NIHR | National Institute for Health and Care Research

NHS

Innovations showcase event

27 June 2023 | The Francis Crick Institute

SBRI HEALTHCARE

Accelerated Access Collaborative

NIHR | National Institute for Health and Care Research

NHS

Agenda of the day

09:30	Registration
10:00	Welcome & Introduction
10:10	Keynote - Alex Mclaughlin, Deputy Director, Innovation and Growth, Office for Life Sciences
10:25	Portfolio x 6
11:00	Networking
11:30	Portfolio x 5
12:00	Keynote - Sam Gray, Managing Partner, Apposite Capital
12:15	Successful exit
12:25	Concluding remarks
12:30	Networking
13:30	Close

SBRI HEALTHCARE

Accelerated Access Collaborative

NIHR i4i programme

The National Institute for Health and Care Research (NIHR) Invention for Innovation (i4i) Programme invests in disruptive early-stage medtech technologies to accelerate the translation of innovation into the NHS and the wider market for increased patient benefit. It supports collaborative projects that involve SMEs, universities and the NHS, with strong management teams and a clear commercial pathway towards adoption. The aim is to de-risk technologies to make them attractive to follow-on funders and private investors.

SBRI Healthcare programme

The Small Business Research Initiative (SBRI) Healthcare programme is funded by the Accelerated Access Collaborative and delivered in partnership with the Academic Health Science Networks. The programme accelerates technologies in the NHS, tackling unmet needs. It provides funding and support to early-stage innovations to enable feasibility testing and development, as well as to more mature products by supporting real world NHS implementation studies.

Artificial Intelligence in Health and Care Award

The Artificial Intelligence in Health and Care Award (AI Award) is part of the NHS AI Lab. It accelerates the testing and evaluation of artificial intelligence technologies which meet the aims set out in the NHS Long Term Plan. Four 'phases' of the Award support AI solutions from initial feasibility to evaluation within NHS and social care settings.

The NIHR manages the application process and delivers the early phases of the AI Award working in partnership with the Accelerated Access Collaborative and NHS AI Lab.

NHS Cancer Programme Innovation open calls

The Innovation open calls are an initiative powered by the NHS Cancer Programme, and supported by the Small Business Research Initiative (SBRI) Healthcare Programme, NHS England and the Accelerated Access Collaborative (AAC). Their aim is to identify market ready innovations that can support the NHS Long Term Plan ambition for the early detection and diagnosis of cancer.

INNOVATIONS PORTFOLIO IMPACT

6480+
applications assessed

690+
contracts/ products supported

£395m+
invested

£1.6bn+
funding leveraged

8m+
participants
involved through sales and trials

5
acquisitions

3 IPOs
£216m raised

2800+
collaborations created

278
products
that plan CE mark or are on the market

PORTFOLIO INSIGHTS ZONE

Neutrocheck® improves safety and quality of life for cancer patients, by detecting those at risk of the most fatal side-effect of chemotherapy: neutropenic sepsis

Funding received by:
NIHR i4i, SBRI Healthcare

Contact
Name: Umaima Ahmad
Organisation: 52 North Health
Email: Umaima@52north.health
Website: 52north.health
LinkedIn: umaima-ahmad | /52north

CLINICAL PROBLEM

Neutropenic sepsis (NS) occurs because chemotherapy suppresses the immune system leaving infection-fighting neutrophil cells dangerously low. Infections during this time can be life-threatening, therefore all chemotherapy patients feeling unwell are advised to attend hospital just in case they have NS.

However there are two key problems with this pathway.

1. 1 in 2 patients turn out to have normal neutrophil levels and did not necessarily need to have attended A&E.
2. 1 in 2 patients do not receive life-saving antibiotics quickly enough within the recommended door-to-needle time, resulting in unnecessary mortality.

With 1,000,000 patients receiving chemotherapy in the US each year, and around 150,000 in the UK each year, this is a major issue that also has a huge impact on patient quality of life.

The market size for Neutrocheck is around £3bn across our target markets (£2bn of which consists of the UK, Europe and the US).

PROPOSED SOLUTION

The Neutrocheck® solution consists of a low-cost, portable finger-prick blood test and digital platform, which patients can use at home to understand their risk of neutropenic sepsis (NS).

The medical device measures neutrophils alongside a sepsis marker, and the digital platform combines this data with demographic data around the patient, such as their age, gender and type of drug they are on, leveraging AI to provide a personalised risk score.

