral to outcome.

**TRANSFERABLE MODEL WITH PREMIUM ON INNOVATION**

Sweden, a relatively small country, is very strong on data security and privacy, but also very advanced in terms of data access. For instance, a Swedish citizen’s tax authority number also counts as his/her social security number and identifies the address and other details. It is prescriptive, but not onerous. The pathology service project model can be replicated. Conduit says, “This approach is transferable and there are other opportunities across Europe.”

The project will cover 1.6 million people in a part of Sweden that has 17 hospitals, 121 health care centers, and 170 public dental care centers. The region has also been ear-marked to receive €90 million ($98 million) to invest in cancer care.

Hitachi sees this as a long-term plan – a 10-year commitment subject to the decision coming the way of its consortium. But even were it not to, the die is cast, the model is transferable and this is the direction that health care is taking.

Conduit is impressed with the grasp that the project decision makers have on the outcomes-based model. “They want this as a managed service, and want the successful partner and the region to share some of the benefits to improve the developing service,” he says. “They are ready to put a premium on this for innovation. We will make the changes needed on a business case basis, and we’ll take some of the savings from the value we’ve delivered and reinvest it,” he adds.

The concept seems to fit the long-term view that Hitachi adopts in matters of innovation. “We are a company that invested...”

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two decades of development into proton beam therapy (PBT).” Milestones in the PBT journey include the 2001 delivery of the first system to the University of Tsukuba; the MD Anderson Cancer Center’s first use of Hitachi PBT in 2006; and the advanced PBT system combining spot scanning irradiation technology with real-time tumor tracking technology at Hokkaido University.

Hitachi is more than its own self-penned description of itself as a provider of medical equipment, medical information systems, lifestyle diseases and promote better health. It develops health care services that prevent data on daily movements, sleeping patterns, record, aggregate, and numerically convert the initiative utilizes life logs to automatically systems and A&D instruments (Japan). The port service,” a project run jointly by Hitachi in a “cloud-based lifestyle improvement sup-

All of its employees get an annual 14-point checkup, and several thousand of them were selected in fall 2013 to take part in a “cloud-based lifestyle improvement support service,” a project run jointly by Hitachi Systems and A&D Instruments (Japan). The initiative utilizes life logs to automatically record, aggregate, and numerically convert data on daily movements, sleeping patterns, and other lifestyle aspects. The aim is to develop health care services that prevent lifestyle diseases and promote better health.

Some years before the current wearables boom, Hitachi developed the Life Microscope, a device that measures and records motion data across three dimensions, like the Fitbit, but that also records pulse and temperature. It connects wirelessly to a computer, allowing users to view charts that show notable changes in their daily activities.

Conduit says the focus on innovation at Hitachi could not be more intense. “The talk is all of mobile health and wearables. Companies have to work hard simply to keep up. We are all under scrutiny, but at Hitachi we focus on areas where we think we can make an impact.” The Hitachi philosophy seems to be that quality innovation cannot necessarily be rushed, and the long-term view is paramount, as witnessed by the Tokyo group’s own “50-year plan.”

CHANGE MANAGEMENT – AND SELF CHANGE
In some ways, the Swedish project has been an interesting learning curve for Hitachi as well as for the region itself.” Hitachi is changing. It is taking much more of a world view and engaging in more collaboration, within and outside its own group structure,” says Conduit.

The planned project is a service that happens to have IT and kit around it. Conduit calls it a change management program that is supported and delivered using information technology.”We have a belief in this approach that is just waiting for the right opportunity. One point it will move on to molecular biology, “as we are on the threshold of molecular markers, genomics, and photonics,” says Conduit. The Swedish project commissioners call it a digitalization – rather than digitization – of their service.

INNOVATING TO SURVIVE
It is all part of the Hitachi long view when it comes to innovation. The proton beam therapy development project is a good example. “We’re not looking for a quick return on investment, but we do want to make sure it’s right,” states Conduit.

He adds that the group is clear that survival is a factor of innovating and identifying value. “It is strategically important that we invest high levels in health care R&D, and pursue innovations like, for instance, our endoscopes with ultrasound features.”

Conduit says: “We’re it for the long term. Health improvements take place over tens of years, not tens of months.” With refreshing honesty, he adds, “and we’re not just about reducing cost. If the conversation becomes all about that, we’re lost. We’ll never be the cheapest anything. For us, it needs to be about service, and the value we can bring.”

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