Oxford Academic Health Science Network

Oxford AHSN case study

Date: Q2 2018/19

Programme/Theme: Strategic and Industry Partnerships

Title: Healthcare tech company's expansion and Stock Exchange listing enabled by Oxford AHSN expertise

Overview summary

The Oxford-based firm, Sensyne Health (formerly Drayson Health), uses artificial intelligence (AI) to develop medicines and aims to improve patient care through the analysis and commercialisation of real-world evidence from large databases of anonymised patient data in collaboration with NHS Trusts.

GDm-Health is a remote monitoring system for women who develop diabetes during pregnancy. Oxford AHSN support included developing a business plan, fine-tuning the product and establishing proof of concept by enabling expanded real-world testing from a single hospital site to hundreds of patients across four NHS trusts.

Enabled by the Oxford AHSN, the business headed by Lord (Paul) Drayson, signed a five-year strategic research agreement in July 2017 with the University of Oxford and the Oxford University Hospitals NHS Foundation Trust. The collaboration creates a pathway for the commercial development of digital health innovations invented and clinically validated by the University and the Trust, and invests £5m back into patient care and research via a shared equity and royalties agreement with the University of Oxford and the Oxford University Hospitals NHS Foundation Trust.

Expertise from the Oxford AHSN fed into the development of a commercial strategy and investor road shows in July 2018, which raised £60m, to coincide with Sensyne Health's stock market debut in August 2018.

Challenge identified and actions taken

SEND, GDm-Health and EDGE-COPD are all digital health products that use machine learning artificial intelligence software, developed at Oxford University's Institute of Biomedical Engineering, to analyse data and provide decision support and patient safety information to both patients and healthcare professionals. The products were licensed exclusively to Drayson Health in February 2017 for further development, testing and commercialisation. The products are designed to provide significant improvements in health outcomes for patients and reduce healthcare costs in the NHS. They have undergone significant clinical testing and validation involving over 80,000 patients

and generated over 16 million data records to date. Results suggest that these technologies could deliver significant improvements in patient health outcomes and reduction in costs for the NHS.

How is the AHSN involved?

Oxford AHSN support included developing a business plan for GDm-Health, fine-tuning the product and establishing proof of concept by enabling expanded real-world testing from a single hospital site to hundreds of patients across four NHS trusts.

Sensyne Health In 2017, the Oxford AHSN connected the product developers at the Oxford Biomedical Research Centre with Drayson Health (now Sensyne Health), leading to GDm-Health and other digital health products being licensed to the company and paving the way for further testing, evaluation, development, spread and commercialisation. This is leading to improved care, the creation of jobs and investment back into the NHS and research establishments where the concepts were originally developed.

Oxford AHSN expertise fed into the development of a commercial strategy and investor roadshows, which raised £60m. £5m is being invested back into patient care and research through Oxford University Hospitals and the University of Oxford.

Impacts / outcomes to date

Financial impact:

- Up to 40 jobs will be created in 2019
- £5m will be invested back into patient care and research
- £60m raised through investor roadshows
- Stock Exchange Alternative Investment Market (AIM) listing 14 August 2018

Patient impact example: gestational diabetes mellitus (GDM) affects 5%-16% of all pregnancies in the UK and can lead to complications for the mother and baby if blood glucose is not tightly controlled. Women require hospital visits every 1-2 weeks. The cost and burden of GDM for both the NHS and the patient are high. GDm-Health has been extensively evaluated and is associated with fewer pre-term births, less reliance on medication, a significant reduction in caesarean sections (27 per cent compared with 46 per cent for those keeping traditional paper diaries), high patient satisfaction, better compliance with blood glucose monitoring, fewer clinic visits and more efficient use of staff time.