MARKET TRACTION

- The first company to become a venture investment of Macmillan Cancer Support
- US Market: First ever UK company accepted onto the Cedars Sinai Hospital (Los Angeles, USA) Accelerator, who are likely to be an early adopter and will also invest in the company
- Early UK adopters likely to include at least 14 NHS Trusts (across East of England Cancer Alliances)
- Partnership with the UK Sepsis Trust to develop clinical guidelines to enable implementation of Neutrocheck into the care pathway
- Neutrocheck is entering clinical trials in Q3 this year

Built with the support of Macmillan Cancer Support and the UK Sepsis Trust, the Neutrocheck result enables doctors to more safely and more effectively triage patients.

Accordingly, iNeutrocheck can identify at-risk patients earlier on in the journey, allowing for quicker antibiotic administration, saving up to 400 lives/year in the UK. In addition, Neutrocheck can identify patients not at-risk of NS, who can instead be seen by their GP/pharmacist, saving up to 50,000 A&E visits/year.

In the US, Neutrocheck could save around 2,000 lives each year and prevent around 250,000 unnecessary A&E visits.

The solution is also expected to halve the carbon emissions of the current care pathway, and provide peace of mind for cancer patients.

Anya is a pioneering app utilising 3D technology and AI to provide breastfeeding and early parenthood support 24/7

Funding received by:
SBRI Healthcare

Contact
Name: Dr Chen Mao Davies
Organisation: Anya
Email: chen@latchaid.com
Website: anya.health
LinkedIn: /anya-health
Twitter: @anyahealth

CLINICAL PROBLEM

The UK has the worst breastfeeding rate globally. Although 81% of mothers initiate breastfeeding, only 1% are still breastfeeding exclusively after 6 months. Over 90% of mothers say they give up breastfeeding before they wanted to due to pain and a lack of support.

Unsuccessful breastfeeding is costing the global economy a staggering $1bn per day in health system costs and lost productivity due to premature deaths, and human capital losses. The total addressable market for breastfeeding and early parenthood support covers a population of over 100m globally.

MARKET TRACTION

- Available to around 5m NHS service users through paid population-based contracts
- 2x breastfeeding rate compared with the national average (based on a 6 month NHS pilot with 4 ICSs)
- Proudly supported parents from 100+ countries
- Won 4 Innovate UK funding competitions and SBRI Healthcare funding
- NHS Innovation Accelerator Fellow
- DTAC compliant
- Great traction with private sectors as an employee benefit

PROPOSED SOLUTION

The Anya app offers innovative 24/7 parental support during the first 1001 days from conception to toddlerhood, providing:

- Unique LatchAidTM cutting-edge 3D interactive animations to help mothers learn breastfeeding skills intuitively from 3D mother/baby avatars, with personalised skin tones, breast sizes, holds and camera angles.
- Empathic #AskAnya AI powered virtual supporter for personalised evidence-based support and companionship 24/7, with personalised question suggestions and personas.
- Expert one-on-one in-app support from world-class healthcare professionals.
- Tailored conversation starters, articles, videos and learning programmes based on baby's age and stage.
- Webinars and virtual drop-ins to help parents connect with professionals, and to feel reassured and more confident.
- Moderated support communities connecting parents with a close-knit network of other families going through the same things as they are.

Anya allows healthcare professionals to prioritise their clinical workload by allowing the app to triage simpler cases for them and deliver the right information at the right time. Anya's work on our SBRI Healthcare's Phase 1 Tackling Inequalities in Maternity Care project has delivered additional functionality and research to deliver to each priority area of young parents, Black families, and low-income families.

World's first rapid point of care pharmacogenetic tests for critical emergency healthcare settings

Funding received by:
NIHR i4i

Contact
Name: Gino Miele
Organisation: Genedrive Diagnostics
Email: g.miele@genedrive.com
Website: genedrive.com
LinkedIn: /genedrive-plc
Twitter: @genedriveplc

CLINICAL PROBLEM

Every year, approximately 8-10% of babies born in the UK are triaged into Neonatal Intensive Care (NICU). Often this is because they have been born with an infection such as sepsis. For those NICU-admitted babies that require antibiotic administration as part of their clinical management (e.g. Aminoglycosides such as Gentamicin), this is required within 1 hour. Some carry a gene variant called MT-RNR1 which will result in profound irreversible hearing loss when they are administered aminoglycoside antibiotics. Clearly individuals with this variant should not receive aminoglycoside antibiotics, so a method was needed to rapidly identify these babies in the 1 hour window in order to preserve their hearing. Those carrying the variant could then be given safe and effective alternative therapies.

Globally (UK, EU, US, RoW) this translates to an approximate addressable market of well over £100m per annum.

