David Atkins â?? CEO, Congenica, UK

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Offering genomic sequencing and analysis, Congenica operates in the exciting world of genomic diagnosis, with a particular focus on rare diseases. Its CEO David Atkins describes the potential of Congenicaâ??s platform and talks commercialisation.

Can you please start by introducing Congenica to our international readers?

In 2013, Congenica was spun out of the Wellcome Trust Sanger Institute. It was built around technology developed in a ground-breaking research project designed to understand whether genomic characterisation could help diagnose developmental disorders in children. The scientists combined with two clinical geneticists from Great Ormond Street Hospital and embarked upon the development of a business that could make genomic medicine a routine part of medicine. The founders began with a focus on rare disease for good reason.

To provide some context, 1 in 17 are born with a rare disease, or 6 percent of all births. Hence rare diseases touch about 350 million people globally. In total, there are about 7,000 rare diseases known. 80% of rare diseases have a genetic component.

The major problem to solve lays in two areas: people getting a incorrect diagnosis or waiting too long to achieve a correct one. The average time to diagnosis in rare disease is lengthys, in paediatric cases this amounts to an average of 4.7 years and takes 7.3 clinicians. This has a huge economic impact and causes mental anguish and stress for patients and their families.

Today Congenica is developing and commercialising an analytics and reporting platform to enable the adoption of genomic medicine â?? in other words, the analysis of an individualâ??s genome to diagnose and characterise disease. It should be toutine to conduct genomic investigation but tehre have been hurdles to its uptake. Historically the problem was the cost and complexity of genome sequencing and now this has largely been solved, the next challenge is the analysis of the data to generate actionable clinical information. This is where Congenica fits in. Indeed, we have provided services to Genomics England to overcome this very hurdle.

Why were you such a good match for Congenica and vice versa?

Time will tell whether we are a good match but what the Board were looking for was a leader who could take the business through its next phase â?? commercialisation of the core products and services. I bring direct experience in commercialising medical products and services across global markets as well as still having a basic scientific grasp.

Soon after you took over as Congenicaâ??s CEO, you accompanied Prime Minister Theresa May on a trip to China that lead you to forge a new partnership. What makes China into an ideal target for your international business development?

China is an enormous country, and constantly growing. The development of the economy has been rapid and the clinical thought leaders are continually looking to advance healthcare. In order to improve outcomes and complement the existing medical infrastructure, they have made the decision to rapidly adopt emerging trends such as genomic medicine.

China is deliberately looking to fast track and are looking for assistance and opportunities to accelerate their progress. For us, it is an opportunity to develop our technology and bring it into a real-world setting in one of the most important global markets.

What will be your business model moving forward?

We develop and sell software and services but provide the ability to generate actionable clinical information. As such, we look to capture the value that we provide rather than focus on the physical product that we sell. The quality and efficiency of the information we provide is key and we are doing what we can to ensure that we provide the highest quality information when a user runs our software and make it intuitive to use. We do this in the way we engineer our platform and also in the data that the platform uses to generate a result and a report, increasing case thoroughput and reducing cost per case.

What are the main applications for Sapientia you identify?

Our current focus is rare disease. It is a large field and very underserved. Diagnosis is essential because, although it does not always lead to better treatment, it always leads to higher certainty, helping patients to understand their own disease, its mechanisms, and reach out to other patients worldwide.

However, we have set our sights on all diseases that have a heritable component and that extends beyond rare disease with cardiovascular and ophthalmology just two other examples. We ultimately want to move genomic medicine from the complex, tertiary care centres into the secondary and potentially primary care setting.

As well as disease diagnosis, there is a lot that can be done around disease and therapy management using DNA data. For example, management of drug choices and drug interactions are an immediate opportunity.

When large sets of private data are involved, voices critical about usage and storage of this data arise. How do you respond to worries in this?

If managed carefully, I am confident sensible solutions can be found. First of all, I think it is essential a company be clear upfront what the data will be used for. We get consent from our patients by laying out very specifically how their data might be used, and we anonymise it in the process. Finally, it is essential to maintain the right level of scrutiny on how the data is managed and stored.

The pharmaceutical industry often seems as one impermeable to change. Is this a statement you would agree on?

I think that, from the outside, Big Pharma can be seen as slow and impermeable to change, when in fact, a large amount of effort is put in trying to anticipate the future. It is well known that drug development is a long and complex process and while efforts have been made to simplify the process I believe society is best served having a thorough review of any medicine prior to making it available. The industry is highly regulated for good reason and that necessarily does make progress seem slower.

What aspects and innovations in medicine do you currently consider as most exciting and essential to focus on?

The explosion in data and information and the multiple ways that this data can be mined and used to provide better care. There are many examples of where machine learning can be used to improve imaging, discover insights in population data and even help with billing and reimbursement. One other concept to note, while controversial, we are not far from the day when every child will, on its birth, have his or her genome sequenced and appended to their medical record for future use. If we as a society use that data carefully and compassionately then this could bring untold benefit to the individuals and also to the community as a whole.

Where will we find Congenica in five years, when we return for the next edition of our Healthcare & Life Sciences Review?

The plan will be that we are enabling genomic medicine on a global basis. If we are successful, rare disease patients will be waiting days for their diagnosis rather than years and that other complex diseases can be diagnosed and managed by a community hospital. I would also expect that we will have begun the journey of utilising our clinical genomics database to understand disease better and to begin partnering with those organisations that focus on therapeutics.

Where do you see competition coming from today?

The challenge that we face is to convince clinical centres that are looking to adopt genomic medicine to use an â??off the shelfâ?• product to help them analyse and interpret a patientâ??s genomic sequence. Itâ??s the conversion of the new user from a home-made solution to a high quality one is where we focus. Of course, we have many conventional competitors, but we worry more about

getting a good quality product in the hands of our partners than focussing too much on market share.

How do you see the UK positioned internationally for businesses like yours?

The UK is an extraordinary place for discovery and translational research. One of our major partners is Genomics England and they are considered global leaders in the development and implementation of genomic medicine. No other country is doing anything on the same clinical scale and it provides Congenica with a tremendous opportunity to prepare for large scale implementation.

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