"Previously we would receive an email from the patient, then précis their readings, record those readings manually on paper records and then respond by email to the patient with medication/dose recommendations. This was laborious and allowed for transcribing errors. Oxford AHSN adapted the database to our needs so we collect additional info on each patient at delivery and download it at the end of the year for audit purposes. This now takes approximately one day instead of six weeks. We would find it almost impossible to manage without the system now." – Rachel Crowley, Diabetes specialist midwife, Royal Berkshire Hospital, Reading (evaluation site)

Oxford Academic Health Science Network

APPLYING RESEARCH

Introducing a digital system to deliver better care to women who develop diabetes in pregnancy

- Invest £5m back into patient care and research
- Oxford University Hospitals NHS Foundation Trust / UNIVERSITY OF OXFORD
- Establish partnership to meet NHS need
- Sign 5-year agreement to accelerate spread
- Oxford Biomedical Research Centre — Supports development of concept
- UNIVERSITY OF OXFORD / NHS Oxford University Hospitals NHS Foundation Trust / Sensyne Health
- UNIVERSITY OF OXFORD — Engineers create prototype
- Supports development of commercial strategy and investor roadshows
- Oxford Academic Health Science Network
- NHS Oxford University Hospitals NHS Foundation Trust — Tests it with patients
- Links developers with industry partner
- Establishes proof of concept following testing with hundreds of patients
- Supports adoption by using expertise to overcome technical issue and hospitals network to expand testing

MEETING A PATIENT NEED IDENTIFIED BY THE NHS

"Women using GDm-Health ...appreciate the immediate feedback when their condition requires intervention."
Diabetes midwife

Sensyne Health · Oxford Academic Health Science Network · UNIVERSITY OF OXFORD · NHS Oxford University Hospitals NHS Foundation Trust

3

Other impacts:

An evaluation of GDm-Health was included in an independent [evaluation of digital health apps](#) carried out by the York Health Economics Consortium in 2016 (see page 4).

Sensyne Health was one of the 30 companies featured in the AHSN Network Innovator Zone at the Health and Care Innovation Expo 2018 in Manchester, September 2018. GDm-Health was featured on the BBC Radio 4 Today programme during Expo as an example of digital technology that should be spread and adopted more widely in the NHS ahead of Health Secretary Matt Hancock's keynote address at Expo on harnessing technology.

The GDm-Health system won the Best Digital Initiative award in the Quality in Care Diabetes Award 2014.

Learning to date

Collecting data for measuring both clinical and economic impact during a real world evaluation is essential to inform the case for adoption and spread. Ensuring multi-stakeholder buy-in from the outset is also crucial to successful evaluation. These stakeholders include nurses, consultants, payers, finance managers and clinical directors.

Supporting quotes

Innovator

"Chronic disease affects the lives of millions of people as well as accounting for around 70% of NHS costs. Digital health technologies offer the potential to make a huge difference for these people and save money for the NHS. This highly innovative partnership will ensure that there is a pathway from invention to commercialisation for digital health products created in Oxford that will deliver benefits to patients and reinvestment back into the University and the NHS Trust."

Lord Paul Drayson, Chairman and CEO of Sensyne Health

AHSN

"Digital health has enormous potential to generate patient benefit and economic savings throughout the NHS. In Sensyne Health we have found a partner committed to commercialising these ground-breaking technologies that could have a significant impact on patients around the UK."

Julie Hart, Acting Director of Strategic and Industry Partnerships

Service user

"It was handy to know that I was in constant touch with somebody and that I would get a message if there was something to worry about. We live about an hour away so having fewer appointments as a result of using this kit helped a lot."

Vanessa Galli-Wara, was diagnosed with gestational diabetes towards the end of her first pregnancy. She used the GDm-Health device to monitor her blood sugar levels.

Plans and timescales for adoption and spread

Oxford University Hospitals has implemented GDm-Health. Sites going live in October and November 2018 are the Royal Berkshire (Reading), Milton Keynes, Buckinghamshire Healthcare, Guy's (London) and Croydon. Sites going live in early January 2019 are Frimley, St George's and King's in London, Shrewsbury, Cumbria and Blackburn. Oxford AHSN will measure the health economic impact of implementation at the four sites in its region and create a budget impact model to facilitate wider adoption and spread.

An application has been made by Sensyne Health to NHS England for "Innovation and Technology Payment (ITP) 2019/20".

Start and end dates

The relationship started in 2014 as an Oxford AHSN Clinical Innovation Adoption project and progressed into a strategic partnership during 2017. During 2018, with increased capacity and capability at the Oxford AHSN, the partnership has continued to grow and strengthen. The strategic partnership and portfolio of projects forms a key part of the Local Implementation Plan.

Contact

Julie Hart
Director of Strategic and Industry Partnerships
Oxford AHSN
07766 775553
julie.hart@oxfordahsn.org