PROPOSED SOLUTION

There is a global unmet need for the ability to determine within 1 hour of admission to NICU & without negatively disrupting current time to antibiotic administration, whether a patient carries the MT-RNR1 gene variant. Typically, provision of even simple clinical genetics "genotyping" can take in the order of days to weeks, requiring involvement of diagnostic reference laboratories. As antibiotics should be delivered within an hour of any decision to treat sepsis ("the golden hour"), current genetic technologies are not sufficiently rapid to genotype for this variant within a clinically relevant timeframe in the acute healthcare setting. As such, current practice does not include determination of whether an individual carries this gene variant or not.

Together with clinical genetics & NHS neonatal collaborators, and partial financial assistance from NIHR under the i4i programme, we have developed and registered the Genedrive MT-RNR1 -ID Kit; a test performed with our rapid gene amplification platform. It enables an emergency healthcare worker such as a nurse to receive a clinically actionable result in under 30 mins and importantly, implementation of the test was found not to disrupt time to antibiotic administration in an emergency healthcare environment.

Early commercialisation efforts are underway in the UK, EU and RoW.

MARKET TRACTION

- CE-IVD approved
- Partially funded under NIHR i4i programme (2018 - 2020)
- Recommended for use in the NHS by the National Institute for Clinical Excellence (Early Value Assessment group)
- Applicable to ~100,000 Neonatal Intensive Care admissions and found to be cost effective and have a positive health economic case versus the current standard of care. Addressable global market of >£100m pa
- 8 global commercial partners appointed
- Early commercial traction underway

A world-first circular plastic consumables supply chain for research and healthcare systems

Funding received by:
SBRI Healthcare

Contact
Name: Jinghui (Helen) Liang
Organisation: LabCycle Ltd
Email: helenliang@labcycle.org
Website: labcycle.org
LinkedIn: /Labcycleltd
Twitter: @labcycleltd

CLINICAL PROBLEM

Disposable plastics have become ubiquitous in research and healthcare, especially for consumables (e.g. syringes, test tubes) that require sterility. Without a specialised recycling service, an enormous amount of laboratory and clinical plastic waste is currently landfilled or incinerated. This linear economy has imposed environmental burdens, and the value of these exceptionally high-grade plastics is lost from the supply chain. Over 5.5m tonnes of plastic waste are produced annually by the global healthcare and research sector, which is equivalent to the UK's annual household plastic waste (Urbina, M.A., 2015).

Market 1: The research and healthcare waste management market (including NHS and private/public research labs). UK market size is £1.1bn/CAGR 5.1%, with 300+ customers (Global-Data-Explorer-2021). Global market is expected to reach £18.56bn in 2026 at CAGR 5% (TBRC-Business-Research-Pvt-Ltd-2022).

Market2 : Lab/healthcare consumable manufacturing. UK market is £6.3bn at CAGR7.5%, and the global market is expected to reach £45.6bn by 2027 at CAGR 7.5% (UK-Medical-Equipment-Market-Report-2021).

PROPOSED SOLUTION

LabCycle is establishing the circular economy for single-use plastic waste from the research and healthcare sectors. The company offers an automated decontamination system for the safe recycling of this plastic waste, producing lab/medical-grade consumables made from high-grade recycled plastics. Our final product will be the world's first lab/medical-grade consumables made from recycled consumables.

MARKET TRACTION

- Pilot with the University of Bath
- SBRI Healthcare Phase 1 pilot with NHS Blood and Transplant
- Innovate UK Fast Start Grant
- Pre-seed investment round raised at the end of 2022
- Dosage cups from 100% recycled polystyrene
- SME Innovation Voucher for Life-Cycle Analysis
- 40+ interests from private and public organisations

Competition analysis/USPs:
99% of plastic waste from the research and healthcare systems is currently landfilled/incinerated because mainstream waste management companies do not have the know-how/scalable recycling technologies. Driven by ESG credentials from their customers (R&D labs and healthcare providers), waste management companies are seeking recycling solutions. LabCycle provides the solution to create the first high-grade recycled plastic supply chain.

Benefits to service users:
> Financial savings in waste management.
> Significant reduction in carbon emissions.

Motilent

Right patient. Right Treatment. Right time in Inflammatory Bowel Disease

Funding received by:
NIHR i4i

Contact
Name: Dr Alex Menys
Organisation: Motilent
Email: alex.menys@motilent.io
Website: motilent.io
LinkedIn: /motilent
Twitter: @motilentnews

CLINICAL PROBLEM

The UK spends >£400m per year on drugs for Inflammatory Bowel Disease (IBD) that fail in 50% of cases. Knowing when a patient needs to stop or change therapy is central to cost effective management and avoidance of complications like surgery.

Inflammatory bowel disease (IBD) is a chronic condition that varies greatly from patient to patient, resulting in unpredictable flare-ups and a wide range of symptoms. Achieving sustained disease remission is rare, and this greatly impacts patients' health and quality of life.

There are significant challenges in effectively managing IBD, including the need for better diagnostic tools and tools to assess disease severity, as well as quantifying treatment response.

Efficient management of IBD requires the ability to identify when a patient needs to change medication or treatment pathways, as this plays a crucial role in providing cost-effective care and preventing complications and the need for surgery.

The lack of a known cure, the need for lifelong management, and the potential for surgical interventions contribute to substantial patient and socioeconomic costs.

The management of IBD costs £18k per patient per year, which is three times higher than the average patient costs. Globally, treatment costs reach £16bn, with 60% of patients experiencing treatment failure within one year.

MARKET TRACTION

- Used in >15 UK hospitals (GOSH, Addenbrookes, UCL etc)
- Installed as a research tool in >70 projects internationally
- FDA cleared and CE marked (2a)
- 50+ publications >100 abstracts over 10y
- Accepted onto the JLABS @ BE Johnson & Johnson accelerator and US Accelerator Trade Mission

PROPOSED SOLUTION

Motilent has developed a software technology called GIQuant. It's a targeted solution to a complicated aspect of IBD, specifically Crohn's Disease and even more specifically Small Bowel Crohn's Disease. The small bowel is challenging. It's difficult to access by endoscopy, is poorly summarised by blood and stool markers and subject to nasty complications like fistula and obstruction.

GIQuant is an image analysis tool that works with routine MRI of the small bowel to assess Small Bowel Crohn's Disease. It provides a numerical score for disease activity that can be extracted from routine medical imaging.

The short term impact of GIQuant has been to reduce the scan length as many centres are dropping unneeded parts of the scan. Saving money and the clinical impact on management looks extremely promising.

GIQuant is FDA cleared and CE Marked and installed in a growing number of hospitals across the NHS and an exploratory endpoint in several drug trials.

MyWay Diabetes; a holistic cost-saving end to end public health solution - patient education to population analytics

Funding received by:
SBRI Healthcare,
AI in Health and Care Award

Contact
Name: Debbie Wake / Chris Avery
Organisation: MyWay Digital Health
Email: debbie.wake@mwdh.co.uk
chris.avery@ mwdh.co.uk
Website: mwdh.co.uk
LinkedIn: /myway-digital-health-ltd
Twitter: @MyWayDigital

CLINICAL PROBLEM

Diabetes and associated lifestyle/ non-communicable diseases are a growing global health crisis. Diabetes affects 10% of the worldwide population and consumes ~15% of healthcare budgets. There is a need for more efficient and cost-effective management, and technology will be essential to optimise care delivery and prevention. There is a £2.5tr global diabetes spend and rising. The diabetes digital solutions market is at least $15-20bn, and doubling every 2 years. The potential for scalable online digital products in the global marketplace is enormous.

PROPOSED SOLUTION

MyWay Digital Health (MWDH) products can be commissioned separately or collectively.

The **MyWay Diabetes** patient facing self-management platform is clinically proven, and cost-saving resulting from >15 years of R&D within the University of Dundee / NHS Scotland offering:

i. >200 Multilingual multimedia self-management resources

ii. 12 QISMET accredited structured education e-learning courses (diabetes prevention, type 2 diabetes, gestational diabetes, type 1 diabetes)

iii. Health record access (through EMR linkage)

iv. Home-recorded data/ device integration (e.g. fit bit/ apple health kit/ google)

v. Tailored advice; utilising data-driven algorithms, machine learning

vi. Remote-monitoring/ remote clinic support

vii. Locally customisable public open access website.

MyWay Clinical; A complementary clinician platform supporting: i) individual/ population evidence-based management/ decision support, ii) risk profiling and analytics, iii) remote monitoring and patient secure messaging.

MARKET TRACTION

- **Products** (class 1 CE marked) - MyWay Diabetes, MyWay Clinical, MyWay IQ
- **Commercial contracts:** North West London (Know Diabetes Service), Somerset ICB, Greater Manchester ICB, North East London (BHR)
- **Innovation/ Funding:** >£5m innovation funding raised to date
- **Evidence Base** is summarised in www.mwdh.co.uk/evidence and includes i) improvements in patient reported outcome measures (e.g. quality of life, health knowledge, self-management ability) ii) improvements in clinical markers such as HbA1C (glucose), Blood Pressure and Cholesterol iii) reductions in acute emergency admissions and iv) significant cost savings
- **Impact:** 93% ORCHA score (No.1 for diabetes), 3m unique users of online education, 100k health data access registrants, >15k structured education courses delivered, >£15m cost savings to date
- **International:** Office/ registered company in Dubai, operational in Middle East and Malaysia

MyWay IQ; An analytics tool supporting prediction of i) key short and long term diabetes complications, ii) individual response to type 2 diabetes drugs, iii) diagnosis of diabetes subtypes.

MWDH are expanding to cover diabetes prevention/ pre-diabetes and other long term condition/ lifestyle diseases, e.g. kidney disease, obesity/ weight management, cardiovascular disease, hypertension, diabetes prevention.

USP:

- National / large regional coverage/ traction in UK
- Data-driven/ AI enhanced
- All Types of Diabetes
- Comprehensive Toolset
- Proven/ Strong Evidence-based/ Credible (NHS / Academic developed)
- Scalable/ highly cost-effective
- Expert Developed

Digital biomarker, BioEP, a decision support tool, facilitating diagnosis and prognosis of epilepsy

Funding received by:
AI in Health and Care Award

Contact
Name: Wessel Woldman
Organisation: Neuronostics
Email: w.woldman@neuronostics.com
Website: neuronostics.com
LinkedIn: /neuronostics
Twitter: @neuronostics

CLINICAL PROBLEM

Epilepsy is a serious brain condition affecting over 65M people globally, causing over 2,500 UK deaths per year and is the leading cause of unplanned A&E admissions. Diagnosis can be complex and time consuming. Diagnosis can take up to a year and the rate of misdiagnosis is ~40%. Drug treatment is a process of trial and error. Data from brain electrical activity (EEG) is routinely recorded but must capture epileptic activity which is rare, in order to support a diagnosis. Waiting lists for EEGs and reports are long and increasing due to the pandemic. Epilepsy is estimated to cost the NHS £2B/yr with a further economic cost of £2B to the UK.

MARKET TRACTION

- CE Class I approved and submission to FDA and UKCA/CE Class IIa pending
- Retrospective validation of BioEP complete
- Utilisation study in nurse-led first seizure clinic underway with Royal Wolverhampton NHS
- Multisite prospective trial submitted to REC in partnership with Cornwall Partnership NHS FT and 7 other NHS Trusts
- Raised £1,465,482 in UKRI grant funding
- Raised >£1M in equity funding

PROPOSED SOLUTION

Our BioEP algorithm uses short segments of background EEG to predict the risk of future seizures without the need to observe epileptic activity. As a clinical decision support system, BioEP makes epilepsy diagnosis and prognosis faster, accurate and more objective than current clinical practice. A Health Economic Assessment estimated a per person saving to the NHS of £627. This represents an opportunity to make savings of £80M annually against the cost of epilepsy diagnosis alone in the UK.

BioEP's USP is its ability to provide an additional piece of information when EEG recordings are clinically inconclusive and contain no visual information which can inform a diagnostic decision. In standard care in these cases, patients would need to return for additional EEGs to capture the abnormal epileptiform activity. Using the BioEP risk score, we can help inform decisions about next steps in the care pathway from first EEG.

World's first medtech solution creating AI-driven immersive VR games to provide and control for quality of upper-limb rehabilitation in-clinic or at home

Funding received by:
NIHR i4i, SBRI Healthcare

Contact
Name: Dr. Eve Gregoriou
Organisation: NeuroVirt Limited
Email: e.gregoriou@neurovirt.net
Website: neurovirt.io
LinkedIn: /neurovirt-limited

CLINICAL PROBLEM

There are more than 1.3M stroke survivors in the UK costing society £26B (81M globally costing $700B), 80% of which have upper-limb impairments. For effective movement recovery, stroke survivors are required to perform frequent repetition of rehabilitation exercises, however, they do not reach their full recovery potential as (1) access to the required intensity and length of rehabilitation is limited by the number of therapists at the hospital (2) current home rehabilitation is not motivating enough (3) support at home is often limited and therefore adherence to required rehabilitation time is low.

PROPOSED SOLUTION

NeuroVirt is the world's first immersive virtual reality (VR) solution focused on providing movement quality control, giving faster and better clinical outcomes. Patients engage in beautiful immersive environments that gamify rehabilitation individualised to their ability. Our algorithms detect and control for movement quality in real-time, correcting for non-optimal movement patterns during gameplay in VR. Assessments take less than 1 minute to perform in VR in comparison to over 20 minutes in the clinic. Detailed recovery data can be monitored and physiotherapists can prescribe individualised therapy through the NeuroVirt app. Our solution provides intensive quality rehabilitation of the whole upper limb, in just one device. This alleviates clinical bottlenecks enabling them to provide 14 times more therapy at a fraction of the cost and provides access to intensive rehabilitation in clinic or at home.

MARKET TRACTION

- UKCA certified
- Over £1.4M of non-dilutive funding raised so far
- Solidified commercial contracts including with the largest private healthcare clinic in the UK
- Saving the NHS £1,060 per patient equating to £84.8M per year
- 20 clinics in commercial pipeline for year 1
- Backed by the NHS, Stroke Association, UCL, UEA and UoN
- Collaboration with UCLA and their clinical arm Cedars Sinai for FDA trials in the US
- Backed by - SBRI Healthcare, KTN, NIHR i4i, Innovate UK, NHS, Stroke Association, UCL, UEA, UoN

Pathpoint eDerma - a valuable tool for improving the delivery of dermatology services by optimising the referral to assessment time for skin conditions including cancer and non-cancer pathways

Funding received by:
NHS Cancer Programme, SBRI Healthcare, NIHR i4i, AI in Health and Care Award

Contact
Name: Michael Shenouda
Organisation: Open Medical
Email: michael@openmedical.co.uk
Website: openmedical.co.uk/
LinkedIn: /michael-shenouda/ | /openmedical
Twitter: @MEAShenouda | @OpenMedicalLtd

CLINICAL PROBLEM

The strain of COVID-19 on the healthcare system and other pressures mean only 65.2% of suspected cancer cases receive treatment within the standard 62-day timeframe. Urgent referrals are seen within two weeks in 79.1% of cases, but resource limitations can lead to sub-optimal services by secondary care facilities. Referrals rejected reached 401,115 in November 2021, an 87% increase since February 2020. Underserved areas face longer delays in accessing cancer care (The King's Fund, 2022). Early detection is crucial, highlighting the need for an equitable and accessible cancer pathway. Telemedicine services offer potential solutions, with the global teledermatology market projected to reach USD 67.43 billion by 2030, growing at a CAGR of 20.4% (2023-2030). The UK telemedicine market is estimated to reach $16.2 billion by 2030, expanding at a CAGR of 5.25% from 2022.

MARKET TRACTION

- Pathpoint eDerma is rolled-out at 26 sites across 10 NHS Trusts
- Prospective health economic analyses show a net £132K saving per 5-9 eDerma sessions
- Cancer Waiting Times Reduction; 99% of referrals were assessed by a Dermatologist within 14 days)

  > 72.8% of cases had either a clinical diagnosis or treatment decision at time of dermatologist assessment (average time between referral to dermoscopy appointment, 3 days and 16 hours, average time between referral to Dermatology assessment, 5 days and 17 hours)
- As of April 30 2023, over 22,000 patients underwent the Pathpoint eDerma - teledermatology pathway

PROPOSED SOLUTION

Pathpoint eDerma revolutionises the assessment process for suspected cancer patients, delivering faster evaluations and assisting dermatology teams in meeting diagnostic targets. It reduces the need for in-person visits, enabling faster diagnostic standards and management plans that result in exceptional care, increased patient satisfaction, and improved outcomes.

Integrated seamlessly into primary care, the NHS e-Referral Service (e-RS), and secondary care, Pathpoint eDerma transcends boundaries in care delivery and enables a comprehensive workflow from referral to discharge. It fosters collaboration, resource sharing, and enhanced data visibility among healthcare organisations across multiple Trusts and Integrated Care Systems. In line with the British Association of Dermatologists Quality Standards for TeleDermatology, it provides a robust, effective, and adaptable solution for busy multi-site Dermatology departments.

A secure cloud platform, Pathpoint eDerma enables efficient remote triaging of referrals using dermatoscopes, smartphones, and tablets in the community. The platform offers customisation options to meet departmental and local population needs, including expedited referrals, multidisciplinary team coordination, histopathology, biologics monitoring, and non-urgent skin lesion assessments.

Pathpoint eDerma addresses healthcare inequalities by establishing community diagnostic centres in underserved areas that target the CORE20PLUS5 population. This community-based approach brings healthcare services directly to those with limited access, promoting inclusivity and equitable care delivery.

Delivery of AI Applications and Platform to revolutionise pathology workflows in the NHS

Funding received by:
AI in Health and Care Award

Contact
Name: Prof Darragh McArt
Organisation: Sonrai Analytics Ltd
Email: d.mcart@sonraianalytics.com
Website: sonraianalytics.com
LinkedIn: darragh-mcart-646629a

CLINICAL PROBLEM

Current best practice in the UK mandates reflex testing of all Colorectal Cancer (CRC) cases for the purposes of identifying those patients who require further testing for Lynch Syndrome. This is currently achieved via wet lab testing (qPCR or IHC), which can be expensive and time-consuming.

For patients with Non-Small Cell Lung Cancer (NSCLC), pathologists currently manually quantify the Tumour Proportion Score for the identification of candidates for treatment with immunotherapies such as Keytruda®.

There are 43,000 annual new UK CRC cases requiring MSI testing to determine downstream testing needs in the identification of Lynch Syndrome, with a cost to the NHS of between £4M and £9M. Globally there are ~2 million new cases per year.

There are 36,000 annual UK NSCLC cases requiring PD-L1 scoring to determine the best treatment option for the individual patient, with a cost to the NHS of between £6M and £8M. Globally, there are ~2.2 million new cases every year.

PROPOSED SOLUTION

We are developing Sonrai Diagnostics which is a cloud-based solution to deliver AI to pathologists within the NHS.

It consists of a platform for deploying, running and interacting with AI applications, and two specific applications, Sonrai Diagnostics MSI and Sonrai Diagnostics PD-L1, which are being developed to add value within MSI testing and quantification of PD-L1 Tumour Proportion Score in Colorectal and Non-Small Cell Lung Cancer respectively. All three products will be assessed for conformity under CE-IVDR and will be classified for clinical use.

Our solution will enable faster and more accurate patient test results for MSI Status associated with Colorectal Cancer and PD-L1 score in Non-Small Cell Lung Cancer, and will reduce the costs of testing for the NHS by up to £3.2m per year.

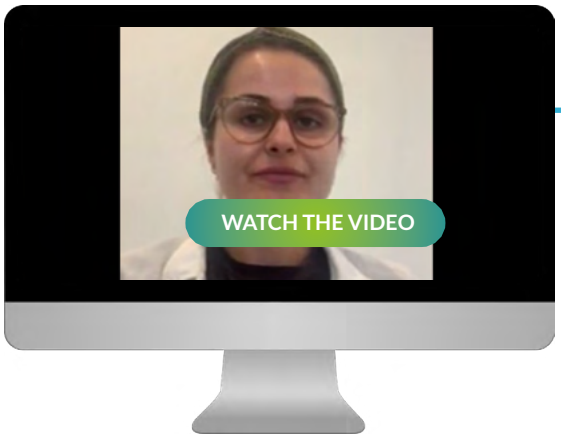
In addition to these cost-savings for the NHS, the development of a separate clinically approved platform for deployment of AI applications will provide a model for the deployment of assistive AI pathology applications within the NHS. Furthermore, Sonrai Diagnostics has been architected to allow the deployment of further algorithms from Sonrai or our content partners.

MARKET TRACTION

- Performance evaluation for UKCA and CE mark commencing in 2023
- Algorithms will form a core part of our next funding round
- Currently investigating the feasibility of trials in the US with a view to commercialisation and FDA approval
- In discussion with potential partners to deliver MSI & PD-L1 on a broader range of platforms

Surgery Hero

An app using personalised digital guidance and remote health coaching to optimise patients preoperatively and support their recovery during the postoperative phase



Funding received by:
SBRI Healthcare

Contact
Name: Chloe Pulo
Organisation: Surgery Hero
Email: chloe.pulo@surgeryhero.com
Website: surgeryhero.com
LinkedIn: /surgeryhero
Twitter: @SurgeryHero

CLINICAL PROBLEM

The solution tackles gaps in care between consultations that often leave patients feeling vulnerable and confused. It is known that 40-80% of all healthcare information shared with patients during a face-to-face consultation is forgotten immediately, and 40% of patients report not understanding their role in their care. All of this contributes to the £7bn spent by the NHS each year on avoidable costs related to surgery (unplanned cancellations, increased length of stay and postoperative complications).

Surgery Hero supports patients between appointments, answering queries and responding to concerns as they arise, while at the same time coaching patients to become more accountable for their own health and to improve self-management skills.

MARKET TRACTION

- £1M revenue last year, £2.5M raised in VC funding
- 9 NHS projects live (Cheshire and Merseyside ICS, NE London ICS, Black Country and West Birmingham, Cambridge, Leeds, Portsmouth, South Tees, North Tees, Derby)
- Ongoing multi-centre trials
- Cheshire & Merseyside study demonstrated 65% reduction in post op complication, 0% of surgery hero cohort had a PPC (primary outcome metric), 4.2 day reduction in length of stay (£2,100 cost saving per patient)

PROPOSED SOLUTION

There is a misconception that surgery begins on the day of the operation. In reality, the operation is only half the battle, everything we do before and after plays a critical role in the success of the surgery.

1 in 3 patients experience post-operative complications, half of which are avoidable with better preparation.

Surgery Hero is the world's first digital prehabilitation clinic. We combine human health coaching, personalised lifestyle management strategies and mobile technology, helping prepare body and mind for surgery. With Surgery Hero, patients acquire the knowledge, confidence and skills to better manage their own health, thereby reducing reliance on health services. This approach correlates closely with the NHS Long Term Plan to empower patient self-management.

SUCCESSFUL EXIT ZONE

Transforming kidney care by making dialysis more accessible to every patient in every setting

Funding received by:
NIHR i4i

Contact
Name: Clive Buckberry
Organisation: Quanta Dialysis Technologies®
Email: clive.buckberry@quantadt.com
Website: quantadt.com
LinkedIn: /quanta-dialysis-technologies/
Twitter: @QuantaDT Facebook: /QuantaDT

CLINICAL PROBLEM

Worldwide, between 5.3 and 10.5 million people require dialysis or transplantation. The home haemodialysis market is relatively untapped, with the global dialysis market valued in excess of $90 billion in 2019 and projected to reach over $177 billion by 2027. A high prevalence of CKD and ESRD, increasing comorbidities in an ageing population, and a rising global need for more flexible dialysis systems are driving this growth.

As highlighted in Quanta's "Bridging the Gap" report, there are nearly 30,000 people on dialysis across the UK, with only 2% on home haemodialysis. Patients receiving home haemodialysis can dialyse more often and on a more flexible schedule. There are demonstrable improvements in both clinical and patient oriented outcomes when patients receive this therapy modality. In addition, home haemodialysis requires much less brick and mortar, transportation, and human resources infrastructure rendering it much less costly for the NHS.

Quanta believes that by empowering more patients to take control of their life-sustaining therapy through Self-Care and Home HD, a significant global market opportunity can be unlocked which will improve patient outcomes at a lower cost to payors.

PROPOSED SOLUTION

The Quanta Dialysis System was designed to disrupt how the dialysis delivery model is currently administered by enabling patients to dialyse at home with a powerful, small, and easy-to-use machine. Delivering the performance and dose equivalence of larger, traditional dialysis machines, the compact device empowers patients to take back control of their treatment and quality of life, without compromising the quality of their therapy.

Increased utilisation of home therapies can play a key role in providing more value and cost effectiveness to the NHS, with significant reductions in the cost of transport and the removal of any direct hospital-related costs and human resources. Patients receiving conventional three times per week haemodialysis endure a two-day gap over the weekend without dialysis. This gap has been repeatedly shown to confer a 2-3 fold increase in mortality and up to 8 fold increase in acute hospital visits on Monday morning.

According to a peer reviewed study published in Hemodialysis International, using the Quanta Dialysis System to dialyse 3 or 3.5 times a week at home or through self-care in centre offered improved cost-effectiveness compared to 3 times weekly in-centre dialysis using conventional machines. These savings could all be re-invested back into the NHS.

MARKET TRACTION

Quanta predicts to see an increase in the number of home haemodialysis patients as the industry seems set for a drive to increase its availability and reduce cost.

- 2014: CE Approval granted
- 2017: Over 1,000 clinical treatments performed
- Up to 150 ICU nurses (who are not dialysis experts) were quickly able to learn to use the device, having less than six hours of training
- Positive customer feedback about design, performance and support
- Validation to expand to a new market segment: assisted therapies outside of dialysis clinics, including ICUs and hospitals
- 2020: FDA approval for in-centre clinical use, first commercial treatment performed in 2021
- Funding in excess of $400 million
- 2021: Beverly, MA US headquarters opened
- 2022: US Home Run clinical trial initiated
- 2022: Expansion of St. Asaph production facility and opening of new UK headquarters in Warwick

NIHR | National Institute for Health and Care Research

NHS

The Innovations team

The Programme Management Office for NIHR i4i, AI Award, SBRI Healthcare and NHS Cancer Programme is hosted by the Innovations Team at LGC Group. The team is composed of qualified scientists with approximately 90% attaining Master or PhD level and 20% holding an MBA. Scientific backgrounds include pharmaceuticals, chemistry, biochemistry, genetics, molecular biology, in vitro diagnostics and medical devices. They are supported by a specialised IP and Commercial team with 60+ years of experience in tech transfer.

The team manages an investment portfolio of £460m+ across 800+ projects. The portfolio has had three IPOs in recent years, raising a combined value in excess of £216m+ and our companies have secured in excess of £1.6 billion from the VC community.

SBRI HEALTHCARE

Accelerated Access Collaborative

CONTACT US

NIHR i4i
Website: nihr.ac.uk
Twitter: @NIHR_Industry
Linkedin: /NIHR-industry
Email: i4i@nihr.ac.uk

SBRI Healthcare
Website: sbrihealthcare.co.uk
Twitter: @sbrihealthcare
Linkedin: /sbri-healthcare
Email: sbri@lgcgroup.com

Accelerated Access Collaborative
Website: england.nhs.uk/aac/
Twitter: @AACInnovation
Linkedin: /accelerated-access-collaborative
Email: aac.innovation@nhs.net

NIHR | National Institute for Health and Care Research

NHS

SBRI HEALTHCARE

Accelerated Access Collaborative